

Cordova Hills Environmental Impact Statement



Prepared for:



**US Army Corps
of Engineers**®
Sacramento District

NEPA Cooperating Agencies:



U.S. Environmental
Protection Agency



County of
Sacramento



Sacramento Metropolitan
Air Quality Management District

Prepared by:

AECOM

November 2014

Cordova Hills Environmental Impact Statement



Prepared for:



U.S. Army Corps of Engineers, Sacramento District
1325 J Street, Room 1350
Sacramento, California 95814

Contact:

Lisa Gibson
Senior Project Manager
916/557-5250

Prepared by:

AECOM
2020 L Street, Suite 400
Sacramento, CA 95811

Contact:

Drew Sutton
Project Manager
916/414-5800

AECOM

November 2014

TABLE OF CONTENTS

Section	Page
Executive Summary.....	ES-1
ES.1 Introduction.....	ES-1
ES.2 Lead and Cooperating Agencies.....	ES-1
ES.3 Requested Entitlements	ES-1
ES.4 Project Characteristics.....	ES-1
ES.5 Summary of Significant and Potentially Significant Effects and Mitigation Measures.....	ES-2
ES.6 Alternatives	ES-3
ES.7 Known Areas of Controversy.....	ES-6
ES.8 Public Participation and Additional Steps in the NEPA Review Process.....	ES-6
1 Introduction and Statement of Purpose and Need.....	1-1
1.1 Project Requiring Environmental Analysis.....	1-1
1.2 Project History and Planning Context.....	1-3
1.3 Statement of Project Purpose and Need	1-6
1.4 Intended Uses and Type of Environmental Impact Statement	1-7
1.5 Scope and Focus of the Environmental Impact Statement.....	1-8
1.6 Agency Roles and Responsibilities	1-9
1.7 Requirements for Alternatives	1-11
1.8 Public Participation and Additional Steps in the National Environmental Policy Act Review Process.....	1-11
1.9 Significant Areas of Controversy and Issues to be Resolved.....	1-12
1.10 Organization of this Environmental Impact Statement	1-12
1.11 Standard Terminology, Acronyms, and Abbreviations.....	1-13
2 Description of the Proposed Action and Alternatives.....	2-1
2.1 Introduction	2-1
2.2 National Environmental Policy Act Requirements for Evaluation of Alternatives.....	2-1
2.3 No Action Alternative	2-7
2.4 Proposed Action	2-7
2.5 Expanded Drainage Preservation Alternative	2-69
2.6 Expanded Preservation Alternative.....	2-70
2.7 Pilatus Alternative.....	2-88
2.8 Regional Conservation Alternative	2-91
2.9 Alternatives Considered but Not Carried Forward for Further Evaluation.....	2-107
3 Affected Environment, Environmental Consequences, and Mitigation Measures	3.0-1
3.0 Approach to the Environmental Analysis	3.0-1
3.1 Aesthetics	3.1-1
3.2 Agricultural Resources and Land Use.....	3.2-1
3.3 Air Quality	3.3-1
3.4 Biological Resources.....	3.4-1
3.5 Greenhouse Gas Emissions	3.5-1
3.6 Cultural Resources	3.6-1
3.7 Environmental Justice	3.7-1

TABLE OF CONTENTS

<i>continued</i>	Page
3.8 Geology, Soils, Minerals, and Paleontological Resources	3.8-1
3.9 Hazardous Waste and Materials	3.9-39
3.10 Hydrology and Water Quality	3.10-1
3.11 Noise	3.11-1
3.12 Parks and Recreation	3.12-1
3.13 Socioeconomics	3.13-1
3.14 Public Services	3.14-1
3.15 Traffic and Transportation	3.15-1
3.16 Utilities and Service Systems	3.16-1
3.17 Water Supply	3.17-1
4 Other Statutory Requirements	4-1
4.1 Irreversible and Irrecoverable Commitment of Resources	4-1
4.2 Relationship between Short-Term Use of the Environment and the Maintenance and Enhancement of Long-Term Productivity	4-1
5 Consultation and Coordination	5-1
5.1 Public Involvement Under the National Environmental Policy Act and California Environmental Quality Act	5-1
5.2 Coordination with other Federal, State, regional, and local agencies	5-2
6 References	6-1
7 List of Preparers	7-1
7.1 U.S. Army Corps of Engineers, Sacramento District (Lead Agency)	7-1
7.2 AECOM (EIS Preparers)	7-1
8 Index	8-3

Appendices

A	Notice of Intent (NOI)
B	Comments Received on NOI
C	404(b)(1) Alternatives Information
D	Development Agreement
E	Air Quality Modeling Results
F	Air Quality Mitigation Plan
G	Cordova Hills Greenhouse Gas Reduction Plan
H	SHPO Concurrence Letter
I	Drainage Master Plan for Cordova Hills
J	Traffic Analysis Supporting Data
K	Sewer Master Plan for Cordova Hills
L	Cordova Hills Technical Dry Utilities Study
M	Mather Core Area Refinements Memo
N	Conceptual Wetland Mitigation Plan

TABLE OF CONTENTS

continued

Page

Exhibits

Exhibit 2-1	Cordova Hills Site and Vicinity	2-4
Exhibit 2-2	Cordova Hills Site and Specific Plan Areas.....	2-6
Exhibit 2-3	Proposed Cordova Hills Villages.....	2-10
Exhibit 2-4	Proposed Action Land Use Plan	2-11
Exhibit 2-5	Proposed University/College Campus Center – Proposed Action.....	2-17
Exhibit 2-6	Proposed Parks and Open Space – Proposed Action	2-18
Exhibit 2-7	Proposed Trail Plan – Proposed Action	2-20
Exhibit 2-8	Areas of Wetland and Water Avoidance and Effects – Proposed Action.....	2-21
Exhibit 2-9	Proposed Water System – Proposed Action	2-27
Exhibit 2-10	Proposed Drainage Basin Plan – Proposed Action	2-29
Exhibit 2-11	Proposed Off-site Water Tank Location – Proposed Action	2-31
Exhibit 2-12	Proposed Phasing – Proposed Action	2-34
Exhibit 2-13	Expanded Drainage Preservation Alternative Land Use Plan.....	2-71
Exhibit 2-14	Proposed Water System – Expanded Drainage Preservation Alternative.....	2-73
Exhibit 2-15	Proposed Sanitary Sewer Plan – Expanded Drainage Preservation Alternative.....	2-75
Exhibit 2-16	Proposed Drainage Facilities – Expanded Drainage Preservation Alternative.....	2-77
Exhibit 2-17	Expanded Preservation Alternative Land Use Plan	2-79
Exhibit 2-18	Proposed Water System – Expanded Preservation Alternative	2-81
Exhibit 2-19	Proposed Sanitary Sewer Plan – Expanded Preservation Alternative	2-83
Exhibit 2-20	Proposed Drainage Facilities – Expanded Preservation Alternative.....	2-85
Exhibit 2-21	Pilatus Alternative Land Use Plan	2-89
Exhibit 2-22	Proposed Water System – Pilatus Alternative	2-93
Exhibit 2-23	Proposed Sanitary Sewer Plan – Pilatus Alternative	2-95
Exhibit 2-24	Proposed Drainage Facilities – Pilatus Alternative.....	2-97
Exhibit 2-25	Regional Conservation Alternative Land Use Plan	2-99
Exhibit 2-26	Proposed Water System – Regional Conservation Alternative	2-101
Exhibit 2-27	Proposed Sanitary Sewer System – Regional Conservation Alternative.....	2-103
Exhibit 2-28	Proposed Drainage Facilities Regional Conservation Alternative.....	2-105
Exhibit 2-29	Location of North of Glory Lane Off-Site Alternative.....	2-109
Exhibit 2-30	Potential Waters of the United States on the North of Glory Lane Off-Site Alternative Location	2-112
Exhibit 3.0-1	Map of Other Foreseeable Projects.....	3.0-14
Exhibit 3.1-1a	Representative Photographs of the Cordova Hills Site.....	3.1-2
Exhibit 3.1-1b	Representative Photographs of the Cordova Hills Site.....	3.1-3
Exhibit 3.1-1c	Representative Photographs of the Cordova Hills Site.....	3.1-4
Exhibit 3.1-1d	Representative Photographs of the Cordova Hills and Pilatus Sites.....	3.1-5
Exhibit 3.1-1e	Representative Photographs of the Pilatus Site.....	3.1-6
Exhibit 3.1-2	Viewpoint Locations.....	3.1-7
Exhibit 3.2-1	Important Farmland Designations.....	3.2-3
Exhibit 3.2-2	Zoning Designations	3.2-4
Exhibit 3.2-3	Williamson Act Status	3.2-5
Exhibit 3.2-4	Blueprint Preferred Alternative.....	3.2-20
Exhibit 3.4-1	CNDDDB Occurrences Within 5 Miles of Cordova Hills and Pilatus Sites	3.4-3
Exhibit 3.4-2	Wetlands and Waters on the Cordova Hills Site.....	3.4-24
Exhibit 3.4-3	Wetlands and Waters on the Pilatus Site	3.4-25
Exhibit 3.4-4	Areas of Wetland and Water Avoidance and Effects – Proposed Action.....	3.4-35
Exhibit 3.4-5	Areas of Wetland and Water Avoidance and Direct Effects – Expanded Drainage Preservation Alternative	3.4-43
Exhibit 3.4-6	Direct Effects – Expanded Preservation Alternative	3.4-47

TABLE OF CONTENTS

<i>continued</i>	Page
Exhibit 3.4-7	Areas of Wetland and Water Avoidance and Effects – Pilatus Alternative..... 3.4-51
Exhibit 3.4-8	Areas of Wetland and Water Avoidance and Effects – Regional Conservation Alternative 3.4-55
Exhibit 3.4-9	Locations of Federally Listed Species Observations 3.4-57
Exhibit 3.4-10	Locations of Suitable Habitat for Federally Listed Species Observed 3.4-59
Exhibit 3.4-11	Mather Core Area from Vernal Pool Recovery Plan 3.4-65
Exhibit 3.5-1	2009 California GHG Emissions by Sector 3.5-4
Exhibit 3.8-1	Geologic Formations at the Cordova Hills and Pilatus Sites 3.8-3
Exhibit 3.8-2	Soil Types at the Cordova Hills and Pilatus Sites..... 3.8-11
Exhibit 3.8-3	Mineral Resource Classifications of the Cordova Hills and Pilatus Sites 3.8-15
Exhibit 3.10-1	Pre-Development Watershed Map 3.10-2
Exhibit 3.10-2	Floodplain Mapping..... 3.10-3
Exhibit 3.10-3	Post-Development Watershed Map 3.10-43
Exhibit 3.11-1	Common Sound Levels and Sources 3.11-3
Exhibit 3.11-2	Point Source Spreading with Distance..... 3.11-5
Exhibit 3.11-3	Line Source Spreading with Distance..... 3.11-5
Exhibit 3.11-4	Ambient Noise Level Measurement Locations at the Cordova Hills Site 3.11-11
Exhibit 3.11-5	Summary of Cordova Hills Site Ambient Noise Level Measurement Results – Site 1.. 3.11-12
Exhibit 3.11-6	Summary of Cordova Hills Site Ambient Noise Level Measurement Results – Site 2.. 3.11-12
Exhibit 3.11-7	Mather Airport Noise Level Contour Map 3.11-20
Exhibit 3.11-8	Mather Airport Planning Policy Area 3.11-21
Exhibit 3.11-9	Kiefer Landfill and Vicinity (2,000-Foot Buffer)..... 3.11-37
Exhibit 3.11-10	Locations of Closest Noise-Sensitive Receivers to the Cordova Hills Site 3.11-50
Exhibit 3.11-11	Sampled Arrival Flight Tracks for Mather Airport..... 3.11-54
Exhibit 3.11-12	Sampled Departure Flight Tracks for Mather Airport 3.11-55
Exhibit 3.11-13	Sampled Touch-and-Go Flight Tracks for Mather Airport..... 3.11-56

Tables

Table 1-1	Acronyms and Other Abbreviations 1-14
Table 2-1	Summary of Land Use Designations and Sacramento County Permitted Uses – Proposed Action..... 2-8
Table 2-2	Summary Comparison of Proposed Residential Development by Alternative ^a 2-14
Table 2-3	Residential Units and Acreages by Village – Proposed Action 2-15
Table 2-4	Summary Comparison of Commercial Development by Alternative ^a 2-15
Table 2-5	Summary of Wetland Effects by Alternative 2-23
Table 2-6	Acreage and Type of Waters Directly Affected – Proposed Action..... 2-23
Table 2-7	Potential District Energy Plant Phasing and Equipment..... 2-25
Table 2-8	Sacramento County Certified EIR Mitigation Measures, Development Agreement Obligations, and Conditions of Approval 2-35
Table 2-9	Summary of Land Use Designations – Expanded Drainage Preservation Alternative 2-69
Table 2-10	Acreage and Type of Waters Directly Affected – Expanded Drainage Preservation Alternative 2-70
Table 2-11	Summary of Land Use Designations – Expanded Preservation Alternative..... 2-87
Table 2-12	Acreage and Type of Waters Directly Affected – Expanded Preservation Alternative..... 2-87
Table 2-13	Summary of Land Use Designations – Pilatus Alternative..... 2-88
Table 2-14	Acreage and Type of Waters Directly Affected – Pilatus Alternative..... 2-91
Table 2-15	Summary of Land Use Designations – Regional Conservation Alternative..... 2-92
Table 2-16	Acreages and Types of Waters Directly Affected – Regional Conservation Alternative 2-107
Table 2-17	Natural Community Types at the Off-Site Alternative 2-110

TABLE OF CONTENTS

<i>continued</i>	Page
Table 3.0-1	Geographic Scope and Timeframe of Cumulative Effects 3.0-10
Table 3.0-2	Related Residential/Commercial Actions in Eastern Sacramento County and the City of Rancho Cordova 3.0-12
Table 3.3-1	Ambient Air Quality Standards and Designations 3.3-3
Table 3.3-2	Summary of 2008 Estimated Emissions Inventory for Criteria Air Pollutants and Precursors (Sacramento County) 3.3-8
Table 3.3-3	Summary of Annual Ambient Air Quality Data (2010–2012) ^a 3.3-9
Table 3.3-4	California and National Attainment Status for the Sacramento County Portion of the Sacramento Valley Air Basin..... 3.3-10
Table 3.3-5	General Conformity <i>de minimis</i> Thresholds for Projects in Sacramento Valley Air Basin 3.3-20
Table 3.3-6	Annual Proposed Action Construction Emissions 3.3-23
Table 3.3-7	Proposed Action Operational Emissions 3.3-25
Table 3.3-8	Annual Pilatus Alternative Construction Emissions..... 3.3-28
Table 3.3-9	Proposed Action Daily Construction Emissions 3.3-30
Table 3.3-10	Proposed Action Operational Emissions 3.3-32
Table 3.3-11	Pilatus Alternative Daily Construction Emissions..... 3.3-34
Table 3.4-1	Special-status Plant Species..... 3.4-5
Table 3.4-2	Special-status Wildlife Species..... 3.4-10
Table 3.4-3	Summary of Direct Wetland Effects by Project Alternative*..... 3.4-31
Table 3.4-4	Summary of Direct Off-Site Wetland Effects from Proposed Roadways..... 3.4-31
Table 3.4-5	Acreages of Direct Wetland Effects – Proposed Action..... 3.4-33
Table 3.4-6	Acreages and Types of Waters of the U.S. Affected – Expanded Drainage Preservation Alternative 3.4-42
Table 3.4-7	Acreages and Types of Waters of the U.S. Affected – Expanded Preservation Alternative 3.4-45
Table 3.4-8	Acreages and Types of Waters of the U.S. Affected – Pilatus Alternative 3.4-49
Table 3.4-9	Acreages and Types of Wetland Affected – Regional Conservation Alternative..... 3.4-53
Table 3.4-10	Acreage of Existing, Directly Affected, and Indirectly Affected Habitat for Listed Vernal Pool Branchiopods – Proposed Action 3.4-62
Table 3.4-11	Acreage of Existing, Directly Affected, and Indirectly Affected Habitat for Listed Vernal Pool Branchiopods- Expanded Drainage Preservation Alternative 3.4-71
Table 3.4-12	Acreage of Existing, Directly Affected, and Indirectly Affected Habitat for Listed Vernal Pool Branchiopods – Expanded Preservation Alternative 3.4-73
Table 3.4-13	Acreage of Existing, Directly Affected, and Indirectly Affected Habitat for Listed Vernal Pool Branchiopods – Pilatus Alternative 3.4-75
Table 3.4-14	Acreage of Existing, Directly Affected, and Indirectly Affected Habitat for Listed Vernal Pool Branchiopods – Regional Conservation Alternative 3.4-78
Table 3.4-15	Summary of Swainson’s Hawk Foraging Habitat Removed and Preserved by Alternative 3.4-80
Table 3.5-1	Proposed Action Construction Emissions..... 3.5-12
Table 3.5-2	Proposed Action Annual Operational Emissions..... 3.5-14
Table 3.5-3	Pilatus Alternative Construction Emissions..... 3.5-19
Table 3.7-1	Racial Composition and Ethnicity in the Affected Area, 2010..... 3.7-2
Table 3.7-2	Median Household Income, Per Capita Income, and Poverty Levels for the Affected Area, 2011..... 3.7-4
Table 3.8-1	Regional Faults with Evidence of Activity During Holocene Time 3.8-6
Table 3.8-2	Soil Characteristics at the Cordova Hills and the Pilatus Site 3.8-9
Table 3.8-3	California Division of Mines and Geology Mineral Land Classification System 3.8-13
Table 3.10-1	Water Quality Parameters in Laguna Creek 3.10-9

TABLE OF CONTENTS

<i>continued</i>	Page
Table 3.10-2	2011/2012 Exceedances of Water Quality Objectives in Laguna Creek at SR 99/Stockton Boulevard..... 3.10-9
Table 3.10-3	Surface Water and Groundwater Quality Standards of Conventional Contaminants 3.10-14
Table 3.10-4	Modeled Peak Developed Conditions Storm Detention Basin Volume and Size ^a 3.10-32
Table 3.10-5	Cordova Hills Site Water Quality Basins and Volumes 3.10-44
Table 3.10-6	Expected Pollutant Removal Efficiency of Structural BMPs 3.10-49
Table 3.10-7	Amount of Developed and Undeveloped Areas by Alternative 3.10-53
Table 3.11-1	Approximate Relationship Between Increases in Environmental Noise Level and Human Perception..... 3.11-2
Table 3.11-2	Human Response to Different Levels of Groundborne Noise and Vibration 3.11-8
Table 3.11-3	Summary of Cordova Hills Site Ambient Noise Level Measurement Results – April 10-11, 2013 3.11-13
Table 3.11-4	Summary of Existing Traffic Noise Levels and Contour Distances 3.11-13
Table 3.11-5	Summary of EPA-Recommended Noise Level Standards 3.11-15
Table 3.11-6	Summary of Federal Transit Administration Groundborne Vibration Criteria 3.11-16
Table 3.11-7	Summary of Federal Transit Administration Vibration Damage Criteria 3.11-17
Table 3.11-8	Noise Standards for New Uses Affected by Traffic and Train/Rail Noise – Sacramento County General Plan Noise Element..... 3.11-22
Table 3.11-9	Summary of Non-Transportation Noise Level Standards – Sacramento County General Plan Noise Element 3.11-23
Table 3.11-10	Sacramento County General Plan Noise Element “Significant” Roadway Noise Levels..... 3.11-24
Table 3.11-11	Sacramento County Noise Ordinance Criteria..... 3.11-26
Table 3.11-12	Summary of Traffic Noise Levels – Cumulative Plus Project (Proposed Action) 3.11-30
Table 3.11-13	Summary of Traffic Noise Levels and Traffic Noise Level Increases – Cumulative (With and Without Project)..... 3.11-39
Table 3.11-14	Summary of Traffic Noise Levels and Traffic Noise Level Increases – Cumulative Condition (Pilatus Alternative) 3.11-43
Table 3.11-15	Representative Vibration Source Levels for Construction Equipment 3.11-46
Table 3.11-16	Summary of Calculated Construction Noise Levels and Significance Assessment 3.11-49
Table 3.11-17	Summary of Cumulative Traffic Noise Effects (Proposed Action) 3.11-60
Table 3.11-18	Summary of Cumulative Traffic Noise Effects (Pilatus Alternative)..... 3.11-63
Table 3.12-1	Parkland Acreage Calculations by Alternative 3.12-5
Table 3.13-1	Historical, Current, and Projected Population for the Primary Study Area, Sacramento County, and Nearby Cities, 1990 Through 2050 3.13-2
Table 3.13-2	Housing Trends and Characteristics of the Study Area, Fresno and Merced Counties, and Nearby Cities and California, 2000–2010..... 3.13-2
Table 3.13-3	Median Household Income, Per Capita Income, and Poverty Levels for the Affected Area, 2011 3.13-3
Table 3.13-4	Labor Force for Sacramento County and California, 1990–2010..... 3.13-4
Table 3.13-5	Labor Force and Employment for Sacramento County and California, 2007 Through 2010 3.13-5
Table 3.13-6	Top Employers in Sacramento County, 2012 3.13-6
Table 3.13-7	Industry Makeup and Growth Projections by Sector for Sacramento Metropolitan Area and California..... 3.13-7
Table 3.13-8	Revenues and Expenditures in Sacramento County, 2007–2010..... 3.13-9
Table 3.13-9	Cordova Hills Specific Plan Projected Population, Dwelling Units, and Jobs at Build-Out 3.13-10
Table 3.14-1	Elk Grove Unified School District Enrollment, 2012–2013 3.14-3
Table 3.14-2	Cordova Hills Police Officer Projections 3.14-7
Table 3.14-3	Student-Yield Generation Rates for the Elk Grove Unified School District 3.14-7

TABLE OF CONTENTS

<i>continued</i>	Page
Table 3.14-4	Cordova Hills Elementary, Middle, and High School Student Projections 3.14-7
Table 3.15-1	Locations of Detailed Traffic Analyses 3.15-2
Table 3.15-2	Intersection Levels of Service – Existing Conditions 3.15-6
Table 3.15-3	Roadway Levels of Service – Existing Conditions 3.15-8
Table 3.15-4	Freeway Segment Levels of Service – Existing Conditions 3.15-10
Table 3.15-5	Interchange Level of Service – Existing Conditions 3.15-11
Table 3.15-6	Cumulative Priority Improvements (Fully Funded) for EIR/EIS Analyses in Eastern Sacramento County 3.15-17
Table 3.15-7	Additional Roadway Improvements Included in the Cumulative Plus Proposed Action Scenario 3.15-20
Table 3.15-8	Daily Person Trips – Proposed Action 3.15-22
Table 3.15-9	Daily and Peak-Hour External Vehicle Trips – Proposed Action 3.15-22
Table 3.15-10	Daily Person Trips – Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives 3.15-23
Table 3.15-11	Daily and Peak-Hour External Vehicle Trips – Pilatus Alternative 3.15-23
Table 3.15-12	Intersection Levels of Service—Cumulative Conditions 3.15-29
Table 3.15-13	Roadway Levels of Service—Cumulative Conditions 3.15-31
Table 3.15-14	Freeway Segment Levels of Service—Cumulative Conditions 3.15-34
Table 3.15-15	Interchange Level of Service—Cumulative Conditions 3.15-35
Table 3.15-16	Summary of 2035 Cumulative Conditions with and without Connector 3.15-55
Table 3.16-1	SRCSD Estimated Average Dry-Weather Flow and Peak Wet-Weather Flow, 2000-2020 3.16-4
Table 3.16-2	SMUD Service Area Electrical Consumption and Forecast 3.16-6
Table 3.16-3	PG&E Service Area Natural Gas Consumption and Forecast 3.16-8
Table 3.17-1	SCWA Surface Water Supplies Based on Hydrologic Year Conditions 3.17-2
Table 3.17-2	Comparison of Water Supply and Demand in Zone 40 (2010-2050) ¹ 3.17-5
Table 3.17-3	Existing and Proposed Groundwater Supplies for the North Service Area 3.17-6
Table 3.17-4	Cordova Hills Water Demands – Proposed Action (2010-2030) 3.17-12
Table 3.17-5	Comparison of Water Supply and Demand – Proposed Action (afy) 3.17-13

TABLE OF CONTENTS

continued

Page

This page intentionally left blank.

EXECUTIVE SUMMARY

ES.1 INTRODUCTION

This executive summary highlights the major areas of importance in the environmental analysis for the proposed Cordova Hills project, as required by 40 Code of Federal Regulations (CFR) Section 1502.12 of the National Environmental Policy Act (NEPA). As stated in NEPA Section 1502.12, “each environmental impact statement shall contain a summary which adequately and accurately summarizes the statement. The summary shall stress the major conclusions, areas of controversy (including issues raised by agencies and the public), and the issues to be resolved (including the choice among alternatives).” As required by NEPA regulations, this Executive Summary includes (1) a summary description of the Proposed Action, (2) identification of the alternatives evaluated, and (3) a discussion of the areas of controversy associated with the project. For additional detail regarding specific issues, please consult Chapter 2, “Description of the Proposed Action and Alternatives”; Chapter 3, “Affected Environment and Environmental Consequences”; and Chapter 4, “Other Statutory Requirements.”

ES.2 LEAD AND COOPERATING AGENCIES

This document is a draft environmental impact statement (Draft EIS) prepared for the Cordova Hills project (the “Proposed Action” for purposes of NEPA).

The U.S. Army Corps of Engineers (USACE), Sacramento District, is the Federal lead agency under NEPA. The U.S. Environmental Protection Agency (EPA), Sacramento County, and the Sacramento Metropolitan Air Quality Management District (SMAQMD) are Cooperating Agencies under NEPA.

Other local or regional agencies who may have jurisdiction over certain aspects of the project are listed in Chapter 1, “Introduction.”

ES.3 REQUESTED ENTITLEMENTS

The applicant is requesting a Department of the Army permit under Section 404 of the Clean Water Act for discharges into waters of the United States. In addition to the authorizations and approvals requested from USACE, permits and other approval actions from the following Federal, state, regional, and local agencies may be required:

- ▶ U.S. Environmental Protection Agency
- ▶ U.S. Fish and Wildlife Service
- ▶ California Department of Fish and Wildlife
- ▶ Central Valley Regional Water Quality Control Board
- ▶ California Office of Historic Preservation
- ▶ Sacramento Metropolitan Air Quality Management District

ES.4 PROJECT CHARACTERISTICS

ES.4.1 PROJECT LOCATION

The Cordova Hills project site is located in eastern Sacramento County, south of U.S. Highway 50 (U.S. 50), adjacent to the city limits of the city of Rancho Cordova (see Exhibit 2-1 in Chapter 2, “Description of the

Proposed Action and Alternatives). The property is located southeast of Douglas Road, south of Glory Lane, and east of Grant Line Road (see Exhibits 1-2 through 1-6 in Chapter 1, “Introduction”).

ES.4.2 ELEMENTS OF THE PROJECT

The applicant group is seeking authorization and permit(s) from USACE to place dredged or fill material into 40.15 acres of waters of the U.S., including off-site work in furtherance of the Cordova Hills Master Plan. The Cordova Hills Master Plan would be a mixed-use development on approximately 2,669 acres adjacent to the city of Rancho Cordova, California in eastern Sacramento County.

Additional details are contained in Chapter 1, “Introduction” and Chapter 2, “Description of the Proposed Action and Alternatives.”

ES.5 SUMMARY OF SIGNIFICANT AND POTENTIALLY SIGNIFICANT EFFECTS AND MITIGATION MEASURES

The following sections present a summary of significant and potentially significant effects and proposed mitigation measures that would avoid, eliminate, minimize, or reduce potentially significant and significant effects. For detailed descriptions of the effects of the Proposed Action and the Alternatives, and mitigation measures to reduce those effects, please see Sections 3.1 through 3.17 in Chapter 3, “Affected Environment and Environmental Consequences.”

ES.5.1 AESTHETICS

Effects under the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives related to substantial alteration of a scenic vista, degradation of visual character, and skyglow would be significant and unavoidable because no additional feasible mitigation measures are available to reduce these effects to a less-than-significant level.

ES.5.2 AIR QUALITY

The operational emissions under the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives after mitigation would continue to exceed the applicable *de minimis* threshold for ROG and NO_x after implementation of mitigation and would conflict with or obstruct implementation of the applicable air quality plan and would cause or contribute substantially to an exceedance of a National Ambient Air Quality Standard.

ES.5.3 BIOLOGICAL RESOURCES

The significance of effects to biological resources (jurisdictional waters, Federally listed species and their habitat, and habitat for special-status plants and wildlife) associated with the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives would be reduced with the implementation of the proposed mitigation measures, but could remain potentially significant. Direct and indirect effects to waters of the U.S., including wetlands, Federally listed vernal pool fairy shrimp, vernal pool tadpole shrimp, and Sacramento Orcutt grass could be potentially significant and unavoidable in the absence of additional mitigation measures and an approved wetland mitigation plan.

ES.5.4 GREENHOUSE GAS EMISSIONS

Per capita transportation emissions associated with the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives would exceed Sacramento County's April 2011 threshold of significance.

ES.5.5 TRAFFIC AND TRANSPORTATION

Significant effects were identified to the following intersections, roadway segments, and freeway segments for the alternatives under consideration:

- ▶ Intersection of Grant Line Road and Sunrise Boulevard;
- ▶ Intersection of Zinfandel Drive and White Rock Road;
- ▶ Intersection of Sunrise Boulevard and Douglas Road;
- ▶ Intersection of Grant Line Road and Douglas Road;
- ▶ Intersection of Grant Line Road and North Loop Road;
- ▶ Intersection of Grant Line Road and University Boulevard;
- ▶ Intersection of Zinfandel Drive and International Boulevard;
- ▶ Intersection of Sunrise Boulevard and International Boulevard
- ▶ Jackson Road/State Route 16 between Watt Avenue and Bradshaw Road;
- ▶ Sunrise Boulevard between U.S. 50 and White Rock Road;
- ▶ Zinfandel Drive between U.S. 50 and White Rock Road;
- ▶ Zinfandel Drive between International Drive and Douglas Road;
- ▶ Eastbound U.S. 50 from Watt Avenue to Bradshaw Road;
- ▶ Eastbound U.S. 50 from Mather Field Road to Zinfandel Drive;
- ▶ Eastbound U.S. 50 from Sunrise Boulevard to Rancho Cordova Parkway;
- ▶ Westbound U.S. 50 from Rancho Cordova Parkway to Sunrise Boulevard;
- ▶ Westbound U.S. 50 from Zinfandel Drive to Mather Field Road;
- ▶ Westbound U.S. 50 from Mather Field Road to Bradshaw Road;
- ▶ Westbound U.S. 50 from Bradshaw Road to Watt Avenue;
- ▶ Westbound U.S. 50 from Watt Avenue to Power Inn Road/Howe Avenue; and
- ▶ Westbound U.S. 50 Offramp at Watt Avenue.

These effects are described in more detail under Effects 3.15-1a through 3.15-1q and 3.15-2 in Section 3.15, "Traffic and Transportation." Although mitigation measures are proposed for these effects, in some cases, required mitigation measures would not be feasible due to conflict with applicable general plans or to technical or spatial/environmental considerations. Furthermore, the project applicant and/or USACE (as the Federal lead agency) are not able to direct implementation of some mitigation measures, as they would require actions by other jurisdictions not within their control.

ES.6 ALTERNATIVES

The NEPA Council on Environmental Quality Regulations (40 CFR 15012.14) require that an EIS describe a range of reasonable alternatives to the Proposed Action that could feasibly attain the basic objectives of the project and avoid and/or lessen the environmental effects of the project. Chapter 2, "Description of the Proposed Action and Alternatives," of this EIS provides a more detailed discussion of the alternatives summarized below. A No-Action

Alternative, as required under NEPA, is also part of the alternatives evaluated in this EIS. A No USACE Permit Alternative is not evaluated in this EIS because the project could not be implemented without a permit.

ES.6.1 NO-ACTION ALTERNATIVE

Under the No Action Alternative, the Cordova Hills site would not be developed and a Section 404 permit for wetland fill would not be required from USACE. No physical changes to the Cordova Hills site would occur. Due to the configuration of waters on the Cordova Hills site and the topography, USACE determined that it is most appropriate to analyze a no-action alternative where no physical changes are made to the Cordova Hills site. Consideration of a “no action” alternative that evaluates the construction of a mixed-use development while avoiding all waters on the Cordova Hills site would be infeasible due to the widespread location and configuration of waters on the site and the topography of the site. These considerations would prohibit the construction of a mixed-use development on the site.

ES.6.2 PROPOSED ACTION

The Proposed Action includes development of the Cordova Hills Master Plan, a mixed-use development on approximately 2,669 acres adjacent to the City of Rancho Cordova, California in eastern Sacramento County. The Proposed Action represents a Federal action because it would require the issuance of a Section 404 Clean Water Act permit for discharges into waters of the U.S. Prior to a decision on the Section 404 permit application, USACE must ensure compliance with Section 7 of the Federal Endangered Species Act for potential take of endangered or threatened species, and require issuance of a water quality certification under Section 401 of the Clean Water Act from the State of California’s Central Valley Regional Water Quality Control Board.

Under the Proposed Action, approximately 39.79 acres of jurisdictional waters of the U.S. would be permanently filled on the Cordova Hills site to accommodate development, including 15.64 acres of vernal pools, 6.52 acres of intermittent drainages, 3.06 acres of seasonal wetlands, 13.87 acres of seasonal wetland swales, 0.01 acre of seep, and 0.69 acre of stock ponds. This represents approximately 45 percent of all wetlands and other waters of the U.S. on the Cordova Hills site. In addition, approximately 0.36 acre of wetlands and waters would be filled as a result of off-site road work. Thus, the total direct effects to waters of the U.S. associated with the Proposed Action would be an estimated 40.15 acres.

ES.6.3 EXPANDED DRAINAGE PRESERVATION ALTERNATIVE

Under the Expanded Drainage Preservation Alternative, a substantially larger portion of the on-site drainages would be preserved as compared to the Proposed Action, particularly in the drainage that trends south/southwest through the central portion of the Cordova Hills site (which ultimately connects to Deer Creek south of the Cordova Hills site). This drainage would also have a 50-foot buffer zone from the adjacent residential development. The south/southwest-trending drainage in the eastern portion of the Cordova Hills site would also have increased preservation. This alternative would result in an estimated total of 921 acres of preservation, as compared to the estimated 539 acres preserved under the Proposed Action.

Under the Expanded Drainage Preservation Alternative, 18.19 acres of jurisdictional waters of the U.S. would be filled, as compared to 39.79 acres that would be filled under the Proposed Action (a difference of 21.60 fewer acres filled). A total of 70.92 acres of waters of the U.S. would be preserved under this alternative, as compared to 49.48 acres preserved under the Proposed Action.

ES.6.4 EXPANDED PRESERVATION ALTERNATIVE

Under the Expanded Preservation Alternative, substantially more drainage swales would be preserved as compared to the Proposed Action. However, this alternative would also preserve the entire northwestern portion of the Cordova Hills site, which contains the largest concentration of wetland habitat. All preserved areas on the Cordova Hills site would have a 50-foot buffer zone from adjacent land uses. This alternative would result in an estimated 1,188 acres of preservation, as compared to the estimated 539 acres preserved under the Proposed Action.

Under the Expanded Preservation Alternative, 9.38 acres of jurisdictional waters of the U.S. would be filled, as compared to 39.79 acres that would be filled under the Proposed Action (a difference of 30.41 fewer acres filled). A total of 79.72 acres of waters of the U.S. would be preserved under this alternative, as compared to 49.48 acres preserved under the Proposed Action.

ES.6.5 PILATUS ALTERNATIVE

The Pilatus Alternative consists of the Cordova Hills site plus the Pilatus site, an approximately 882.5-acre property located to the north, and thereby increases the total Cordova Hills site acreage from approximately 2,668.5 to 3,551.0 acres. The Pilatus site is owned by the project applicant and the inclusion of this northern parcel for the Pilatus Alternative is a plausible extension of development for the project applicant.

A larger area of the drainage that trends south/southwest through the central portion of the Cordova Hills site would be preserved; this drainage also extends north into the Pilatus site, and it would be preserved there as well. In addition, the western preserve site (adjacent to the proposed Town Center) would be somewhat reconfigured and increased in size by approximately 36 acres. A total of approximately 962 acres (out of the approximately 3,551-acre Pilatus site) would be preserved under this alternative, as compared to the approximately 539 acres preserved (out of the approximately 2,668.5-acre Cordova Hills site) under the Proposed Action.

Under the Pilatus Alternative, 33.17 acres of jurisdictional waters of the U.S. would be filled out of a total of 109.82 acres present. Under the Proposed Action, 39.79 acres would be filled out of a total of 89.11 acres present on the Cordova Hills site. Thus, under the Pilatus Alternative, 7.90 fewer overall acres of jurisdictional waters of the U.S. would be filled.

ES.6.6 REGIONAL CONSERVATION ALTERNATIVE

The Regional Conservation Alternative was developed to avoid development specifically in the areas that would be preserved consistent with the Proposed Reserve System identified in the October 28, 2013 notice of preparation (NOP) published by Sacramento County for the proposed South Sacramento Habitat Conservation Plan (SSHCP). One of the key development requirements of the Proposed Action or Alternatives is the construction of a large commercial center that would provide jobs and generate revenue for the County and the proposed Cordova Hills community. For a large commercial center to be viable, easy access and high visibility from the major travel corridor in the vicinity are required; in this case, Grant Line Road. Under this alternative, the central portion of the proposed Town Center area has been reconfigured to be more linear in nature in a north-south orientation along Grant Line Road. Along with this reconfiguration, the proposed wetland preserve area would be expanded to the west to more closely match the preservation areas identified in the NOP for the proposed SSHCP. Development in the central and eastern portions of the Cordova Hills site would remain the same as that contemplated under the Proposed Action.

Under the Regional Conservation Alternative, 38.41 acres of jurisdictional waters of the U.S. would be filled, as compared to 39.79 acres that would be filled under the Proposed Action (a difference of 1.38 fewer acres filled). Avoided areas in the central and eastern portions of the Cordova Hills site would remain the same as those contemplated under the Proposed Action. A total of 50.69 acres of waters of the U.S. would be preserved under this alternative, as compared to 49.48 acres preserved under the Proposed Action.

ES.7 KNOWN AREAS OF CONTROVERSY

NEPA regulations (40 CFR 1502.12) require that the summary of an EIS identify areas of controversy known to the lead agency, including issues raised by agencies and the public. During the public comment period for the NOP/ Notice of Intent, various comment letters were received regarding the project. Appendix B of this EIS includes a summary of the public scoping process as well as summaries of the comments received in writing and at the public meeting held on September 13, 2011. In general, areas of potential controversy known to USACE and the project applicant consist of air quality, biological resources, greenhouse gas emissions, water quality, and water supply. These issues were considered in the preparation of this EIS and, where appropriate, are addressed in the environmental effect analyses presented in Chapters 3 and 4.

ES.8 PUBLIC PARTICIPATION AND ADDITIONAL STEPS IN THE NEPA REVIEW PROCESS

This Draft EIS is being distributed to interested agencies, stakeholder organizations, and individuals. This distribution ensures that interested parties have an opportunity to express their views regarding the environmental effects of the Proposed Action or the alternatives, and to ensure that information pertinent to permits and approvals is provided to decision makers for the Federal lead agency and NEPA cooperating agencies. This document is available for review online at USACE's web site, <http://www.spk.usace.army.mil/Missions/Regulatory>. A CD containing the EIS files will be provided upon request. The Draft EIS is being distributed for a 45-day review period that will end on January 14, 2015. Comments should be sent to the following address:

Lisa Gibson
U.S. Army Corps of Engineers, Sacramento District, Regulatory Branch
1325 J Street, Room 1350
Sacramento, CA 95814-2922
E-mail: Lisa.M.Gibson2@usace.army.mil

If comments are provided via e-mail, please include the project title in the subject line, attach comments in MS Word format, and include the commenter's mailing address.

A public meeting/hearing on the Draft EIS will be conducted by USACE on December 17, 2014 from 5:30 p.m. to 6:30 p.m. at Rancho Cordova City Hall, 2729 Prospect Park Drive, Rancho Cordova, California 95670. Comments on the Draft EIS may be provided during the public meeting/hearing, and written comments may also be provided at any time during the comment period as described above.

Once all comments have been assembled and reviewed, responses will be prepared to address significant environmental issues that have been raised in the comments. The responses will be included in the Final EIS.

1 INTRODUCTION AND STATEMENT OF PURPOSE AND NEED

This document is an environmental impact statement (EIS) prepared for the Cordova Hills project (the “Proposed Action” in compliance with the National Environmental Policy Act [NEPA]). This EIS has been prepared by the U.S. Army Corps of Engineers (USACE), Sacramento District, as Federal lead agency under NEPA. The EIS is a document intended to comply with NEPA. See 33 Code of Federal Regulations (CFR) Part 230 (USACE NEPA regulations) and 33 CFR Part 325, Appendix B (“NEPA Implementation Procedures for the [USACE] Regulatory Program”).

In its complete form, an EIS is composed primarily of a draft document known as a draft EIS (DEIS), and a final EIS (FEIS) which is comprised of the lead agency’s written responses to public and public-agency comments on the DEIS and any edits/revisions to the DEIS. This EIS evaluates the potential adverse effects on the human and natural environment resulting from implementation of four alternatives on the proposed Cordova Hills site, and one alternative on the proposed Cordova Hills and Pilatus sites to the north. The EIS identifies mitigation measures and alternatives that may avoid, minimize, rectify, reduce, or compensate for adverse effects of each of the alternatives evaluated. Following public review of the DEIS, an FEIS will be prepared, in which the lead agency will provide responses to significant comments relating to the analysis provided in the DEIS.

This chapter of the EIS provides information on the following:

- ▶ the project requiring environmental analysis (i.e., a synopsis);
- ▶ project purpose and need;
- ▶ history and planning context of the project;
- ▶ type, purpose, and intended uses of the EIS;
- ▶ scope and focus of the EIS;
- ▶ agency roles and responsibilities and required permits and approvals;
- ▶ organization of the EIS;
- ▶ documents relied on in the EIS; and
- ▶ standard terminology and acronyms.

1.1 PROJECT REQUIRING ENVIRONMENTAL ANALYSIS

The applicant group, the Cordova Hills Ownership Group hereinafter referred to as the “project applicant,” proposes development of approximately 2,669 acres of land in southeastern Sacramento County (County), south of U.S. Highway 50 (U.S. 50), east of the Rancho Cordova city limits. The property is located south of Glory Lane, southeast of Douglas Road, north of Jackson Highway (i.e., State Route 16), and east of Grant Line Road (see Exhibits 2-1 and 2-2 in Chapter 2, “Description of the Proposed Action and Alternatives”).

The project proposes an urban community with a mix of residential uses, office space, retail and commercial space, a university/college campus, schools, parks and other open space including natural preserves, a trail network, and associated infrastructure and roads. The proposed Cordova Hills master plan depicts six distinct districts/villages (i.e., Town Center, University Village, Ridgeline, East Valley, Creekside, and Estates) (see Exhibit 2-3 in Chapter 2, “Description of the Proposed Action and Alternatives”), each with a distinct design character and mix of uses.

The Proposed Action provides for the development of a maximum of 8,000 residential units in six land use classifications at various densities; an additional 1,010 on-campus university housing units; approximately 1,349,419 square feet of commercial space; 1,870,000 square feet of university-related facilities; three elementary schools and one joint middle/high school site on a total of approximately 104 acres; approximately 106 acres of parks, including 99 acres of sports, community and neighborhood parks and 7 acres of recreation developed open space; approximately 150 acres of paseos and detention basins; and approximately 687 acres of avoided open space areas and agriculture areas.

Under the Proposed Action, approximately 39.63 acres of jurisdictional waters of the U.S. would be permanently filled to accommodate project development, including 15.64 acres of vernal pools, 6.36 acres of intermittent drainages, 3.06 acres of seasonal wetlands, 13.87 acres of seasonal wetland swales, 0.01 acre of seep, and 0.69 acre of stock ponds. In addition, approximately 0.36 acre of wetlands and other waters of the U.S. would be filled as a result of off-site road work. Thus, the total direct effects to waters of the U.S. associated with the Proposed Action would be 39.99 acres, which is approximately 44 percent of all wetlands and other waters of the U.S. on site. Forty six percent of the 89.11 acres of jurisdictional waters within the Cordova Hills site, or 49.48 acres, would be preserved under the Proposed Action, within 539 acres of designated "Avoided Areas," which would be placed under a conservation easement.

The largest of the avoided areas, the western plateau avoided area, comprises a total of approximately 381 acres in the northwestern portion of the Cordova Hills site containing the highest concentration of wetlands. Another avoided area is proposed to encompass the central drainage channel and some of the wetlands adjacent and connected to the drainage. This central drainage avoided area comprises approximately 112 acres, including 18 acres in the southwest corner of the proposed University/College Campus Center. An additional 46 acres would be designated as avoided area along the eastern and southeast boundaries of the Cordova Hills site within the Federal Emergency Management Agency (FEMA) 100-year floodplain of Carson Creek. This area is referred to as the Carson Creek avoided area. Each of the avoided areas would have a minimum 50-foot buffer area between the avoided area boundary and adjacent development. Various edge treatments would be applied in the buffer areas, but all would be a minimum of 50 feet wide (from the avoided area boundary) and include a drainage swale, an 8-foot naturalized planting area, a pedestrian trail, and a second drainage swale (ECORP 2013). The drainage swales would provide a hydrological barrier from urban runoff/nuisance flows and the naturalized planting would be located on the development side of the edge treatment to reduce potential urban edge effects on wildlife and habitat (ECORP 2013). The edge treatment for the central drainage avoided area would be 100 feet wide from the avoided area boundary except in a few isolated areas, such as the road crossings.

Of the 89.11 acres of jurisdictional waters within the Cordova Hills site, 49.48 acres would be preserved under the Proposed Action within the designated avoided areas, which would be placed under a conservation easement. Waters of the U.S. that would be preserved in the avoided areas consist of 10.21 acres of intermittent drainage, 1.71 acres of seasonal wetland, 3.24 acres of seasonal wetland swale, 31.87 acres of vernal pools, and 0.17 acre of Carson Creek, and 0.83 acre of pond.

1.2 PROJECT HISTORY AND PLANNING CONTEXT

The project applicant acquired the Cordova Hills site in a series of purchases commencing in 2004.

In May 2008, the local land use authority (the County) made a determination to accept the Cordova Hills application to move the boundary of the County's Urban Policy Area (UPA) to include the Cordova Hills site. To allow the application to be processed, the Sacramento County Board of Supervisors needed to follow its policy on expansion of the UPA contained in the then existing Sacramento County General Plan. This policy provided that no application shall be processed unless:

The property adjoins property designated for urban land uses and its shape and extent comprise a logical extension of infrastructure and services; and

There is clear evidence that infrastructure capacity and service availability exist or can be easily extended to the property; and

The Board finds that the unincorporated area land supply within the Urban Policy Area contains an insufficient land supply to accommodate a 15 year supply of growth; or

The Board determines that the property represents a minor and logical extension of the Urban Policy Area for the purpose of preparation of a Specific Plan or other development request. (1993 Sacramento General Plan Policy LU-75)

In making this determination, the County Board of Supervisors adopted several findings to support and justify the acceptance of the Cordova Hills application. The adopted findings made by the County Board of Supervisors consisted of the following (County of Sacramento 2008):

- 1) The proposed application and subject property represents a minor and logical extension of the Urban Policy Area (UPA) for the purpose of preparation of a Specific Plan or other development request in that:
 - a) The subject property is approximately 2,366 acres, of which less than 2,000 acres are considered available for urban uses.
 - b) While the proposed application would increase the total area within the UPA by 2.6 percent, it would only expand the developable area within the UPA by approximately 2 percent (+/- 0.2 percent).
 - c) Accepting the proposed application still leaves more than 45,000 acres between the existing UPA and the Urban Services Boundary (USB) that may be considered for future urban development, including land along the Jackson Highway Corridor, within the remaining Grant Line East area, Aerojet property south of Highway 50, small pockets south of Elk Grove, and within the communities of Orangevale and Rio Linda/Elverta.
 - d) The property is contiguous to the existing UPA, to planned urban development, and to existing or planned infrastructure necessary to serve development in the project area. The size and location of the subject property represents a logical extension of the UPA and will allow for the logical extension of necessary infrastructure and services.

- e) The entire property is under single ownership, allowing for preparation of a Specific Plan or other master planning effort to occur in an efficient, coherent and cohesive manner.
- 2) Accepting this application would result in an extraordinary benefit to Sacramento County, as it would allow for the near-term accommodation of a private university, the University of Sacramento, on 240 acres located within the subject property. At full build out, the University would accommodate up to 7,000 students and 800 faculty members, resulting in approximately \$1 billion in regional economic activity and a significant education and cultural amenity for the County and the region. No other location in the County attends such a unique and important opportunity.¹
- 3) Accepting this application would also afford the County the unique opportunity to:
 - a) ‘Master plan’ large, contiguous habitat preserves totaling at least 450 acres² within the project area to help successfully implement the South Sacramento Habitat Conservation Plan (SSHCP) and satisfy Federal and state law.
 - b) Address the transition from the urban area within the USB to the rural area outside the USB by creating an agricultural-residential, agricultural or open space buffer inside the USB, thereby ensuring that urban uses do not abut rural uses and that the area outside the USB remains rural in nature.
 - c) Incorporate Blueprint Principles into the project design including: transportation choices, housing choices, compact development, mixed land uses, natural resource conservation, and quality design.

Since the date of approval authorizing the acceptance of the Cordova Hills application, the project applicant has worked collaboratively with the County and its staff to design a master-planned sustainable community with a college/university theme. Some of the sustainability factors include heightened residential densities, over 75 miles of pedestrian and bicycle trails, on-site renewable energy sources, Neighborhood Electric Vehicle (NEV) compatibility, and a communitywide transit system that connects to Sacramento Regional Transit District’s Light Rail system with 15-minute headways at peak hours.

In December 2009, the County Board of Supervisors approved the filing of an amendment to the project application. The amendment provided for an additional 241 acres of land in the “bufferlands” to be included in the project master plan. The bufferlands area is broadly defined as land adjoining the County’s Kiefer Landfill. The Proposed Action contemplates development of a sports park, solar farm, community gardens, and a corporation yard in the bufferlands adjacent to Kiefer Landfill.

In recognition of the existence of jurisdictional waters of the United States on the Cordova Hills site, the project applicant filed an application for a Department of the Army Clean Water Act Section 404 Permit with USACE in April 2008 (SPK-2004-00116). A pre-application meeting was first held in May 2006 and a subsequent pre-application meeting was held on February 7, 2008. A post-application meeting took place in July 2008 with USACE, the project applicant, and other regulatory agencies. Through those meetings, it was determined by the

¹ The University of Sacramento is no longer an expected user of the higher education campus proposed as part of the project. However, use of the site for an institution of higher education that grants college-level degrees remains a component of the project.

² The Proposed Action would include a total of approximately 539 acres of habitat preserve, but the largest contiguous patch would be approximately 381 acres. See Section 3.4, “Biological Resources,” for more details.

regulatory agencies that the size and configuration of the originally proposed on-site wetland preserves identified in that application package were inadequate.

In addition to these regulatory agency meetings, the project applicant also engaged in outreach to environmental organizations during 2007 and 2008. These organizations included Habitat 20/20, Sacramento Audubon Society, Save the American River Association, Sacramento Urban Creeks Council, California Native Plants Society – Sacramento Valley Chapter, Environmental Council of Sacramento, Sierra Club – Mother Lode Chapter, Friends of the Swainson’s Hawk, Save Our Sandhill Cranes, and Stone Lake National Wildlife Association. During this outreach effort, the environmental organizations shared the same concerns as the regulatory agencies with respect to the wetland preserves.

The project applicant filed an amended DA Section 404 Permit application on March 15, 2011, for the discharge of fill material into 39.63 acres of waters of the U.S., as described in Section 1.1. The amended permit application effectively doubled the size of the on-site wetland preserves. As a result, the main plateau/core wetland preserve was increased from 191 acres to 381 acres of avoidance.

1.2.1 CALIFORNIA ENVIRONMENTAL QUALITY ACT COMPLIANCE

Pursuant to the requirements of the California Environmental Quality Act (CEQA), the County, as the lead agency under CEQA, prepared a draft environmental impact report (EIR) for the Cordova Hills Master Plan. The notice of preparation (NOP) for the project was published on June 22, 2010. An agency scoping meeting was held on July 19, 2010 at the Governor’s Office of Planning and Research and a public scoping meeting was held on August 3, 2010 at the Sacramento County Department of Transportation Traffic Operations Center. The County released the draft EIR on January 9, 2012 for public review and comment. The County released the final EIR on November 28, 2012. The Sacramento County Board of Supervisors certified the EIR, adopted the Findings of Fact and Statement of Overriding Considerations, and adopted the Cordova Hills Master Plan on January 29, 2013. Sacramento County Resolution No. 2013-0051 adopted the General Plan Amendments. Additional Board actions taken on January 29, 2013 consisted of the following:

- ▶ tentative adoption of the Zoning Ordinance Amendment for the Cordova Hills Special Planning Area;
- ▶ tentative approval of the Large Lot Subdivision Map;
- ▶ tentative approval of the Affordable Housing Plan; and
- ▶ tentative approval of the Development Agreement.

Subsequent Board actions taken on March 12, 2013 consisted of the following:

- ▶ final adoption of the Zoning Ordinance Amendment by Ordinance SZC-2013- 0003 for the Cordova Hills Special Planning Area;
- ▶ final adoption of the Affordable Housing Plan;
- ▶ final adoption of the Public Facilities Financing Plan;
- ▶ final adoption of the Urban Services and Governance Plan; and
- ▶ final adoption of the Development Agreement.
- ▶ The large-lot tentative subdivision map was approved by the Board on April 23, 2013.

1.3 STATEMENT OF PROJECT PURPOSE AND NEED

The Proposed Action has been formulated to achieve the purpose and need of the project, as summarized below. The project needs and objectives, as identified by the project applicant below, define the underlying need for the project to which USACE is responding, in conformance with the requirements of NEPA (40 CFR 1502.13 and 33 CFR Part 325, Appendix B).

1.3.1 PROJECT PURPOSE

USACE views the project purpose from the purview of its responsibilities. USACE's interest extends to its permit authority with respect to regulation of waters of the U.S., including wetlands.

USACE has determined that the overall purpose is to provide a large-scale, master-planned, mixed-use development, with associated infrastructure, within the USB in southeastern Sacramento County.

1.3.2 PROJECT NEEDS AND OBJECTIVES

Project Needs as Identified by the Project Applicant

Consistent with the County's General Plan policies, the Proposed Action includes approximately 204 acres of mixed-use development along Grant Line Road in an area designated "Town Center." This mixed-use development is intended to be a flexible land use that allows for a combination of retail, office, and residential uses. The retail uses in the Town Center are designated to be regional-serving to address the shopping needs of the projected growing population in this area of the greater Sacramento region, including Cordova Hills. The office uses are likewise proposed to meet the needs of the region and of the residents who would live in the proposed Cordova Hills development. There is also a need for a variety of housing types, including age-restricted housing for seniors, a need for a university, and the need for master-planned communities that provide for extensive preservation of important natural resource areas, such as ecologically-valuable vernal pools. The housing component would not only help meet the region's housing needs, but would also integrate them into the mixed-use character of the Proposed Action. Certain smart growth goals would be achieved by allowing residents to live, work, recreate, and shop all within walking distance. The Proposed Action also identifies small pods of commercial development throughout the master plan area. These small commercial pods have been included to provide for convenient and easily accessible needs of the residents in the proposed Cordova Hills neighborhoods.

There is an unmet need for between 1.37 million square feet and 2.05 million square feet of new commercial/retail uses in southeastern Sacramento County which the Proposed Action will satisfy. In addition, it has been forecast that there will be a 90 percent increase in population of 1.7 million people between 2002 and 2050 in Sacramento. By 2021, it has been estimated that Sacramento County will need 58,386 additional housing units. To meet that need for housing units, the Proposed Action would provide up to 8,000 new housing units that could accommodate an estimated 21,279 people. The need for the university/college campus use is shown by the fact that the need for college-educated individuals is increasing while the number of persons with higher education degrees is lagging behind.

Project Applicant's Objectives

Outlined below are the main objectives defined by the project applicant for the project.

- ▶ Develop a mixed-use community that is designed in a manner that provides compatible land uses and reduces overall internal vehicle trips.
- ▶ Develop an economically feasible master-planned community that minimizes its effect on biologically sensitive natural resources with on-site wetland avoidance, preservation, enhancement, and creation (if practicable).
- ▶ Develop a sustainable, multi-service town center that promotes walkability and alternative transit modes, including but not limited to NEVs, light rail, shuttle bus, and carpool facilities.
- ▶ Provide uses for two underserved markets in the southeast Sacramento region:
 - Provide for the development of a major university/college campus center in Sacramento County.
 - Provide (a) residential neighborhoods that are age-restricted to serve seniors, and (b) provide residential neighborhoods that include larger lot sizes for executive housing to serve corporate executives.
- ▶ Develop internal project infrastructure and circulation networks of multiple modes that provide efficient connections to various land use components throughout the project; specifically, trail opportunities to enhance the integration between the university, town center, schools, and preserves/open space corridors surrounding the project.
- ▶ Develop recreational and open space opportunities that include neighborhood and community parks and natural preserves that are fully integrated into the project through adequate trail connections and provide critical regional trail connections associated with adjacent trail systems.
- ▶ Allow for the inclusion of alternative energy sources to serve the mixed-use community.

1.4 INTENDED USES AND TYPE OF ENVIRONMENTAL IMPACT STATEMENT

NEPA provides an interdisciplinary framework for Federal agencies to develop information that will help them to take environmental factors into account during the decisionmaking process (42 United States Code [USC] 4321, 40 CFR 1500). According to NEPA, an EIS is required whenever a proposed major Federal action (e.g., a proposal for legislation or an activity financed, assisted, conducted, or approved by a Federal agency) would result in significant effects on the quality of the human environment (40 CFR 1505.1[b]). The human environment includes the natural and physical environment and the relationship of people with that environment (40 CFR 1508.14).

Much of the development contemplated by the proposed master plan is dependent upon Federal action because such development would require a permit from USACE for the discharge of fill material into waters of the U.S. An EIS is an informational document used by Federal agencies in making decisions. An EIS is intended to provide full and fair disclosure of environmental consequences prior to final agency action and consideration of

reasonable alternatives that would avoid or minimize adverse effects or enhance the quality of the human environment (40 CFR 1502.1). NEPA defines mitigation as avoiding, minimizing, rectifying, reducing, or compensating for adverse effects of the Proposed Action (40 CFR 1508.20).

NEPA requires that a lead agency “include (in an EIS) appropriate mitigation measures not already included in the proposed action or alternatives” (40 CFR 1502.14[f]). An EIS shall also include discussions of “means to mitigate adverse environmental impacts (if not fully covered under Section 1502.14[f]).” In preparing a Record of Decision under 40 CFR 1505.2(c), a lead agency is required to “state whether all practicable means to avoid or minimize environmental harm from the alternative selected have been adopted, and if not, why they were not. A monitoring and enforcement program shall be adopted and summarized where applicable for any mitigation.”

1.4.1 TYPE OF ENVIRONMENTAL IMPACT STATEMENT

The Proposed Action contains enough specificity for a site-specific, project-level environmental review under NEPA. USACE intends this document to provide sufficient formal NEPA analysis for project development.

USACE anticipates that a Department of the Army Section 404 permit decision (i.e. issue the permit, issue the permit with special conditions, or deny the permit) can be made for the Proposed Action without additional NEPA analysis beyond this EIS as long as there are no substantial deviations from proposed uses or the conditions of these uses.

1.5 SCOPE AND FOCUS OF THE ENVIRONMENTAL IMPACT STATEMENT

Pursuant to NEPA, the discussion of potential effects on the environment in this EIS is focused on those effects that USACE has determined may be potentially significant.

On September 1, 2011, USACE issued a notice of intent (NOI) (Appendix A) to inform agencies and the general public that an EIS was being prepared and to invite comments on the scope and content of the document. At that time USACE announced that it had developed a public involvement program allowing opportunities for public participation and involvement in the NEPA process. The NOI also provided information on the date and time of public scoping meeting. The NOI was published in the *Federal Register*, Vol. 76, No. 170, on September 1, 2011. The NOI is also posted on USACE’s website at <http://www.spk.usace.army.mil/Missions/Regulatory>.

USACE held one public scoping meeting to solicit input from the community and public agencies to be considered in project design, alternatives selection, and on the scope and content of the EIS. The meeting was held on September 13, 2011 at the City of Rancho Cordova City Hall in Rancho Cordova, California.

Appendix B of this EIS contains copies of the comments that were received on the NOI and were considered in this EIS.

This EIS includes an evaluation of 17 environmental issue areas and other NEPA-mandated topics per Council on Environmental Quality [CEQ] Section 1502.102[2][C]i-v) (e.g., environmental effects of the Proposed Action, adverse effects which cannot be avoided, relationship between short-term uses and long-term productivity, alternatives as needed, irreversible and irretrievable commitments of resources). The 17 environmental issue areas are as follows:

- ▶ Aesthetics
- ▶ Agricultural Resources and Land Use
- ▶ Air Quality
- ▶ Biological Resources
- ▶ Greenhouse Gas Emissions
- ▶ Cultural Resources
- ▶ Environmental Justice
- ▶ Geology, Soils, Minerals, and Paleontological Resources
- ▶ Hazards and Hazardous Materials
- ▶ Hydrology and Water Quality
- ▶ Noise
- ▶ Parks and Recreation
- ▶ Public Services
- ▶ Socioeconomics
- ▶ Traffic and Transportation
- ▶ Utilities and Service Systems
- ▶ Water Supply

1.6 AGENCY ROLES AND RESPONSIBILITIES

1.6.1 NATIONAL ENVIRONMENTAL POLICY ACT FEDERAL LEAD AGENCY

USACE, Sacramento District, is the Federal lead agency under NEPA. USACE has the principal responsibility for issuing DA Clean Water Act Section 404 permits and ensuring that the requirements of NEPA have been met.

The project applicant is requesting a permit and related approvals to accommodate proposed development on lands they control. Details about which parcels these permits and approvals would apply to are provided in Chapter 2, “Description of the Proposed Action and Alternatives.” The Proposed Action represents a Federal action because it would require permits and authorizations required by Federal law.

1.6.2 NATIONAL ENVIRONMENTAL POLICY ACT COOPERATING AGENCIES

Under NEPA, a cooperating agency is any Federal agency other than the lead agency that has jurisdiction by law or special expertise with respect to any environmental effect involved in an action requiring an EIS.

Cooperating agencies are encouraged to actively participate in the NEPA process of the lead agency, review the NEPA document of the lead agency, and use the document when making decisions on the project. USACE sent letters seeking NEPA cooperating agency interest to the U.S. Environmental Protection Agency (EPA), California Department of Fish and Wildlife (CDFW), U.S. Fish and Wildlife Service (USFWS), and Sacramento County on July 11, 2011, and to the Central Valley Regional Water Quality Control Board on July 15, 2011. Of those agencies, CDFW and Central Valley Regional Water Quality Control Board did not respond to the cooperating agency invitation. On October 25, 2011, USACE received a letter from the Sacramento Metropolitan Air Quality Management District (SMAQMD) requesting to be a cooperating agency on the EIS. The cooperating agencies for this project are identified below. Several agencies other than USACE and the cooperating agencies have jurisdiction over the implementation of the elements of the project, as identified below.

FEDERAL AGENCIES

- ▶ U.S. Environmental Protection Agency (NEPA Cooperating Agency)

STATE AGENCIES

- ▶ California Air Resources Board
- ▶ California Department of Education
- ▶ California Department of Fish and Wildlife
- ▶ California Department of Transportation
- ▶ State Water Resources Control Board
- ▶ Central Valley Regional Water Quality Control Board
- ▶ Native American Heritage Commission
- ▶ State Historic Preservation Officer

REGIONAL AND LOCAL AGENCIES

- ▶ Sacramento County (NEPA Cooperating Agency)
- ▶ Sacramento Metropolitan Air Quality Management District (NEPA Cooperating Agency)

1.6.3 REGULATORY REQUIREMENTS, PERMITS, AUTHORIZATIONS, AND APPROVALS

The following list identifies permits and other actions from Federal agencies for which this EIS may be used during these agencies' decisionmaking processes. The following may be under the purview of regulatory agencies other than the Federal lead agency. State, regional, and local agency approvals will rely primarily upon information provided in the EIR prepared and certified by Sacramento County pursuant to the requirements of CEQA. However, where applicable, regional and local agencies will also rely on information provided in the EIS, where the agency's jurisdiction extends over the project. Sacramento County and Sacramento Metropolitan Air Quality Management District are both NEPA cooperating agencies and have been actively participating in the NEPA process, reviewing the EIS, and will use the EIS when making decisions on the project.

FEDERAL ACTIONS/PERMITS

- ▶ **U.S. Army Corps of Engineers:** DA permit under Section 404 of the CWA for discharges of dredge or fill material into waters of the U.S. Consultation for effects on Federally listed species pursuant to Section 7 of the Federal Endangered Species Act (ESA). Consultation for effects on cultural resources pursuant to Section 106 of the National Historic Preservation Act. Ensuring compliance with Section 401 CWA through receipt of the project applicant's Section 401 Water Quality Certification. Compliance with the provisions of NEPA pursuant to 40 CFR Sections 1500-1508 and 33 CFR Section 325 Appendix B.
- ▶ **U.S. Environmental Protection Agency:** Reviewing and determining the adequacy of the EIS, filing, and noticing; review and comment on the Section 404 Clean Water Act permit and Clean Air Act Conformity Determination.
- ▶ **U.S. Fish and Wildlife Service:** Federal ESA consultation and preparation of a Biological Opinion for the potential take of Federally listed endangered and threatened species under Section 7 of the Endangered

Species Act. Review and comment on the Section 404 CWA permit application under the Fish and Wildlife Coordination Act.

1.7 REQUIREMENTS FOR ALTERNATIVES

With regards to alternatives, the NEPA CEQ Regulations (40 CFR Section 1502.14) require that an EIS do the following:

- ▶ rigorously explore and objectively evaluate all reasonable alternatives, and for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated;
- ▶ devote substantial treatment to each alternative considered in detail including the proposed action so that reviewers may evaluate their comparative merits;
- ▶ include reasonable alternatives not within the jurisdiction of the lead agency;
- ▶ include the three No Action Alternative;
- ▶ identify the agency's preferred alternative or alternatives, if one or more exists, in the draft statement, and identify such alternative in the final statement unless another law prohibits the expression of such a preference. In accordance with 33 CFR 325, Appendix B, USACE is neither a proponent nor an opponent of the applicant's proposal, therefore the applicant's final proposal will be identified as the "applicant's preferred alternative" in the final EIS; and
- ▶ include appropriate mitigation measures not already included in the Proposed Action or alternatives under consideration.

The analysis contained in the EIS provides a comparative analysis between all of the alternatives, including the No Action, Proposed Action, Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation. Detailed information regarding the project design, operation, and specific components of the alternatives under consideration is contained in Chapter 2, "Description of the Proposed Action and Alternatives."

1.8 PUBLIC PARTICIPATION AND ADDITIONAL STEPS IN THE NATIONAL ENVIRONMENTAL POLICY ACT REVIEW PROCESS

This DEIS is being distributed to interested agencies, stakeholder organizations, and individuals. This distribution ensures that interested parties have an opportunity to express their views regarding the environmental effects of the Proposed Action or the alternatives, and to ensure that information pertinent to permits and approvals is provided to decision makers for the Federal lead agency and NEPA cooperating agencies. This document is available for review online at USACE's website, <http://www.spk.usace.army.mil/Missions/Regulatory>. A CD containing the EIS will also be provided upon request. The DEIS is being distributed for a 45-day review period that will end on January 14, 2015. Comments should be sent to the following address:

Lisa Gibson
U.S. Army Corps of Engineers, Sacramento District, Regulatory Branch
1325 J Street, Room 1350
Sacramento, CA 95814-2922
E-mail: Lisa.M.Gibson2@usace.army.mil

If comments are provided via e-mail, please include the project title in the subject line, attach comments in MS Word format, and include the commenter's mailing address.

A public meeting/hearing on the DEIS will be conducted by USACE on December 17, 2014 from 5:30 p.m. to 6:30 p.m. at Rancho Cordova City Hall, 2729 Prospect Park Drive, Rancho Cordova, California 95670. Comments on the DEIS may be provided during the public meeting/hearing, and written comments may also be provided at any time during the comment period as described above.

Once all comments have been assembled and reviewed, responses will be prepared to address significant environmental issues that have been raised in the comments. The responses will be included in the FEIS.

1.9 SIGNIFICANT AREAS OF CONTROVERSY AND ISSUES TO BE RESOLVED

NEPA regulations (40 CFR 1502.12) require that the summary of an EIS identify areas of controversy known to the lead agency, including issues raised by agencies and the public. During the public comment period for the NOP/NOI, various comment letters were received regarding the project. Appendix B of this EIS includes a summary of the public scoping process as well as summaries of the comments received in writing and at the public meeting held on September 13, 2011. In general, areas of potential controversy known to the USACE and the project applicants consist of air quality, biological resources, greenhouse gases, water quality, and water supply. These issues were considered in the preparation of this EIS and, where appropriate, are addressed in the environmental effect analyses presented in Chapters 3 and 4.

1.10 ORGANIZATION OF THIS ENVIRONMENTAL IMPACT STATEMENT

The content and format of this EIS are designed to meet the requirements of NEPA, the NEPA regulations issued by CEQ, and USACE NEPA regulations, as well as Appendix B to those regulations (NEPA implementation). The EIS is organized into the following chapters so that the reader can easily obtain information about the project and its specific environmental issues.

- ▶ The **cover sheet** identifies lead and any NEPA cooperating agencies, contact information for the lead agency contact person, the title of the project and its location, type of document, a brief abstract, comment submission information, and any agency-specific information.
- ▶ The **Executive Summary** presents a brief overview of the alternatives under consideration; a summary of major conclusions; a summary of known areas of controversy and issues to be resolved; a summary of issues raised by agencies and the public; a discussion of opportunities for public participation in the NEPA process; and a table listing the environmental effects, mitigation measures, and the significance after implementation of mitigation (including unavoidable effects).

- ▶ Chapter 1, **“Introduction and Statement of Purpose and Need,”** provides a brief history of the project and the planning context; explains the NEPA process; lists the lead and NEPA cooperating agencies that may have discretionary authority over the project; specifies the underlying purpose and need to which the lead agency is responding in considering the Proposed Action and alternatives under consideration; outlines the organization of the document; and provides information on public participation.
- ▶ Chapter 2, **“Description of the Proposed Action and Alternatives,”** presents the Proposed Action and the alternatives to the Proposed Action. This chapter constitutes the project description and describes the project characteristics and components, supporting on- and off-site infrastructure, and required entitlements. This chapter provides a description of each alternative in comparison with the Proposed Action, and describes alternatives considered but eliminated from further consideration.
- ▶ Chapter 3, **“Affected Environment, Environmental Consequences, and Mitigation Measures,”** is divided into 17 sections. Section 3.0 explains the approach to the affected environment (i.e., environmental setting), presents the assumptions used in the environmental analysis, and provides definitions of the types of environmental effects. Section 3.0 also introduces the analysis of cumulative effects, and includes the cumulative effect methodology, list of other foreseeable projects, and cumulative context. Each of the remaining sections in Chapter 3 is devoted to a particular environmental issue area and describes the baseline, or existing conditions, and the regulatory setting, then provides an analysis of effects at an equal level of detail for all project alternatives and mitigation measures that would avoid, eliminate, or reduce adverse effects, where available and feasible. Each environmental issue area in this chapter also identifies the cumulative effects of implementing the project against a backdrop of past, present, and reasonably foreseeable future projects.
- ▶ Chapter 4, **“Other Statutory Requirements,”** contains the analysis of growth-inducing effects, irreversible or irretrievable commitment of resources, relationship between short-term uses of the environment and maintenance and enhancement of long-term productivity, and significant and unavoidable adverse environmental effects of the project.
- ▶ Chapter 5, **“Consultation and Coordination”** provides a summary of consultation with other regulatory agencies with jurisdiction over the project.
- ▶ Chapter 6, **“References,”** provides a bibliography of sources cited in the EIS and identifies the names and affiliations of persons who provided information used in preparing the document.
- ▶ Chapter 7, **“Report Preparers,”** lists individuals who were involved in preparing this EIS.
- ▶ Chapter 8, **“Index,”** contains the NEPA-required index for easy reference of topics and issues.
- ▶ **Technical appendices** contain the background information that supports the EIS.

1.11 STANDARD TERMINOLOGY, ACRONYMS, AND ABBREVIATIONS

1.11.1 STANDARD TERMINOLOGY

The following standard terminology to refer to elements of the project are used in this EIS.

- ▶ **Master Plan** refers to the Cordova Hills Master Plan.
- ▶ **Project** refers generally to construction of proposed improvements within the property boundary and off-site roadway and infrastructure improvement areas, under any of the alternatives evaluated at a similar level of detail in this EIS.

1.11.2 ACRONYMS AND ABBREVIATIONS

The following acronyms and abbreviations are used in this DEIS.

Table 1-1 Acronyms and Other Abbreviations	
Term	Definition
°F	degrees Fahrenheit
µg/m ³	micrograms per cubic meter
µPa	micro-Pascals
1,1,1-TCA	1,1,1-trichloroethane
1,2-DCE	1,2-dichloroethylene
AA	Assessment Areas
AB	Assembly Bill
ACHP	Advisory Council on Historic Preservation
ACM	asbestos-containing material
ACS	American Community Survey
ADA	Americans with Disabilities Act
ADT	average daily traffic
afy	acre-feet per year
ALUC	Airport Land Use Commission
ANSI	American National Standards Institute, Inc.
APE	Area of Potential Effect
APPA	Airport Planning Policy Area
APS	Alternative Planning Strategy
AQAP	Air Quality Attainment Plan
AQMP	Air Quality Mitigation Plan
ARB	California Air Resources Board
ASA	Acoustical Society of America
ASTM	American Society of Testing and Materials
ATCM	airborne toxics control measure
ATF	Alcohol, Tobacco, Firearms and Explosives
ATV	all-terrain vehicle
B	basin number

**Table 1-1
Acronyms and Other Abbreviations**

Term	Definition
B.P.	Before Present
BACT	best available control technology
Basin Plan	water quality control plan
BCECP	Basic Emission Control Practices
BGEPA	Bald and Golden Eagle Protection Act
bgs	below ground surface
BLM	U.S. Bureau of Land Management
Blueprint	Sacramento Region Blueprint
BMP	best management practice
BRT	bus rapid transit
Business Plan Act	California Hazardous Materials Release Response Plans and Inventory Law of 1985
CAA	Federal Clean Air Act
CAAA	Federal Clean Air Act Amendments of 1990
CAAQS	California ambient air quality standards
CAFE	corporate average fuel economy
Cal-Am	California-American Water Company
CalARP	California Accidental Release Prevention
CalEMA	California Emergency Management Agency
CalEPA	California Environmental Protection Agency
CALFIRE	California Department of Forestry and Fire Protection
California State Parks	California Department of Parks and Recreation
Cal-OSHA	California Occupational Safety and Health Administration
CalRecycle	California Department of Resources Recycling and Recovery
Caltrans	California Department of Transportation
Calveno REMEL	California Vehicle Noise Reference Energy Mean Emissions Level
CAP	Climate Action Plan
CCAA	California Clean Air Act
CCAT	California Climate Action Team
CCD	Census-County Division
CCR	California Code of Regulations
CDC	Centers for Disease Control and Prevention
CDE	California Department of Education
CDFW	California Department of Fish and Wildlife
CDMG	California Division of Mines and Geology
CDP	Census Designated Place

**Table 1-1
Acronyms and Other Abbreviations**

Term	Definition
CDPH	California Department of Public Health
CEC	California Energy Commission
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental, Response, Compensation, and Liability Act
CESA	California Endangered Species Act
CFC	chlorofluorocarbon
CFC	California Fire Code
CFD	Community Facilities District
CFR	Code of Federal Regulations
CGS	California Geological Survey
CH ₄	methane
CHP	California Highway Patrol
CIP	Capital Improvement Plan
CIWMB	California Integrated Waste Management Board
CLOMR	Conditional Letters of Map Revision
CLUP	Comprehensive Land Use Plan
CMP	corrugated metal pipe
CMUTCD	California Manual on Uniform Traffic Control Devices
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CO	carbon monoxide
CO ₂	carbon dioxide
CO ₂ e	carbon dioxide equivalent
Connector	Capital SouthEast Connector Project
County	County of Sacramento
CPP	Cosumnes Power Plant
CPTED	Crime Prevention through Environmental Design
CPUC	California Public Utilities Commission
CRAM	California Rapid Assessment Method
CRHR	California Register of Historical Resources
CRPR	California Rare Plant Rank
CSA	Central Service Area
CSMP	Corridor System Management Plan

**Table 1-1
Acronyms and Other Abbreviations**

Term	Definition
CT	Census Tract
CTR	California Toxics Rule
CVP	Central Valley Project
CWA	Clean Water Act
DA	Development Agreement
dB	decibel
dBA	A-weighted sound levels
DEIR	draft environmental impact report
DEIS	draft environmental impact statement
Delta	Sacramento–San Joaquin Delta
DERA	Sacramento County Department of Environmental Review and Assessment
diesel PM	diesel particulate matter or diesel exhaust
DOC	California Department of Conservation
DOF	California Department of Finance
DOT	Department of Transportation
DPC	Delta Protection Commission
DPROS	Sacramento County Department of Regional Parks, Recreation, and Open Space
Drainage Master Plan	<i>Drainage Master Plan for Cordova Hills</i>
DSOD	Division of Safety of Dams
DTSC	California Department of Toxic Substances Control
DUE	dwelling unit equivalent
DWR	California Department of Water Resources
EBMUD	East Bay Municipal Utility District
ECECP	Enhanced Construction Emission Control Practices
EDD	California Employment Development Department
EDP	Expanded Drainage Preservation Alternative
EGUSD	Elk Grove Unified School District
EIR	environmental impact report
EIS	environmental impact statement
EISA	Energy and Independence Security Act of 2007
Endangerment Finding	Proposed Endangerment and Cause or Contribute Findings for Greenhouse Gases under the CCA
EO	Executive Order
EP	Expanded Preservation Alternative
EPA	U.S. Environmental Protection Agency
EPCA	Energy Policy and Conservation Act

**Table 1-1
Acronyms and Other Abbreviations**

Term	Definition
ER	Estate Residential
ESA	Federal Endangered Species Act
FDC	flow duration control
FEIR	final environmental impact report
FEIS	final environmental impact statement
FEMA	Federal Emergency Management Agency
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FICON	Federal Interagency Committee on Noise
FIP	Federal Implementation Plan
FIRM	Flood Insurance Rate Map
FIS	Flood Insurance Study
FMMP	Farmland Mapping and Monitoring Program
FPEIR	<i>Capital SouthEast Connector Project Final Program Environmental Impact Report</i>
FR	Federal Register
FRWP	Freeport Regional Water Project
FTA	Federal Transit Administration
FY	Fiscal Year
FY	fiscal year
General Plan	Sacramento County 2030 General Plan
GET	groundwater extraction and treatment
GHG	greenhouse gas
gpm	gallons per minute
GVW	gross vehicle weight
HAP	hazardous air pollutant
HCFC	hydrochlorofluorocarbon
HCM	Highway Capacity Manual
HDR	High-Density Residential
HFC	hydrofluorocarbon
high-GWP	high global warming potential
HMP	<i>Hydromodification Management Plan</i>
HOV	high-occupancy vehicle
hp	horsepower
HUD	Housing and Urban Development
Hz	Hertz

**Table 1-1
Acronyms and Other Abbreviations**

Term	Definition
I-5	Interstate 5
Important Farmland	Prime Farmland, Unique Farmland, or Farmland of Statewide Importance
in/sec	inches per second
IPCC	Intergovernmental Panel on Climate Change
IRCTS	Inactive Rancho Cordova Test Site
IS	Initial Study
ISO	Insurance Services Office
Ksat	saturated hydraulic conductivity
kWh	kilowatt-hour
LCFS	Low Carbon Fuel Standard
LDL	Larson-Davis Laboratories
L_{dn}	Day-Night Average Level
LDR	Low-Density Residential
LEA	local enforcement agency
L_{eq}	Equivalent Sound Level
LID	Low Impact Development
LiDAR	Light Detection and Ranging
LIM	Land Inventory and Monitoring
L_{max}	Maximum Sound Level
L_n	Percentile-Exceeded Sound Level
LOMR	Letters of Map Revision
LOS	level of service
LOS	level of service
LRT	light rail transit
LRV	light rail vehicle
LVW	loaded vehicle weight
MACT	maximum available control technology
MCL	maximum contaminant level
MDR	Medium-Density Residential
MEP	maximum extent practicable
mg/L	milligrams per liter
mgd	million gallons per day
MLD	Most Likely Descendant
MM therms	million therms
mm/yr	millimeters per year

**Table 1-1
Acronyms and Other Abbreviations**

Term	Definition
MMP	Mitigation and Monitoring Plan
MMT	million metric tons
MND	Mitigated Negative Declaration
MOA	Memorandum of Agreement
mpg	miles per gallon
mph	miles per hour
MPO	Metropolitan Planning Organization
MPO	Metropolitan Planning Organization
MRZ	Mineral Resource Zone
MS4	Municipal Separate Storm Sewer System
MSL	mean sea level
MT	metric ton
MTP	Metropolitan Transportation Plan
Multi-Hazard Mitigation Plan	State of California Multi-Hazard Mitigation Plan
MUN	Municipal and domestic supply
MVA	mega volt ampere
MW	megawatt
MY	model year
N/R	not rated
N ₂ O	nitrous oxide
NA	No Action Alternative
NAAQS	national ambient air quality standards
NAC	noise abatement criteria
NAHC	Native American Heritage Commission
NEHRP	National Earthquake Hazards Reduction Program
NEHRPA	National Earthquake Hazards Reduction Program Act
NEPA	National Environmental Policy Act
NESHAP	national emissions standards for hazardous air pollutants
NEV	Neighborhood Electric Vehicle
NHPA	National Historic Preservation Act
NIOSH	National Institute for Occupational Safety and Health
NMFS	National Marine Fisheries Service
NO	nitric oxide
NO ₂	nitrogen dioxide

**Table 1-1
Acronyms and Other Abbreviations**

Term	Definition
NOA	naturally occurring asbestos
NOI	notice of intent
NOP	notice of preparation
NO _x	oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NRPA	National Recreation and Park Association
NSA	North Service Area
NSAP	North Service Area Pipeline
NSAPP	North Service Area Pipeline Project
NTR	National Toxics Rule
NVWF	North Vineyard Well Field
NWIC	Northwestern Information Center
ODS	ozone depleting substance
OEHHA	Office of Environmental Health Hazard Assessment
OES	Governor's Office of Emergency Services
OHV	off-highway vehicle
OPR	California Governor's Office of Planning and Research
OSHA	U.S. Department of Labor, Occupational Safety and Health Administration
P	Pilatus Alternative
PA	Proposed Action Alternative
PAH	polycyclic aromatic hydrocarbons
PCB	polychlorinated biphenyl
PCE	perchloroethylene, passenger car equivalent
PFC	perfluorocarbons
PG&E	Pacific Gas and Electric Company
PM	particulate matter
PM ₁₀	particulate matter less than or equal to 10 microns in diameter; respirable particulate matter
PM _{2.5}	particulate matter less than or equal to 2.5 microns in diameter; fine particulate matter
PM _{2.5} Plan	PM _{2.5} Implementation/Maintenance Plan and Redesignation Request for Sacramento PM _{2.5} Nonattainment Area
POC	point of connection
POU	Place of Use

**Table 1-1
Acronyms and Other Abbreviations**

Term	Definition
ppb	parts per billion
ppd	pounds per day
ppm	part per million
PPV	peak particle velocity
PRC	California Public Resources Code
RC	Regional Conservation Alternative
RCNM	Roadway Construction Noise Model
RCRA	Resource Conservation and Recovery Act
REC	recognized environmental condition
Reclamation	U.S. Bureau of Reclamation
recovery plan	<i>Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon</i>
RMP	risk management plan
RMS	root mean square
ROD	Record of Decision
ROG	reactive organic gas
RPS	Renewables Portfolio Standard
RTP	regional transportation plan
RWD	report of waste discharge
RWQCB	Regional Water Quality Control Board
SACOG	Sacramento Area Council of Governments
SACOG	Sacramento Area Council of Governments
Sacramento RT	Sacramento Regional Transit District
SAI	Service Area Interface
SASD	Sacramento Area Sewer District
SB	Senate bill
SCAS	Sacramento County Airport System
SCEMD	Sacramento County Environmental Management Department
SCH	State Clearinghouse
Scoping Plan	Climate Change Scoping Plan
SCS	Soil Conservation Service, Sustainable Communities Strategy
SCSD	Sacramento County Sheriff's Department
SCWA	Sacramento County Water Agency
Security Park	Alpha Complex and the Administration Area
SEL	Sound Exposure Level
SEMS	Standardized Emergency Management System

**Table 1-1
Acronyms and Other Abbreviations**

Term	Definition
SF ₆	sulfur hexafluoride
SFNA	Sacramento Federal Ozone Nonattainment Area
SGSA	Southern Groundwater Study Area
SHPO	State Historic Preservation Officer
SHTAC	Swainson's Hawk Technical Advisory Committee
SIP	State Implementation Plan
SMAQMD	Sacramento Metropolitan Air Quality Management District
SMARA	California Surface Mining and Reclamation Act
SMFD	Sacramento Metropolitan Fire District
SMUD	Sacramento Municipal Utility District
SO ₂	sulfur dioxide
SOI	Sphere of Influence
SO _x	oxides of sulfur
sp.	species (singular)
SPL	sound pressure level
spp.	species (plural)
SQIP	<i>Stormwater Quality Improvement Plan</i>
SR	State Route
SRA	State Responsible Area, State Recreation Area
SRCSA	Sacramento Regional County Sanitation District
SRCSA ISS	<i>SRCSA Interceptor Sequencing Study</i>
SRWTP	Sacramento Regional Wastewater Treatment Plant
SSA	South Service Area
SSCP	Sewer System Capacity Plan
SSHCP	South Sacramento County Habitat Conservation Plan
ssp.	subspecies
SSQP	Sacramento Stormwater Quality Partnership
SubRAD	subdivided Regional Analysis District
SVAB	Sacramento Valley Air Basin
SVR	Sacramento Valley Railroad
SVRA	State Vehicular Recreation Area
SWPPP	storm water pollution prevention plan
SWRCB	State Water Resources Control Board
TAC	toxic air contaminants
TAZ	Transportation Analysis Zone

**Table 1-1
Acronyms and Other Abbreviations**

Term	Definition
T-BACT	Toxic Best Available Control Technology
TCCR	Transportation Concept Corridor Report
TCE	trichloroethylene
TDS	total dissolved solids
TMA	Cordova Hills Transportation Management Association
TMDL	Total Maximum Daily Load
tpd	tons per day
U.S. 50	U.S. Highway 50
UCMP	University of California Museum of Paleontology
UP	Union Pacific
UPA	Urban Policy Area
USACE	U.S. Army Corps of Engineers
USB	Urban Services Boundary
USC	United States Code
USDA	U.S. Department of Agriculture
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UST	underground storage tank
UWMP	Urban Water Management Plan
V/C	volume-to-capacity ratio
VdB	vibration decibels
VELB	valley elderberry longhorn beetle
VMT	vehicle miles traveled
VOC	volatile organic compound
WDR	waste discharge requirement
WFA	Water Forum Agreement
WRCC	Western Regional Climate Center
WSIP	Water Supply Infrastructure Plan
WSMP	Water Supply Master Plan
WTP	water treatment plant
Zone 40 WSIP	<i>Zone 40 Water System Infrastructure Plan</i>
Zone 41 UWMP	<i>2010 Zone 41 Urban Water Management Plan</i>

2 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

2.1 INTRODUCTION

This chapter describes applicant's Proposed Action and a range of reasonable alternatives to the Proposed Action consistent with the requirements of 40 Code of Federal Regulations (CFR) 1502.14.

The six alternatives evaluated at an equal level of detail in this EIS, are as follows:

1. No Action
2. Proposed Action
3. Expanded Drainage Preservation
4. Expanded Preservation
5. Pilatus
6. Regional Conservation

These alternatives were developed by the U.S. Army Corps of Engineers (USACE), Sacramento District. The alternatives are based on the project purpose, alternatives screening criteria (described below), coordination with other agencies (U.S. Fish and Wildlife Service [USFWS], U.S. Environmental Protection Agency [EPA], Sacramento Metropolitan Air Quality Management District [SMAQMD], and Sacramento County). The alternatives also consider scoping comments received on the notice of intent (NOI) and voiced at the scoping meeting. These alternatives represent a full range of alternatives to the project applicant's Proposed Action, consistent with National Environmental Policy Act (NEPA) requirements. The Proposed Action and alternatives (with the exception of the No Action Alternative required by NEPA) have each been formulated to feasibly accomplish most of the basic objectives of the project as discussed in Chapter 1, "Introduction and Statement of Purpose and Need," of this EIS, and could avoid or substantially lessen one or more of the significant effects.

A summary comparison of these alternatives is provided in Section 2.10 of this chapter.

2.2 NATIONAL ENVIRONMENTAL POLICY ACT REQUIREMENTS FOR EVALUATION OF ALTERNATIVES

2.2.1 FOCUS OF THE ENVIRONMENTAL IMPACT STATEMENT ALTERNATIVES ANALYSIS

The Council on Environmental Quality (CEQ) NEPA regulations (40 CFR 15012.14) require that an EIS:

- ▶ Rigorously explore and objectively evaluate all reasonable alternatives, and for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated.
- ▶ Devote substantial treatment to each alternative considered in detail including the Proposed Action so that reviewers may evaluate their comparative merits;
- ▶ Include reasonable alternatives not within the jurisdiction of the lead agency;

- ▶ Include the No Action Alternative;
- ▶ Identify the agency’s preferred alternative or alternatives, if one or more exists, in the draft statement, and identify such alternative in the final statement unless another law prohibits the expression of such a preference. In accordance with 33 CFR 325, Appendix B, USACE is neither a proponent nor an opponent of the applicant’s proposal, therefore the applicant’s final proposal will be identified as the “applicant’s preferred alternative” in the final EIS; and
- ▶ Include appropriate mitigation measures not already included in the Proposed Action or alternatives under consideration.

In accordance with USACE regulations, the No Action Alternative is one which results in no construction requiring a USACE permit, and may be brought by the project applicant modifying the proposal to eliminate work under the jurisdiction of USACE, or USACE denial of the permit. Due to the configuration of waters on and topography of the Cordova Hills site, USACE has determined that it is appropriate to analyze a no-action alternative where no physical changes are made to the Cordova Hills site. Therefore, the No Action Alternative satisfies both NEPA and USACE’s NEPA implementing regulations.

Alternatives to the Proposed Action that were considered in this EIS are described below. Consideration of the other NEPA requirements is provided in Chapter 3, “Affected Environment, Environmental Consequences, and Mitigation Measures” and Chapter 4, “Other Statutory Requirements,” of this EIS.

NEPA requires the analysis of alternatives to occur at a substantially similar level of detail as that devoted to the Proposed Action. The NEPA Regulations (40 CFR 1502.14) require agencies to rigorously explore and objectively evaluate all reasonable alternatives and to devote substantial treatment to each alternative considered, including the Proposed Action.

ALTERNATIVES SCREENING CRITERIA

The following screening criteria are in compliance with USACE Section 404(b)(1) Guidelines, which are the substantive criteria used by USACE in evaluating discharges of fill material into waters of the United States (U.S.) under Section 404 of the CWA. The guidelines require that the following four criteria be satisfied for USACE to make a decision that a proposed discharge is in compliance:

- ▶ the discharge must be the least environmentally damaging practicable alternative;
- ▶ the discharge must not violate any water quality standard or toxic effluent standard, or jeopardize the continued existence of a threatened or endangered species;
- ▶ the discharge must not result in a significant degradation of the waters of the U.S.; and
- ▶ unavoidable impacts on the aquatic ecosystem must be mitigated within the context of NEPA.

Before USACE can issue a permit, it must find that the requirements of the Section 404(b)(1) Guidelines have been satisfied. The key criterion and the focus of the alternatives analysis is the requirement that the discharge be the least environmentally damaging, practicable alternative. USACE considers practicable alternatives to include, but not to be limited to:

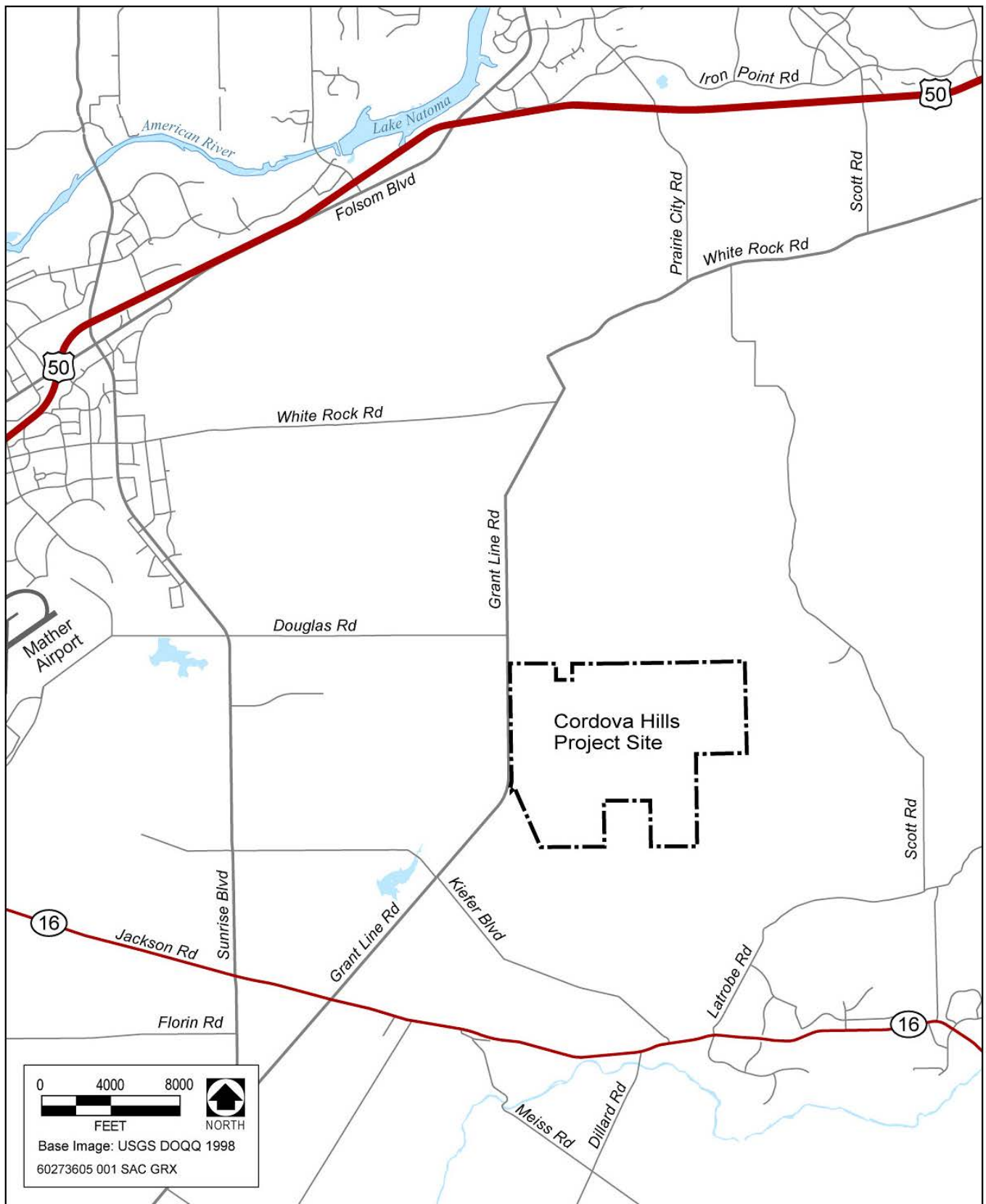
- ▶ on-site activities that do not include a discharge into waters of the U.S.;
- ▶ discharges of dredged or fill material at other locations in waters of the U.S.;
- ▶ areas that are not presently owned by the project applicant that could be reasonably obtained, used, expanded, or managed to fulfill the basic purpose of the proposed activity (after considering cost, existing technology, and logistics); and
- ▶ a project location that does not require access or proximity to or siting within the special aquatic site in question to fulfill its basic purpose (i.e., that is not water dependent). Practicable alternatives that do not involve special aquatic sites are presumed to be available unless clearly demonstrated otherwise. Where a discharge is proposed for a special aquatic site, all practicable alternatives to the proposed discharge that do not involve a discharge into a special aquatic site are presumed to have less adverse impacts on the aquatic ecosystem, unless clearly demonstrated.

The key provisions in the language are “practicability” and “overall project purpose.” An alternative is practicable if it is available to the project applicant and capable of being accomplished by the project applicant after consideration of costs, existing technology, and logistics, in light of the overall project purpose. USACE has determined that the overall project purpose is to provide a large-scale, master-planned, mixed-use development, and its associated infrastructure, within the Urban Services Boundary (USB) in southeastern Sacramento County. If a practicable alternative is identified that would have less adverse effect on the aquatic ecosystem and would not have other significant adverse environmental consequences, then USACE would be unable to issue a permit for the Proposed Action. When the alternatives evaluated in this EIS were selected, information that would allow USACE to determine whether an alternative would meet the overall project purpose or would be practicable based on cost, logistics, and existing technology, had not been provided by the project applicant. Therefore, the alternatives were created by identifying different ways to develop the Cordova Hills site (and off-site areas) while avoiding greater fill of waters of the U.S. than the Proposed Action. The range of alternatives includes information for comment and analysis under NEPA and the 404(b)(1) Guidelines with the inclusion of alternatives information submitted by the Applicant, located in Appendix C, “404(b)(1) Alternatives Information,” which provides information regarding cost and logistics. This is provided for information and to facilitate agency and public comment for USACE consideration when it determines the practicability of each alternative in light of the overall project purpose. A final determination on the practicability of all alternatives, as well as the determination of the Least Environmentally Damaging Practicable Alternative will be made by USACE in the Record of Decision.

2.2.2 PROJECT LOCATION

The Cordova Hills site is located in eastern Sacramento County, south of U.S. Highway 50 (U.S. 50), adjacent to the city limits of the city of Rancho Cordova (Exhibit 2-1). The property is located southeast of Douglas Road, south of Glory Lane, and east of Grant Line Road.

Eastern Sacramento County lies within the Sacramento Valley, a nearly flat alluvial plain that extends almost 180 miles from the Sacramento–San Joaquin River Delta on the south to Redding on the north, and approximately 50 miles from the Sierra Nevada foothills on the east to the Coast Range on the west. Geologically, the Sacramento Valley is an asymmetric structural trough that is filled locally up to 5 miles deep with sediment that has been deposited on a nearly continuous basis since the late Jurassic period (approximately 160 million years



Source: AECOM 2012

Exhibit 2-1

Cordova Hills Site and Vicinity

ago). Climate in the Sacramento Valley is characterized by warm, dry summers with an almost complete absence of rain, and mild winters. The rainy season is typically confined to October through April, with an average rainfall of approximately 18 inches per year.

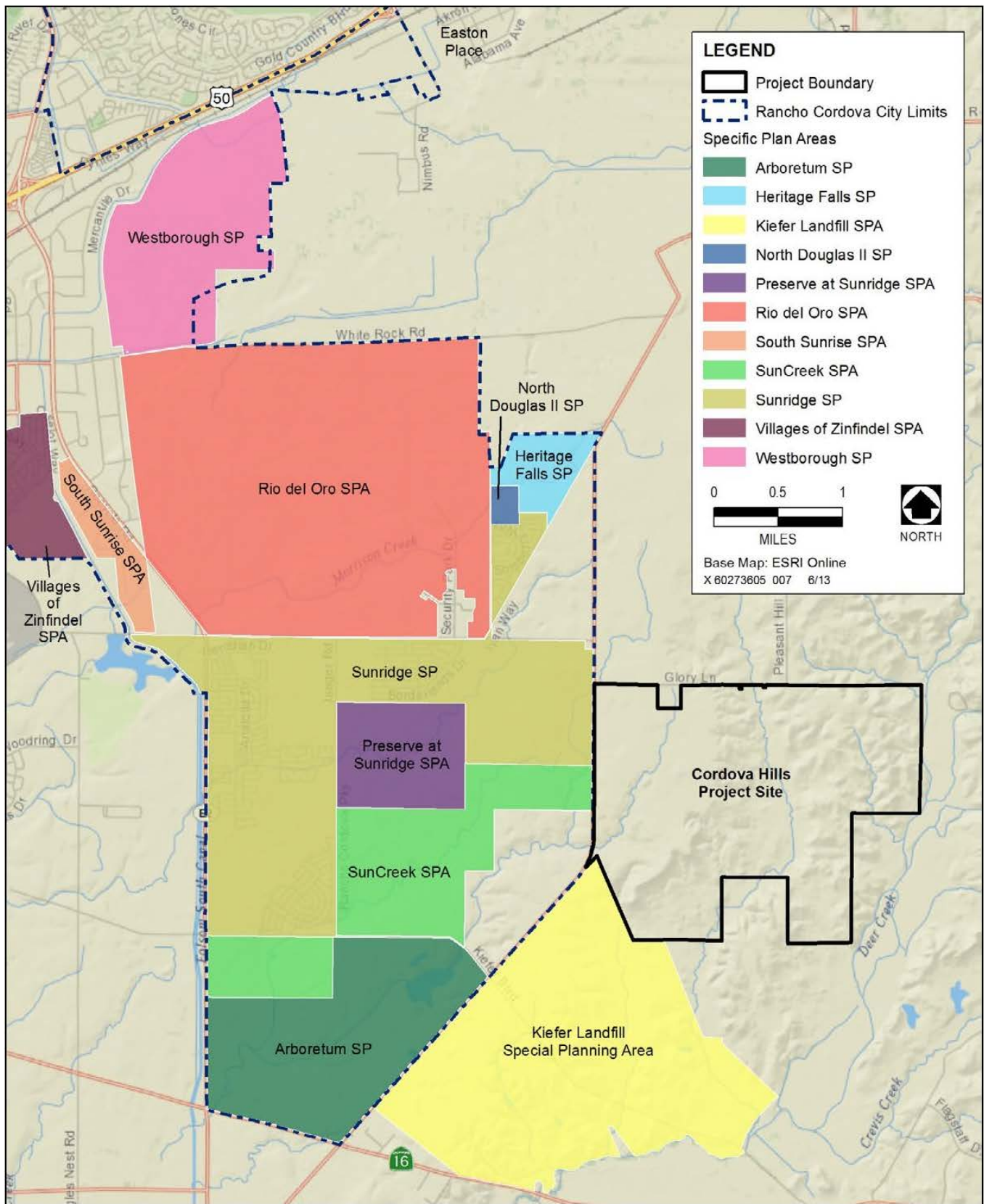
The Cordova Hills site is currently used for cattle grazing, and does not contain any structures or other development. There is a single-family residence outside of and adjacent to the northern boundary of the Cordova Hills site along Glory Lane.

The elevation of the Cordova Hills site ranges from approximately 130 feet to 280 feet above mean sea level. The highest points occur on the bluff in the southwestern portion of the site, and the lowest elevation occurs at the foot of the same bluff. The topography on the western third of the Cordova Hills site is relatively flat, with a low rise from Grant Line Road to a plateau. The eastern edge of the plateau slopes down easterly into a north-south intermittent drainage that generally forms a central axis of the Cordova Hills site. East of the central drainage, the topography climbs in elevation and begins to form undulating, gently rolling hills before falling to the Carson Creek drainage on the eastern periphery of the Cordova Hills site.

Habitats present on the site include grasslands and wetlands, including vernal pools, swales, intermittent drainages, and seasonal impoundments. The wetland delineation for the Cordova Hills site catalogues a total of 89 acres of waters of the U.S. There are the remains of a grove of a previously planted eucalyptus trees on-site, which were cut down several years ago, but they have sprouts occasionally reoccurring. Much of the vernal pool and swale habitat is concentrated on the western side of the Cordova Hills site, within a large plateau area that is relatively flat. Swales and intermittent drainages are found throughout the Cordova Hills site, with a central intermittent drainage running north-south which nearly bisects the site. Many of the swales and other drainages flow into this central drainage; this central drainage ultimately connects to Deer Creek. Carson Creek runs generally along the eastern site boundary, and the floodplain from Carson Creek extends onto the Cordova Hills site. Carson Creek connects to Deer Creek south of the Cordova Hills site. Deer Creek, in turn, is a tributary to the Cosumnes River. Other than the small area within the Carson Creek floodplain there are no Federal 100-year floodplains identified within the Cordova Hills site because Federal floodplain mapping of the area has not been conducted at this time.

Grant Line Road is a two-lane rural thoroughfare that runs parallel to the western Cordova Hills site boundary, and is the main regional access to the site. Glory Lane is a two-lane gravel road that lies along the northern boundary of the site. There are no public roadways on the Cordova Hills site. The lands surrounding the Cordova Hills site are largely undeveloped, however the land across Grant Line Road, to the west, is within the city of Rancho Cordova and is subject to one approved specific plan – the Sunridge Specific Plan – and one specific plan that has been approved by the City but which has not yet obtained a permit from USACE – the SunCreek Specific Plan (see Exhibit 2-2). A 120-kilovolt Pacific Gas & Electric transmission line traverses the eastern edge of the Cordova Hills site in a north-south direction adjacent and parallel to Carson Creek. The nearest public water and sewer lines are within Douglas Road, approximately 3/4 of a mile to the northwest.

Kiefer Landfill is located approximately 1/2 mile (approximately 2,500 feet) from the most southwesterly portion of the Cordova Hills site. A portion of the Cordova Hills site which lies outside of the County's USB (which denotes land that is intended for ultimate urbanization), and is located within the 2,000-foot buffer adjoining the Kiefer Landfill. This buffer is zoned for agricultural uses and was designated to protect the landfill from urban encroachment and to protect urban uses from noise, dust, odors, or other factors associated with landfill operations.



Source: City of Rancho Cordova 2012

Exhibit 2-2

Cordova Hills Site and Specific Plan Areas

2.3 NO ACTION ALTERNATIVE

Under the No Action Alternative, the Cordova Hills site would not be developed and a Section 404 permit for wetland fill would not be required from USACE. No physical changes to the Cordova Hills site would occur. Due to the configuration of waters on the Cordova Hills site and the topography, USACE determined that it is most appropriate to analyze a no action alternative where no physical changes are made to the Cordova Hills site. Consideration of a “no action” alternative that evaluates the construction of a mixed-use development while avoiding all waters on the Cordova Hills site would be infeasible due to the widespread location and configuration of waters on the site and the topography of the site. These considerations would prohibit the construction of a mixed-use development on the site.

Therefore, an analysis of a “no action” alternative that includes the construction of a mixed-use development but avoids waters of the U.S. is not included in this EIS.

2.4 PROPOSED ACTION

2.4.1 SUMMARY

This section describes the project applicant’s proposal. The Proposed Action has been formulated to achieve the project purpose, needs, and objectives of the project, as discussed in Chapter 1, “Introduction and Statement of Purpose and Need” of this EIS.

The applicant group, Cordova Hills Ownership Group, hereinafter referred to as the “project applicant,” is seeking authorization and permit(s) from USACE to place dredged or fill material into 40.15 acres of waters of the U.S., including off-site work in furtherance of the *Cordova Hills Master Plan*, hereinafter referred to as the “Proposed Action.” The Proposed Action would be a mixed-use development on approximately 2,669 acres adjacent to the City of Rancho Cordova, California in eastern Sacramento County. The *Cordova Hills Master Plan* is available for review on Sacramento County’s website at <http://www.per.saccounty.net/PlansandProjectsInProgress/Pages/CordovaHills.aspx>. The *Cordova Hills Master Plan* was adopted by the Sacramento County Board of Supervisors in January 2013. A summary of the land uses allowed by the Cordova Hills Master Plan is presented in Table 2-1.

2.4.2 DESCRIPTION OF THE PROPOSED ACTION

REQUESTED ACTIONS

This section describes the characteristics and components associated with the Proposed Action. The analysis of development effects is provided at a project level of detail. Additional approvals and authorizations are listed in Chapter 1, “Introduction and Statement of Purpose and Need.”

The Proposed Action represents a Federal action because it would require the issuance of a Section 404 Clean Water Act permit for discharges into waters of the U.S. Prior to a decision on the Section 404 permit application, USACE must ensure compliance with Section 7 of the Federal Endangered Species Act for potential take of endangered or threatened species, and issuance of a water quality certification under Section 401 of the Clean Water Act from the State of California’s Central Valley Regional Water Quality Control Board.

**Table 2-1
Summary of Land Use Designations and Sacramento County Permitted Uses – Proposed Action**

Land Use Designations		Permitted Uses	Acres
AG	Agriculture	Agriculture, Sports Park, Solar Farm, District Energy Plant, Corporation Yard, Park and Ride Lot, Transit Parking Facility, Fueling Station, Roads, Storm Water and Storm Quality Basins, Community Gardens, Avoided Areas, Sewer Pump Station and Line, Water Tanks and Similar Utilities	146.3
P/QP	Public/Quasi Public	Churches, Schools, Parks, Public Utilities, Libraries, Fire Stations, Community Gardens, Flood Control and Storm Water Quality Treatment Facilities)	107.8
R	Recreation	Parks, Recreation Centers, Community Centers, Concessions, Minor Retail, Coffee Shop, Paseos, Open Space, Flood Control and Storm Water Quality Treatment Facilities	99.2
R2	Recreation and Open Space	Parks, Recreation Centers*, Community Gardens, Community Centers*, Concessions*, Minor Retail*, Coffee Shop*, Paseos, Open Space, Flood Control and Storm Water Quality Treatment Facilities	151.6
AV	Avoided Areas	Resource Avoidance, Trails, Outdoor Classroom, Interpretive Signage	540.9
ER	Estates Residential (1 to 4 du/ac)	Single Family Dwellings, Schools, Parks, Private Community Centers, Gardens, Landmark Features, Private Schools, Public Utilities, Flood Control and Storm Water Quality Treatment Facilities	64.7
LDR	Low Density Residential (4 to 7 du/ac)	Single Family Dwellings, Duplex and Halfplex Dwellings, Churches, Schools, Parks, Public and Private Community Centers, Gardens, Landmark Features, Private Schools, Public Utilities, Libraries, Fire Stations, Police Stations, Flood Control and Storm Water Quality Treatment Facilities	441.0
MDR	Medium Density Residential (7 to 15 du/ac)	Small Lot Single Family Dwellings, Greencourt, Motorcourt, Duplexes, Halfplexes, Townhomes, Live/Work Dwellings, Neighborhood Work Centers, Children and Senior Day Care Centers, Churches, Schools, Parks, Public and Private Community Centers, Gardens, Landmark Features Private Schools, Public Utilities, Libraries, Fire Stations, Police Stations, Flood Control and Storm Water Quality Treatment Facilities	310.5
RD20	Medium/High Density Residential (20 du/ac)	Same as MDR	54.0
HDR1	High Density Residential (20 to 30 du/ac)	Townhomes, Apartments, Live/Work Dwellings, Neighborhood Work Centers, Children and Senior Day Care Centers, Recreation Centers, Churches, Schools, Parks, Private Schools, Public Utilities, Libraries, Fire Stations, Flood Control and Storm Water Quality Treatment Facilities	79.6
FRO	Flex Residential Overlay	Flex Residential Overlay applies to LDR, MDR, RD20, and HDR uses as indicated on the FRO Map. All uses allowed in the underlying land use designations, plus Retail and Work Centers, Live/Work Dwellings, Children and Senior Day Care Centers	N/A
FC	Flex Commercial	Retail, Services and Work Center uses that serve the surrounding neighborhood	34.6
TC	Town Center	The TC land use designation consists of two distinct subareas. North of Chrysanthy Boulevard the Town Center would be an intensive mix of regional-oriented retail, services, and entertainment. South of Chrysanthy Boulevard the TC would provide more locally oriented shopping and	204.3

Table 2-1 Summary of Land Use Designations and Sacramento County Permitted Uses – Proposed Action		
Land Use Designations	Permitted Uses	Acres
	employment opportunities. All TC designations would allow Hospital (100 bed maximum), and up to 25 percent of the net developable land area to be developed as High Density Residential in horizontal or vertical integrated configurations	
Note: du/ac = dwelling units per acre * Uses not allowed in the Paseo Central Area Source: Cordova Hills Master Plan 2012a:Table 4.1		

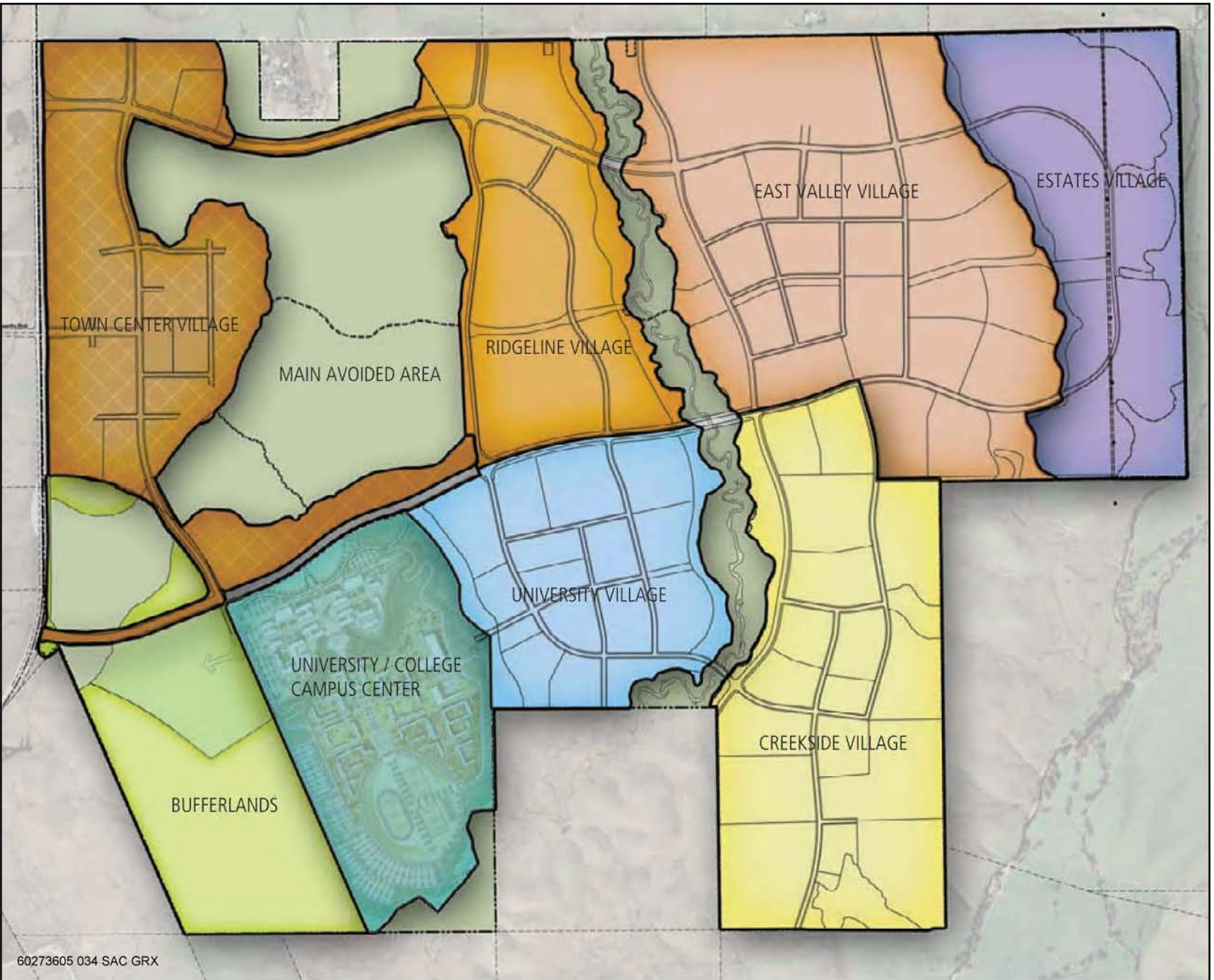
Under the Proposed Action, approximately 39.79 acres of jurisdictional waters of the U.S. would be permanently filled on the Cordova Hills site to accommodate development, including 15.64 acres of vernal pools, 6.52 acres of intermittent drainages, 3.06 acres of seasonal wetlands, 13.87 acres of seasonal wetland swales, 0.01 acre of seep, and 0.69 acre of stock ponds. This represents approximately 45 percent of all wetlands and other waters of the U.S. on the Cordova Hills site. In addition, approximately 0.36 acre of wetlands and waters would be filled as a result of off-site road work. Thus, the total direct effects to waters of the U.S. associated with the Proposed Action would be 40.15 acres.

A conceptual wetland mitigation plan for the Proposed Action has been developed by ECORP Consulting, on behalf of the project applicant, and is included in Appendix N to this document. The applicant’s conceptual wetland mitigation plan is subject to review and approval by the appropriate regulatory agencies. Proposed mitigation in the conceptual wetland mitigation plan includes a combination of on-site and off-site preservation, as well as on-site and off-site wetland restoration and creation. In addition to the four on-site wetland avoided areas, the conceptual mitigation plan proposes wetland preservation at three off-site mitigation properties: the Chester Drive Property, Shehadeh Property, and the Carson Creek Property. The off-site mitigation properties contain approximately 39.18 waters of the U.S. proposed for preservation. A total of approximately 32.84 acres of wetland restoration and creation is also proposed within the three off-site mitigation properties and within the on-site western plateau avoided area. The conceptual mitigation plan has not yet been reviewed and approved by USACE or other regulatory agencies, but is attached to this draft EIS for public review and comment.

PROPOSED CORDOVA HILLS VILLAGES

The Proposed Action includes six villages: Town Center Village, Ridgeline Village, University Village, Estates Village, East Valley Village, and Creekside Village (see Exhibit 2-3). In addition, a defined University/College Campus Center is proposed. The village boundaries are generally defined by changes in topography, natural drainages, avoided natural areas, and main transportation thoroughfares.

The Town Center Village would include five distinct “districts” that would further define the overall Town Center character and uses. The five village districts would be: Retail/Entertainment District, Business Mixed-Use District, Town Center North, Town Center East, and Southern Gateway District. The Town Center would be a vibrant urban core that includes a diversity of shops, restaurants, offices, and services. The center would serve the community with a range of shopping, services, and entertainment.

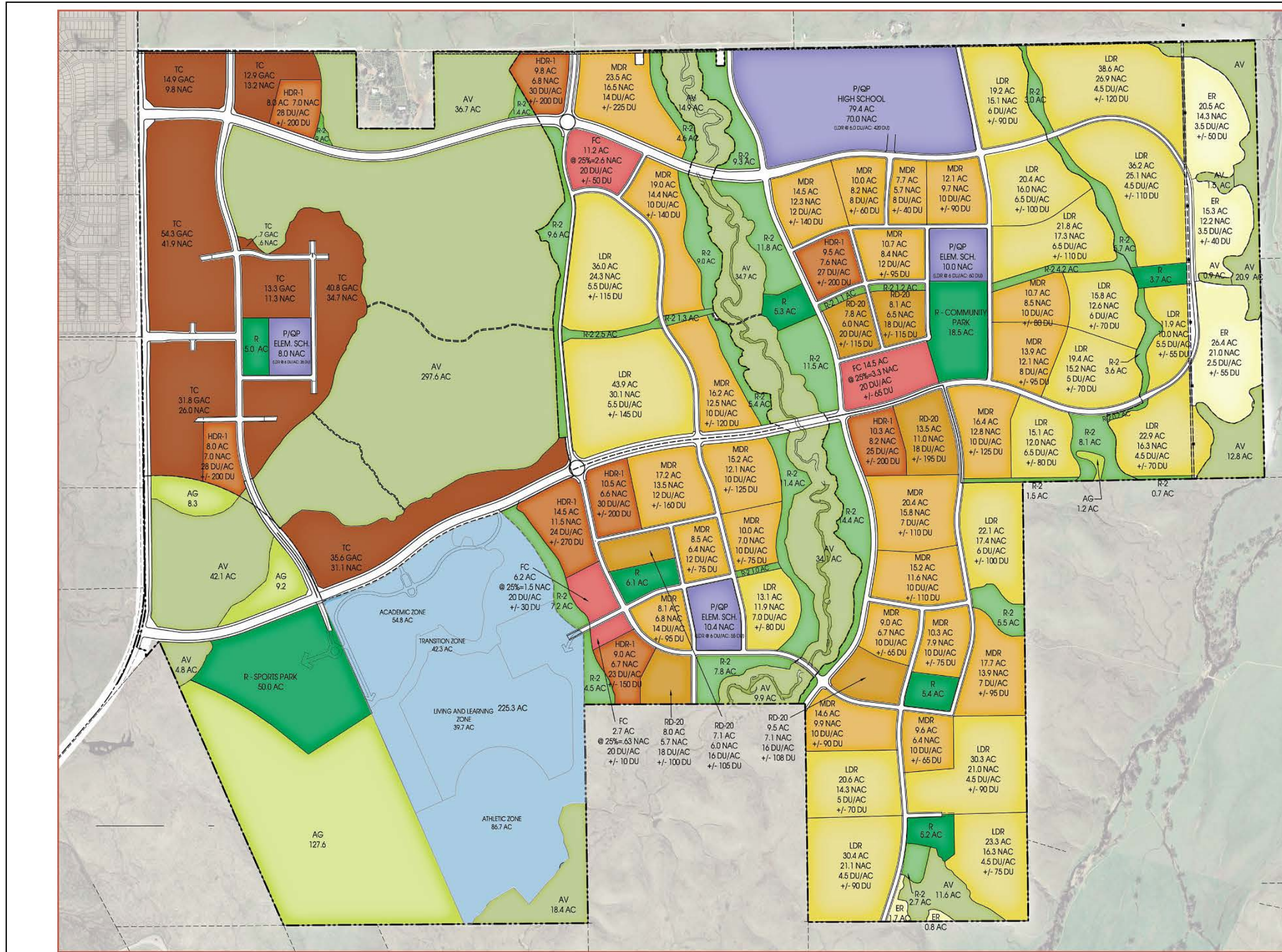


60273605 034 SAC GRX

Source: County of Sacramento 2012

Exhibit 2-3

Proposed Cordova Hills Villages



Residential Density Ranges

Residential Type	Residential Density Per Acre
Estate Residential	1-4 du/acre
Low Density Residential	4-7 du/acre
Medium Density Residential	7-15 du/acre
RD-20	20 du/acre
High Density Residential 1	20-30 du/acre
High Density Residential 2	30-40 du/acre

Legend	
[Light Yellow Box]	Estate Residential (ER)
[Light Orange Box]	Low Density Residential (LDR)
[Orange Box]	Medium Density Residential (MDR)
[Dark Orange Box]	Medium / High Density Residential (RD-20)
[Red-Orange Box]	High Density Residential (HDR1 & HDR2)
[Brown Box]	Town Center (TC)
[Red Box]	Flex Commercial (FC)
[Purple Box]	Public / Quasi Public (P/QP)
[Green Box]	Recreation (R)
[Light Green Box]	Recreation and Open Space (R-2)
[Light Green Box]	Avoided Area (AV)
[Yellow-Green Box]	Agriculture (AG)
[Blue Box]	University of Sacramento (USAC)

60273605 002 SAC GRX

Source: Cordova Hills Master Plan 2011, adapted by AECOM in 2013

Exhibit 2-4

Proposed Action Land Use Plan

The University/College Campus Center is designed to accommodate a 4-year higher educational institution. The University/College Campus Center would also include athletic facilities, student and faculty housing, and the potential inclusion of site-specific ecological and interpretive facilities.

Each village would include schools, parks, and contains or is near a commercial mixed-use shopping center. Higher density residential uses would be distributed along the proposed local transportation routes and close to commercial uses to facilitate walking to shuttle stops and local shopping.

PROPOSED CORDOVA HILLS LAND USES

As described below, the Proposed Action would include a range of housing types, employment centers, open space, and recreation opportunities, as well as supporting roadway improvements, infrastructure, and utilities. Land uses are described below and shown in Table 2-1 and Exhibit 2-4.

Residential

The Proposed Action would include a maximum of 8,000 residential units spread among six land use designations, as shown in Table 2-2. An additional 1,010 units of student and faculty housing would be provided on the proposed university campus. Table 2-3 shows the number of housing units proposed by village. Assuming 2.54 persons per household for rental units and 2.71 persons per household for owner-occupied units, this would provide housing for a residential population of approximately 21,379 residents (persons per household data is from the Sacramento Area Council of Governments; County of Sacramento 2012). In addition, the proposed University/College Campus Center would include an on-campus population of approximately 4,040, for a total residential population of approximately 25,419 persons at buildout.

Low Density Residential lot sizes would range from 5,000 to 20,000 square feet, and Medium Density Residential lot sizes would range from 2,000 to 4,999 square feet. High Density Residential zoning would be dedicated to attached condominiums and multi-family dwellings. The Proposed Action also would include a total of 1,044 affordable residential units. Residential mixed-use parcels would also be available throughout the Cordova Hills site. In the aggregate, all residential units throughout Cordova Hills site would have a total average density of 10 or more dwelling units per acre of buildable land available for residential uses.

The *Cordova Hills Master Plan* provides a range of housing choices that would meet the needs of a diverse range of households, lifestyles, and income levels. The Proposed Action includes housing types ranging from high-density apartments and townhomes to large executive homes, and includes potential areas of active adult housing.

Living choices to accommodate multi-generational community lifestyles would be incorporated into attached and detached housing. Workforce, affordable housing, and on- and off-campus University/College Campus Center housing would also be provided under the Proposed Action.

Retail/Commercial

The Proposed Action would include a total of approximately 1.3 million square feet of commercial, professional office, research and development, other employment, medical, and community institutional (such as library and fire station) uses on 238.9 acres. Table 2-4 shows the maximum commercial square footage proposed within villages where commercial uses are designated. The majority of the commercial space is proposed to be located in the Town Center. The Town Center is proposed to contain office, services, institutions, and a large array of retail

**Table 2-2
Summary Comparison of Proposed Residential Development by Alternative^a**

Residential Type (Density)	Proposed Action		Expanded Drainage Preservation Alternative		Expanded Preservation Alternative		Pilatus Alternative		Regional Conservation Alternative	
	Acres	Maximum Dwelling Units	Acres	Maximum Dwelling Units	Acres	Maximum Dwelling Units	Acres	Maximum Dwelling Units	Acres	Maximum Dwelling Units
Estate Residential (1-4 du/ac)	64.7	147	97.2	245	77.1	195	59.6	235	64.7	147
Low Density Residential (4-7 du/ac)	440.1	1,930	304.2	1,250	363.2	1,410	401.8	2,640	441.0	1,855
Medium Density Residential (7-15 du/ac)	310.5	3,110	228.5	1,825	205.7	1,730	196.1	2,855	310.5	2,565
Residential-20 (20 du/ac)	54.0	888	17.6	250	10.0	160	37.8	640	54.0	1,238
High Density Residential ^b (20-30 du/ac)	79.6	1,620	48.7	1,030	29.0	570	79.7	1,620	79.6	1,620
Town Center (High Density Residential-2) (30-40 du/ac)	117.6	150	119.7	725	0	0	0	540	155.8	160
Flex Commercial (Residential)	34.6	155	0	0	0 ¹	90	0 ¹	240	0 ¹	155
Total	1,101.1	8,000	815.9	5,425	685	4,155	775	8,770	1,105.6	7,740

Notes: du/ac = dwelling units per acre

^a Because the No Action Alternative does not entail any development, it is not included in this table.

^b Acreage under the Flex Commercial designation is already accounted for in other land use designations.

Source: Data compiled by AECOM in 2013

Table 2-3 Residential Units and Acreages by Village – Proposed Action			
Village	Number of Units	Net Residential Acres	Net Density
Town Center Village	1,750	194.6	9
Ridgeline Village	995	107.2	9
University Village	1,475	96.3	15
Estates Village	500	125.8	4
East Valley Village	1,740	188.6	9
Creekside Village	1,540	192.4	8
University/College Campus Center	1,010	39.7	25
Total	9,010	938.3	10

Source: County of Sacramento 2012, adapted by AECOM in 2012

Table 2-4 Summary Comparison of Commercial Development by Alternative^a					
Village	Proposed Action	Expanded Drainage Preservation Alternative	Expanded Preservation Alternative	Pilatus Alternative	Regional Conservation Alternative
Ridgeline	92,000	83,900	83,900	92,000	92,000
University Village	88,860	78,860	70,030	88,860	88,860
East Valley	111,200	111,200	67,300	111,200	111,200
Town Center	966,779	846,423	0	944,423	878,656
Flex Residential Overlay (FRO) ^b	90,580	90,580	90,580	113,175	90,580
Pilatus Site	0	0	0	142,100	0
Total Acreage	238.9	158.6	27.5	207.8	212.5
Total Square Footage	1,349,419	1,210,693	311,810	1,491,758	1,261,296

Notes:
^a Because the No Action alternative would not entail any development, it is not included in this table.
^b Assumes 10 percent FRO build out
Source: data compiled by AECOM in 2013

types, including restaurants, movie theatres, book stores, home supply stores, electronic stores, and other types of similar retail and services. The Proposed Action is designed to accommodate this commercial space in a concentrated “main street” atmosphere. The Town Center would also include higher density residential uses above the first-floor retail.

Outside of the proposed Town Center, neighborhood-serving retail/office/mixed-use development are proposed in village centers. These proposed neighborhood-serving commercial villages would include such uses as grocery stores, dry cleaners, restaurants, and other retail stores and service businesses that meet the daily needs of residents within the proposed community.

University/College Campus Center

A component of the Proposed Action is approximately 224 acres of land designated for a future college campus (see Exhibit 2-5). The *Cordova Hills Master Plan* includes concept plans for a future University/College Campus Center. Although a university user has not been identified for the site, the project applicant is working to recruit a university entity. For the purposes of this EIS, it is assumed that a university would be constructed. The anticipated campus enrollment is 6,000 students (4,300 undergraduate and 1,700 graduate) and 2,036 total employees (faculty and staff). Based on plans for on-campus housing, a total of 65 percent of students are assumed to live on-campus (approximately 4,040 students). The proposed University/College Campus Center would include approximately 1,870,000 square feet of facilities.

The proposed campus would include academic buildings, student housing for both undergraduate and graduate students, faculty housing, sports facilities, a performing arts center, and administration buildings. There are two distinct portions of the proposed University/College Campus Center site, divided by a major bluff that extends east to west, which would create an “upper campus” and a “lower campus.” The upper campus would include the core academic buildings and the first phase of student housing. The lower campus would be constructed as the University/College Campus Center expands and the growing student enrollment requires additional dormitories and athletic facilities, including ball fields, tennis courts, basketball courts, an athletic complex, as well as a soccer stadium.

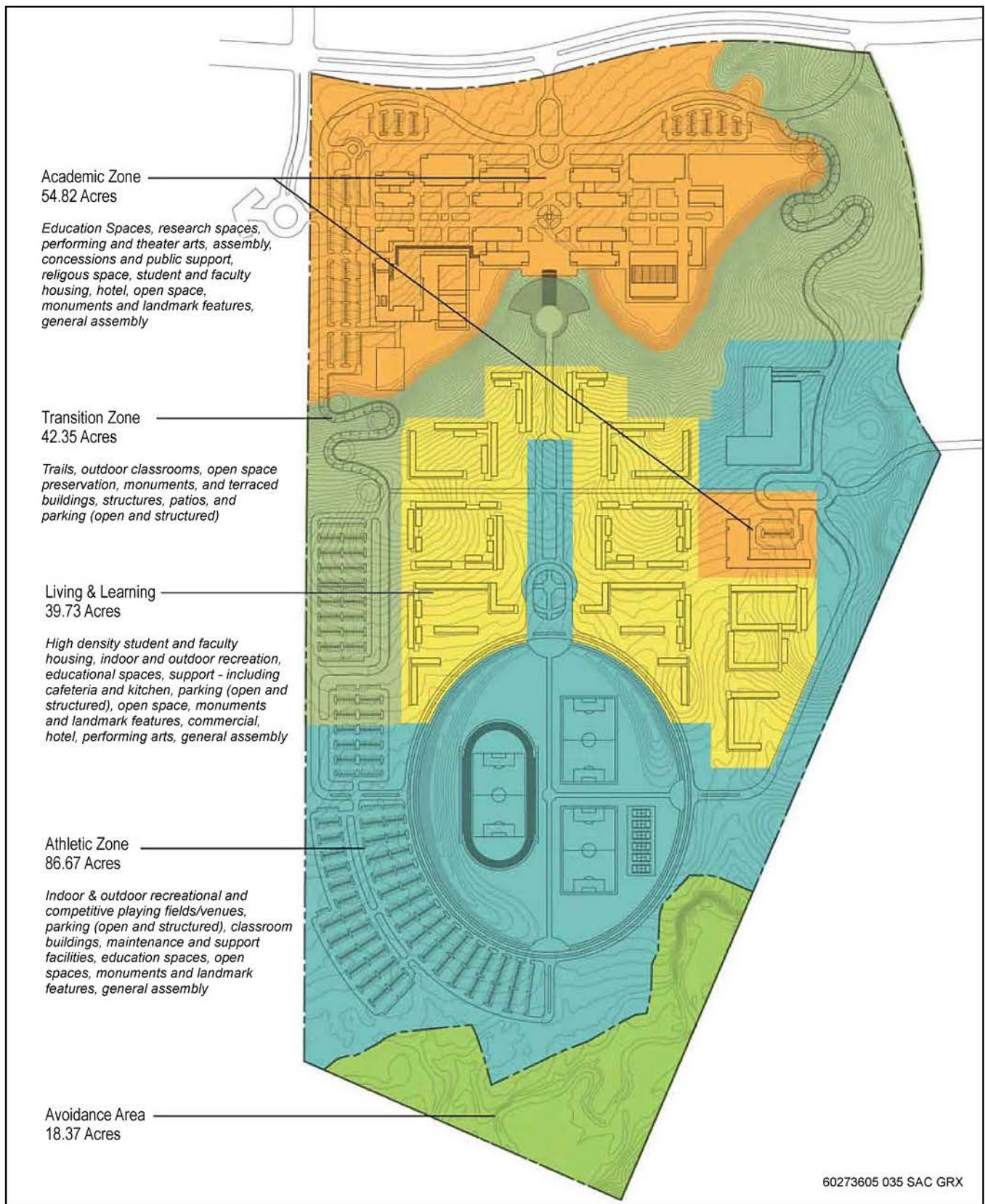
The proposed University/College Campus Center is anticipated to develop in a phased manner in response to the specific needs of the educational institution. However, none of the environmental analyses in the EIS rely on any phasing plan to assess effects; effects are based on full buildout of the entire area designated for the University/College Campus Center.

Parks and Trails

The *Cordova Hills Master Plan* describes a mix of proposed parks, open space, recreation, and non-vehicular circulation amenities, including a 50-acre sports park, an 18-acre community park, and six four- to five-acre neighborhood parks, along with pocket parks, linear parks, and a large trail network. The types of parks proposed are shown in Exhibit 2-6.

Six neighborhood parks (4-5 acres each) are proposed to be distributed through the Cordova Hills site, and two would be adjacent to school sites. In addition to the proposed neighborhood parks, the schools are proposed to have sports fields.

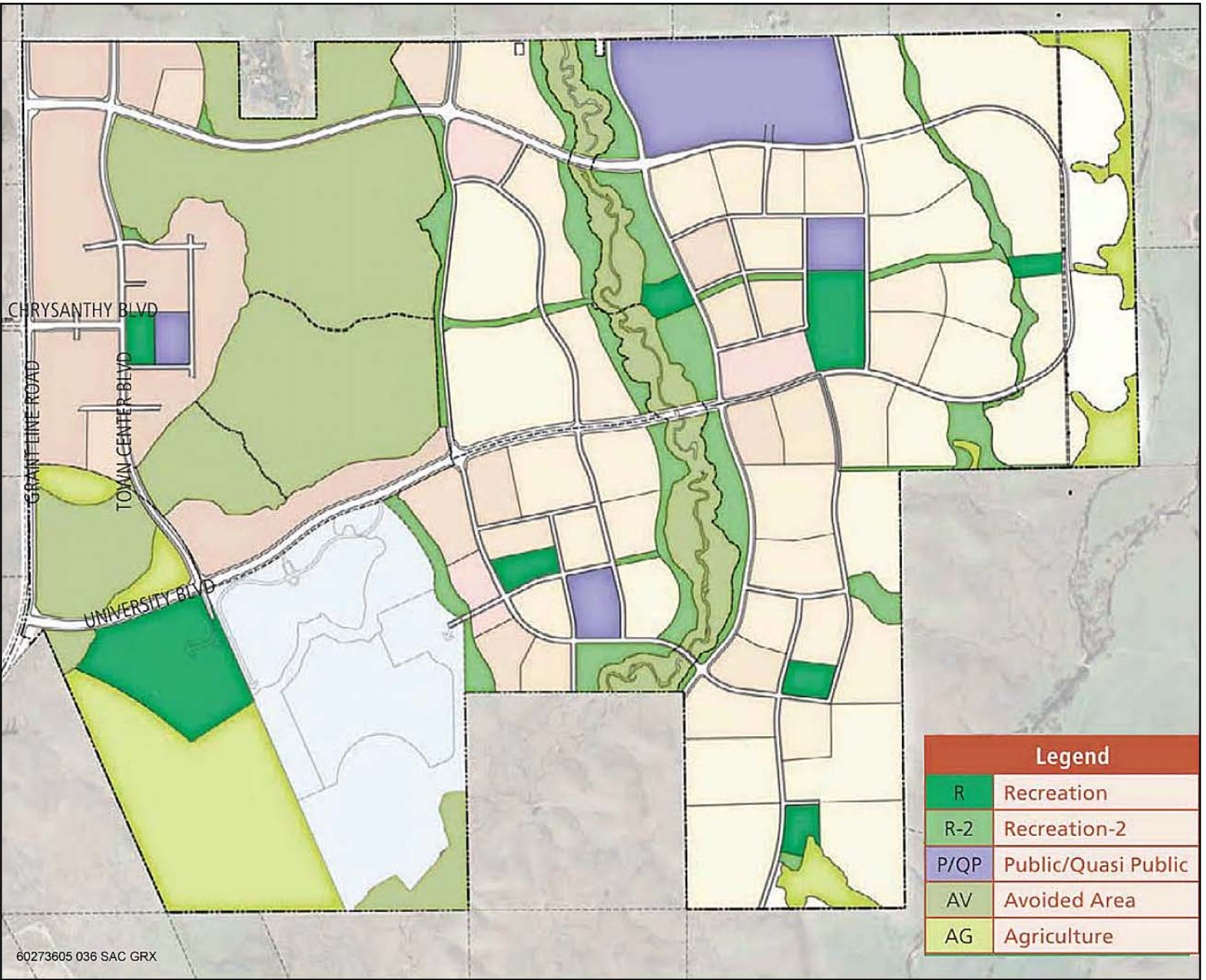
Linear parkways consist of wide, open space landscaped corridors within and between the Village neighborhoods. These proposed landscaped corridors would range in width from a minimum of 50 feet to approximately 100 feet. They would contain landscaping and multi-use trails that would provide linkages through neighborhoods to parks, schools and commercial areas. These linear parks are proposed to act as an extension of the major natural open space areas. Linear parks would provide an uninterrupted multi-use trail throughout the Cordova Hills site. In addition to trails, these parks would also contain other informal recreation activities such as picnic tables and seating areas.



Source: County of Sacramento 2012

Exhibit 2-5

Proposed University/College Campus Center – Proposed Action



60273605 036 SAC GRX

Source: County of Sacramento 2012

Exhibit 2-6

Proposed Parks and Open Space – Proposed Action

The proposed pocket parks may be located in the heart of residential neighborhoods. These less formal landscaped spaces would range from 0.25 to 1 acre and would be open and large enough to accommodate a variety of passive and informal active uses, including tot lots. These spaces would also provide an opportunity for community gardens. Although no pocket parks are specifically identified in the proposed master plan, they may be later identified in residential and recreation land use designations.

In addition to the formal parks above, the Proposed Action would include approximately 150 acres of land designated as R-2. R-2-designated areas would be developed for passive recreation uses including paved paseos, trails, picnic areas, and informal play areas, along with detention basins. R-2-designated areas outside of the Paseo Central Area could also develop recreation centers, concession stands, minor retail, coffee shops and community centers, uses intended to complement adjacent areas. These R-2-designated lands would provide opportunities for additional parkland resources. At this time, the project applicant has not proposed the specific activities that would occur within the R-2 designated areas; this would be determined at the time when small-lot tentative maps are proposed and approved by Sacramento County.

The Proposed Action would also include 26 miles of Community Class II on-street bicycle paths and 22 miles of off-street trails and paths (see Exhibit 2-7). Each home in under the Proposed Action would be no more than 1/4-mile from a trail, park, or other open space amenity.

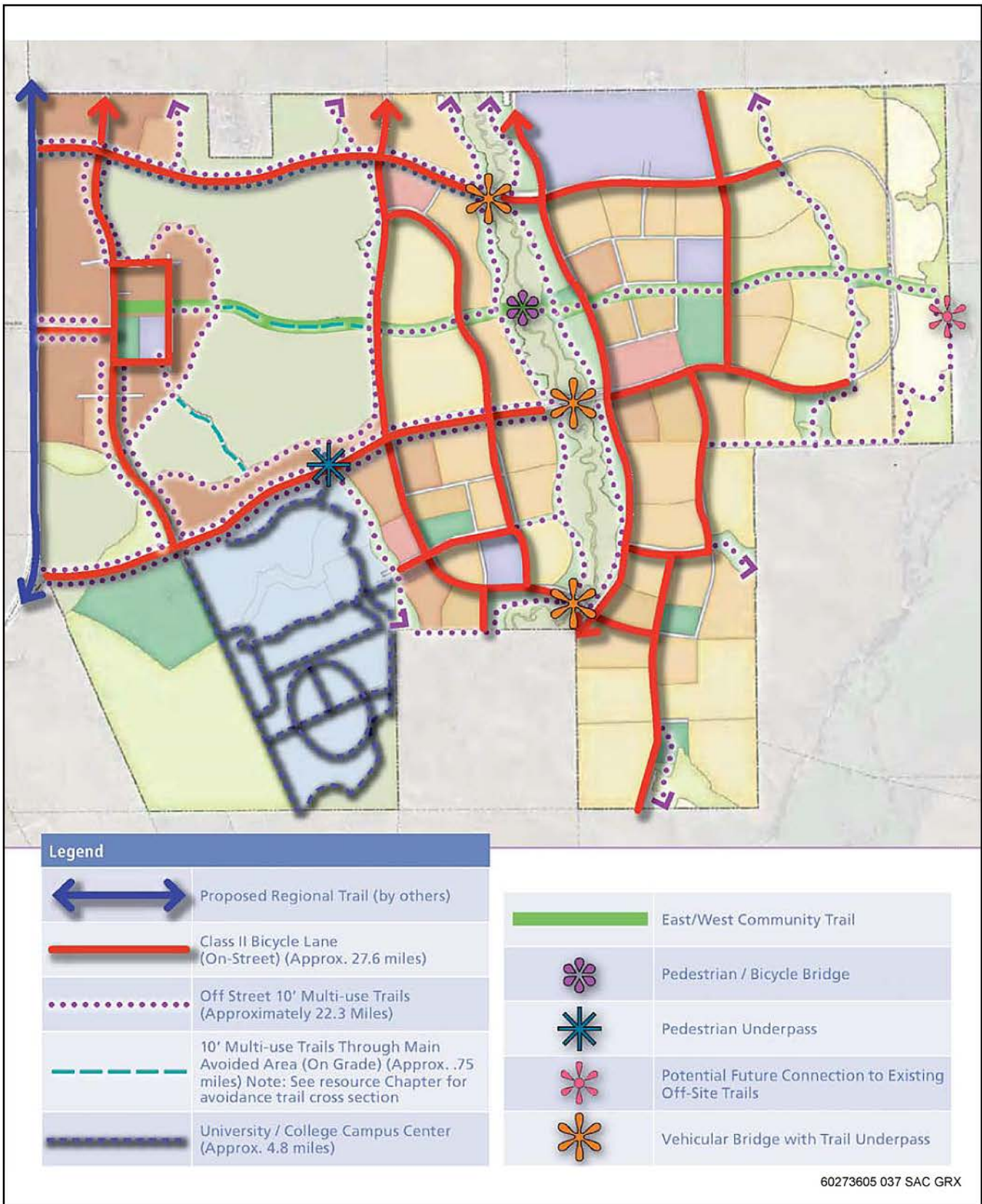
The main trail would traverse 3 miles from the western boundary of the Cordova Hills site to the eastern boundary without any at-grade crossings of a major arterial street. This trail would cross the major resource avoidance areas.

Avoidance Areas

The Proposed Action would include approximately 540 acres of public and private open space encompassing sensitive environmental resources such as vernal pools and swales, drainages, grasslands, and slopes. This open space would be avoided and/or enhanced to continue the natural stormwater pattern, provide for bio-filtration, provide passive recreation opportunities, and allow for a visual separation between villages. Pedestrian and bicycle trails are proposed for inclusion in the natural open space outside the limits of the avoidance boundaries. Other amenities incorporated in the natural open spaces would include rest stops, benches, overlooks, and habitat avoidance interpretive signage.

The largest wetland avoidance area is proposed on the western third of the Cordova Hills site that contains the greatest concentration of wetlands. This avoidance area extends from the southwestern property boundary of the Cordova Hills site to the northern boundary line. The Cordova Hills site's central drainage would be avoided within an open space corridor as well as some of the wetlands adjacent and connected to the central drainage. Detention basins, which would both detain and treat water prior to discharge into the wetland systems, would be placed along the outer edges of the avoidance areas, in areas designated R-2. The central drainage corridor exits the central portion of the Cordova Hills site to the south and then re-enters the site at the southeastern corner of the proposed University/College Campus Center. Where it is located on the University/College Campus Center site, the drainage corridor is proposed for avoidance in the same manner as it is on the central portion of the Cordova Hills site. Table 2-5 presents a comparison of wetland avoidance among the various alternatives, and Table 2-6 presents the wetland acreage that would be avoided under the Proposed Action.

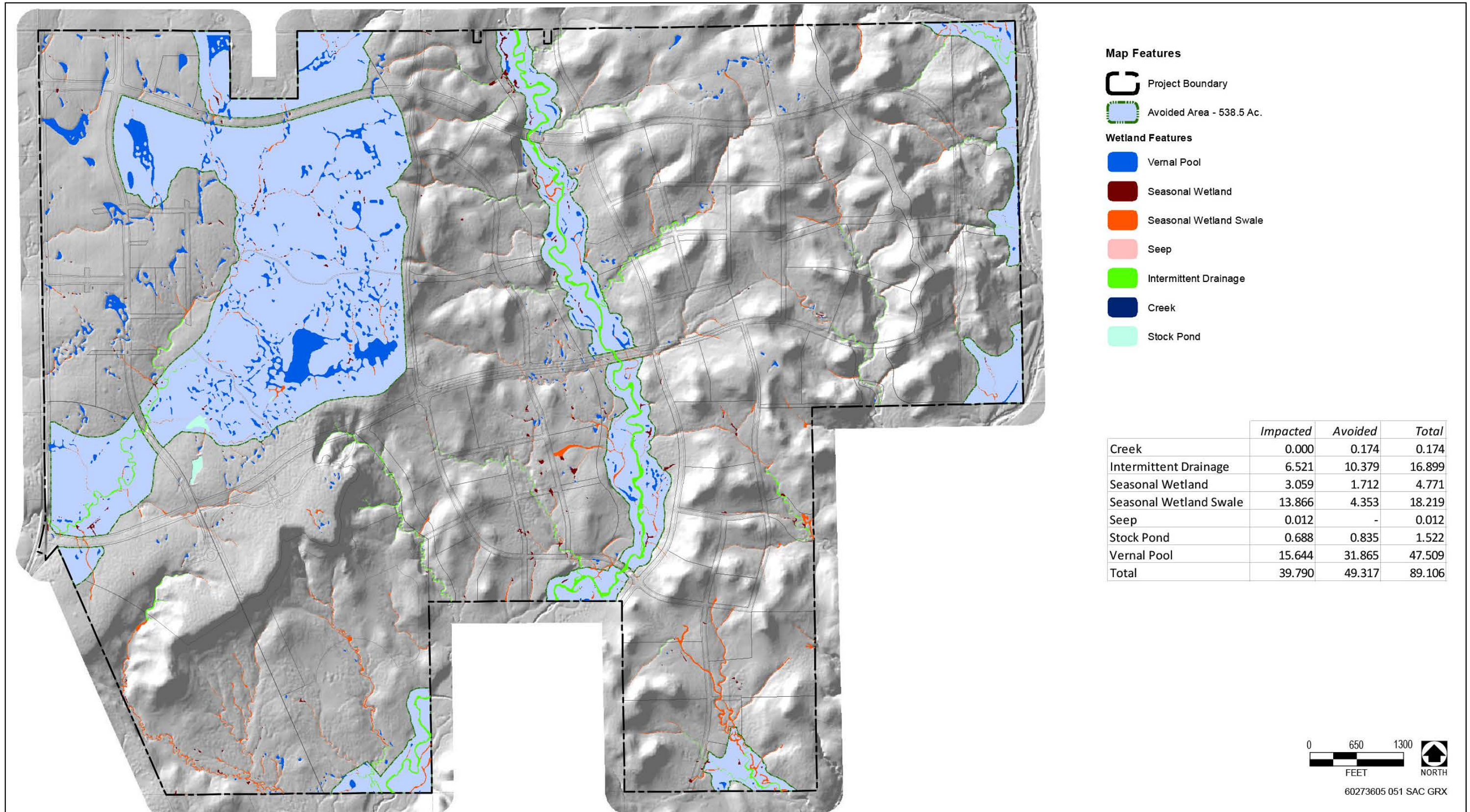
Exhibit 2-8 illustrates the locations of preserved, avoided, and affected waters under the Proposed Action.



Source: County of Sacramento 2012

Exhibit 2-7

Proposed Trail Plan – Proposed Action



Source: ECORP 2012

Exhibit 2-8

Areas of Wetland and Water Avoidance and Effects – Proposed Action

Table 2-5 Summary of Wetland Effects by Alternative					
Alternative	Total Acres Existing	Total Acres of Direct Effect	Percent of Waters Directly Affected	Total Acres of On-Site Preservation	Percent of Waters Preserved
No Action Alternative	89.11	0	0	89.11	100
Proposed Action Alternative	89.11	40.15	45	49.31	54
Expanded Drainage Preservation Alternative	89.11	18.19	20	70.92	80
Expanded Preservation Alternative	89.11	9.38	11	79.72	89
Pilatus Alternative	109.82	33.17	30	76.65	70
Regional Conservation Alternative	89.11	38.41	43	50.69	57
Source: Data compiled by AECOM in 2014					

Table 2-6 Acreage and Type of Waters Directly Affected – Proposed Action			
Water Type	Existing On-Site	On-Site Direct Effect	On-Site Preservation
Intermittent Drainage	16.90	6.36	10.21
Seasonal Wetland	4.77	3.06	1.71
Seasonal Wetland Swale	18.22	13.87	3.24
Seep	0.01	0.01	-
Vernal Pool	47.51	15.64	31.87
Carson Creek	0.17	-	0.17
Stock Pond	1.52	0.69	0.83
Total	89.11	39.63	49.48
Source: Data compiled by AECOM in 2014			

“Bufferlands” and Agriculture

The Proposed Action would include multiple areas designated as Agriculture, a land use designation that would allow a number of uses in addition to agriculture, including sports park, solar facility, district energy plant, corporation yard, park and ride lots, transit parking facilities, fueling stations, roads, stormwater basins, community gardens, sewer pump station and lines, water tanks and similar utilities. Many of these uses are specifically proposed within what the proposed master plan calls the “bufferlands” area, in reference to the part of the Cordova Hills site that lies within the County-designated 2,000-foot buffer surrounding Kiefer Landfill. The proposed master plan calls for a sewer force main that would connect to a sewer pump station located adjacent to the University/College Campus Center and a sports park proposed near the proposed University Boulevard/Grant Line Road site entrance. Other bufferlands area uses called for in the proposed master plan include a corporation yard, a solar farm, and a district energy plant.

Because the bufferlands portion of the Cordova Hills site is outside of the County's USB, County policy prohibits public sewer system service to the sports park or other proposed bufferlands area uses (pursuant to County General Plan policy). Uses in this area would rely on septic systems for sewer disposal. In January 2013, the Sacramento County Board of Supervisors adopted an amendment to the general plan permitting limited public water service and facilities to be extended beyond the USB on the Cordova Hills site.

Corporation Yard

A corporation yard is proposed for the bufferlands area. Corporation yards typically involve several buildings, an equipment maintenance shop, and an entirely paved surface for the parking of vehicles and other equipment. The proposed master plan indicates that a fleet fueling station may also be constructed with the corporation yard.

Solar Facility

The proposed *Cordova Hills Master Plan* calls for the development of a solar facility in the bufferlands area, but does not specify the specific design or size, so this discussion describes solar facilities in general. Approximately ten photovoltaic solar array applications have been processed in Sacramento County within the past few years. These large systems are installed by constructing a mounting system and then assembling the panels on top of the system. The panels are wired together in series to form long chains or rows of panels.

System construction typically involves trenching in long rows to enable installation of underground cables and wiring, vibratory driving of pipe pier supports, installation of the mounting system onto the supports (which may also include a tracking system, if the panels are designed to move with the sun), installation of the photovoltaic panels and wiring, construction of concrete pads for equipment, installation of inverters and transformers (energy must be switched from DC to AC), and construction of a substation.

District Energy Plant

Although the design and function of the proposed district energy plant is not yet determined, one power source could be methane gas routed from Kiefer Landfill (which operates a methane recapture program). One likely configuration could include electric chillers, gas boilers, a thermal energy storage system, and an engine-based combined heat and power system.

A chiller uses electricity to reduce the temperature of water, and this water would then be circulated through a network of underground chilled water piping to air conditioning units which use the cold water to cool the air. The water is then recirculated back to the chiller to be cooled again. The gas boilers would use the opposite mechanism, using natural gas to generate hot water which is distributed through a heating system. Thermal Energy Storage includes a number of different technologies, but in essence would involve the storage of chilled water at night that could then be used to cool environments during the day. Chilling the water at night would shift some of the electricity load to off-peak periods and commensurately reduce the amount of energy needed during the day. Hot water would be similarly stored. Natural gas from the landfill could power the combined heat and power system that would generate electricity for the system. The project applicant provided some estimates of phasing and equipment needs for the system (see Table 2-7), which may take up approximately 1/2-acre of land.

**Table 2-7
Potential District Energy Plant Phasing and Equipment**

Equipment	Unit Size	No. Units Total			
		Phase 1	Phase 2	Phase 3	Phase 4
Chiller, tons	750	2	4	4	5
Boiler	10	2	2	2	2
Boiler	20		2	2	3
Hot Water Storage, gallons	18,000	1	1	1	1
Chilled Water Storage, gallons	1,000,000	1	1	2	2
Engine	1.4	2	2	2	2

Source: County of Sacramento 2012, adapted by AECOM in 2012

CIRCULATION

The central proposed point of access into the Cordova Hills site is an extension of the existing Chrysanthy Boulevard, which would bisect the center of the Cordova Hills site and provide the access point into the proposed Town Center. Two primary access points are proposed between 1/2-mile and 3/4-mile north and south of the Chrysanthy Boulevard access. The two access points, University Boulevard on the south and North Loop Road on the north would connect to Grant Line Road and then traverse into the eastern area of the Cordova Hills site creating a loop where both the roads would eventually connect. These three roads would be four lanes and decrease to two lanes at the eastern side of the Cordova Hills site.

Under the Proposed Action, there would be a diversity of streets at full development, consisting of Town Center Boulevard, four-lane arterials, two-lane Community Boulevards, two-lane Neighborhood Collectors, residential streets with detached sidewalks, and rural streets.

Circulation in the Town Center would be largely provided by Town Center Boulevard, a north-south connector between North Loop Road and University Boulevard. Several smaller streets would connect Town Center Boulevard to parcels in the Town Center area. Farther to the east, several north-south trending collectors (identified as Streets “A,” “C,” “D,” and “F”) would create a large-scale grid that would provide connectivity across the North Loop Road/University Boulevard loop and would provide access to and between villages and the University/College Campus Center.

Traffic calming measures such as, traffic circles, roundabouts, intersection bulb-outs, lane-width restrictions, and other measures would be used throughout the Cordova Hills site to reduce vehicle speeds and enhance pedestrian safety.

The Proposed Action was designed to minimize barriers to pedestrian access and interconnectivity. Passages would be provided through physical barriers such as walls, berms, landscaping, and slopes between residential and non-residential uses that could otherwise impede bicycle or pedestrian circulation. All development would connect to the proposed bicycle routes. Barriers to pedestrian access between neighborhoods would be minimized. All community pedestrian paths and bikeways would connect to the commercial and mixed-use areas under the Proposed Action.

PUBLIC SERVICES

Law Enforcement

Sacramento County's Sheriff's Department currently provides law enforcement service to the Cordova Hills site and vicinity. The Sheriff's Department would continue to provide law enforcement services to the Cordova Hills site under development of the Proposed Action.

Fire

The Sacramento Metropolitan Fire District is the service provider for the Cordova Hills site and vicinity and would continue to provide services once the site has developed. One to two new fire stations would be required under the Proposed Action; Sacramento County's conditions of approval for the Cordova Hills Master Plan require that the final number and locations of fire stations be determined by a comprehensive District Standards of Coverage Study.

Schools

The Proposed Action would include three elementary schools (two sites are approximately 10 acres each and one site is approximately 8 acres), and one combined middle school and high school site (approximately 78 acres). The Cordova Hills site is within the Elk Grove Unified School District.

Libraries

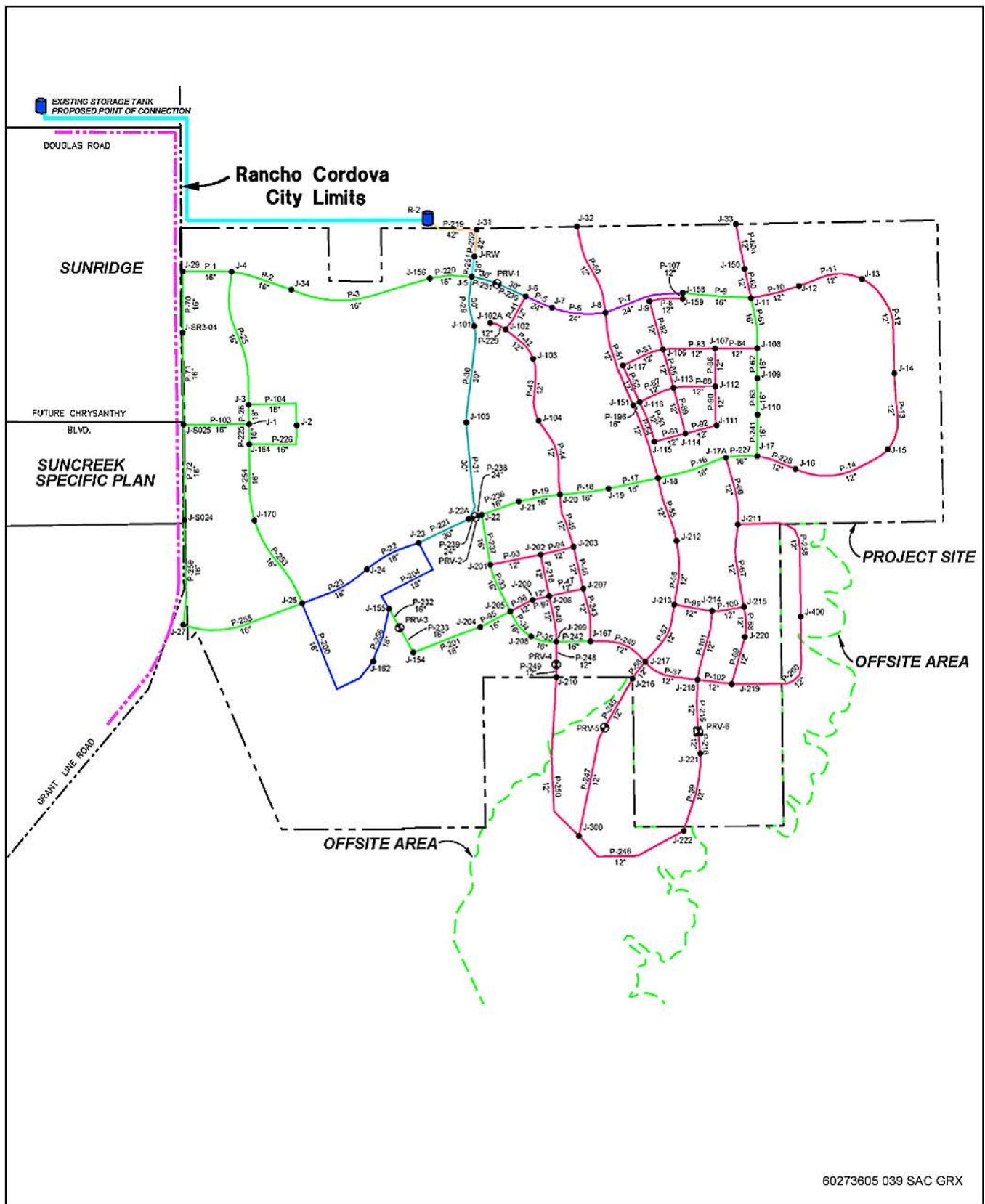
A Sacramento Public Library Authority branch is proposed within the Town Center to serve the proposed community as well as residents in the surrounding area. The branch library would be phased in over time by locating it first in a leased space in a commercial setting and ultimately locating in a separate facility. The library would be located adjacent to a public space such as a plaza and near shops, restaurants, and entertainment venues in the Town Center.

PUBLIC UTILITIES

Water Supply

The portions of the Cordova Hills site that are within the County's USB and Kiefer Landfill Bufferlands are located within the Zone 40 and Zone 41 service area of the Sacramento County Water Agency (SCWA). Other areas outside of the USB are not located within the service area of a public water provider. The Proposed Action would require extension of water lines to connect the Cordova Hills site to the regional water delivery system (see description under "Off-Site Infrastructure", below).

On-site transmission lines would be routed throughout the Cordova Hills site (see Exhibit 2-9). Due to the varying elevation within the Cordova Hills site, several booster pumps as well as pressure-reducing stations would be required to maintain system pressure to Zone 40 standards. Generally, the on-site transmission system would consist of 16- to 24-inch mains within the rights-of-way of the site's street system. A grid of 8- to 12-inch distribution mains would extend from the transmission system to serve homes and other buildings within villages and neighborhoods. Water infrastructure for the Proposed Action would be phased with development to meet end user demands as well as operational requirements of the system. The Proposed Action would ultimately include



60273605 039 SAC GRX

Source: Conwy LLC 2012

Exhibit 2-9

Proposed Water System – Proposed Action

the construction of water storage tanks either within the Cordova Hills site or at an off-site location (see description under “Off-Site Infrastructure”, below).

Wastewater

The Cordova Hills site is within the service area of the Sacramento Area Sewer District (SASD) and the Sacramento Regional County Sanitation District (SRCSD). SASD owns and operates sewer trunk and collection systems throughout Sacramento County. SRCSD owns and operates the Sacramento Regional Wastewater Treatment Plant (SWRTP) and interceptor system throughout Sacramento County. The Proposed Action requires off-site extension of sewer lines which would occur within the rights-of-way of the area street system. On-site transmission lines would be routed under roads throughout the Cordova Hills site.

Storm Drainage

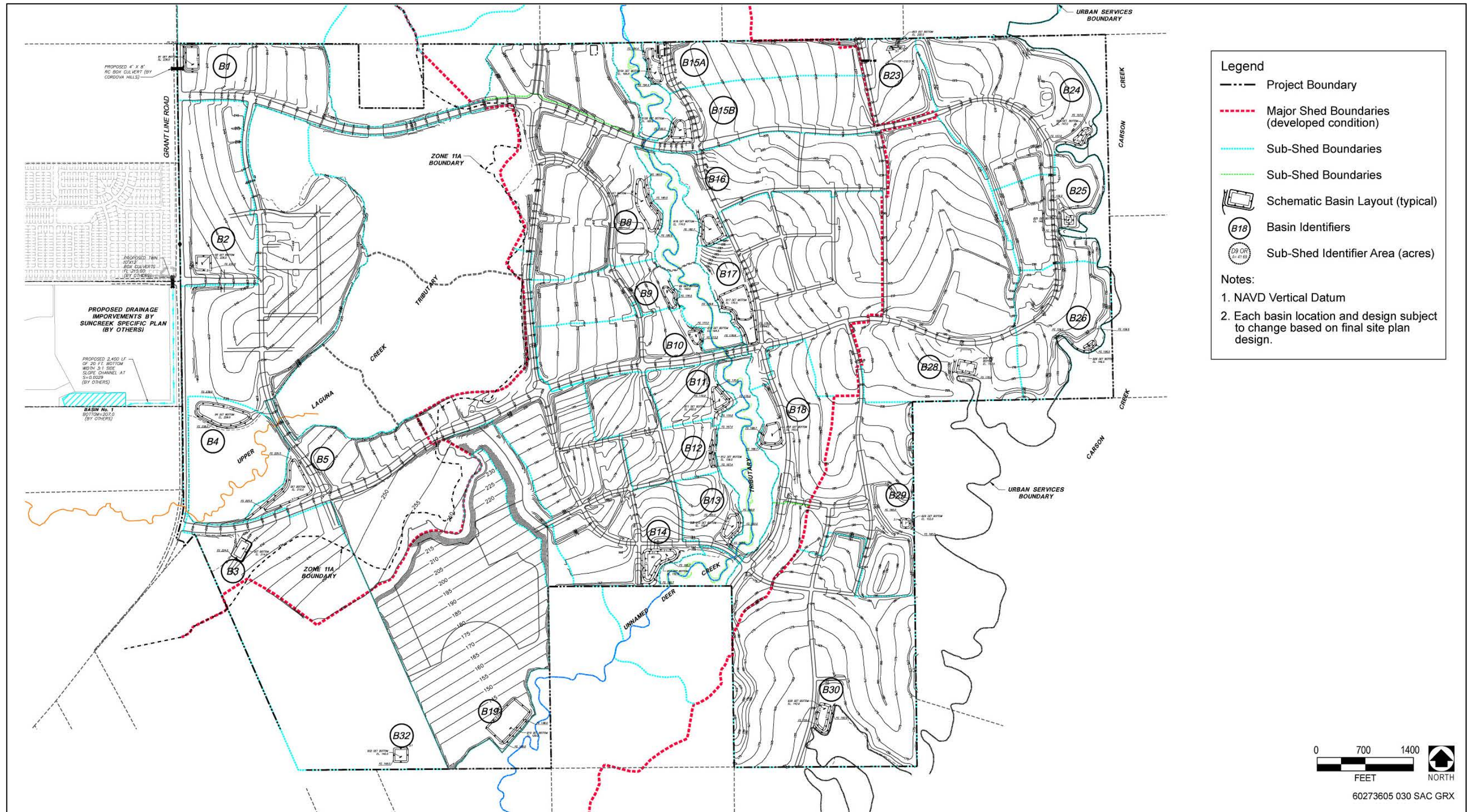
The waterways within the Cordova Hills site are tributary to two major creek systems: Laguna Creek which drains generally to the west and ultimately into the Sacramento River, and Deer Creek, which drains generally to the south and ultimately connects to the Cosumnes River. The western portions of the Cordova Hills site include intermittent drainages within the headwaters of Laguna Creek, the central and eastern portions drain to a tributary of Deer Creek, and a smaller portion in the east drains into Carson Creek, which is a tributary to Deer Creek. The Proposed Action would include detention basins and open stormwater swales, as well as an underground pipe system for the conveyance of stormwater.

Water quality would be conserved and enhanced through the proposed use of local water quality features such as grassy swales, settling basins, and natural filters to clean surface runoff water before it reaches the natural drainage channels (see Exhibit 2-10). These features are proposed to be incorporated in the pedestrian open space corridors and in dual-use park land. Low Impact Design (LID) principles such as bio swales, landscape retention areas, rain gutters dispensing to lawns, cobblestone driveways, and Hollywood driveways (two strips of pavement for the tires of the vehicle, with grass or landscaping in between) would be incorporated to the greatest extent feasible and when soil conditions permit.

Off-Site Infrastructure

Water Supply

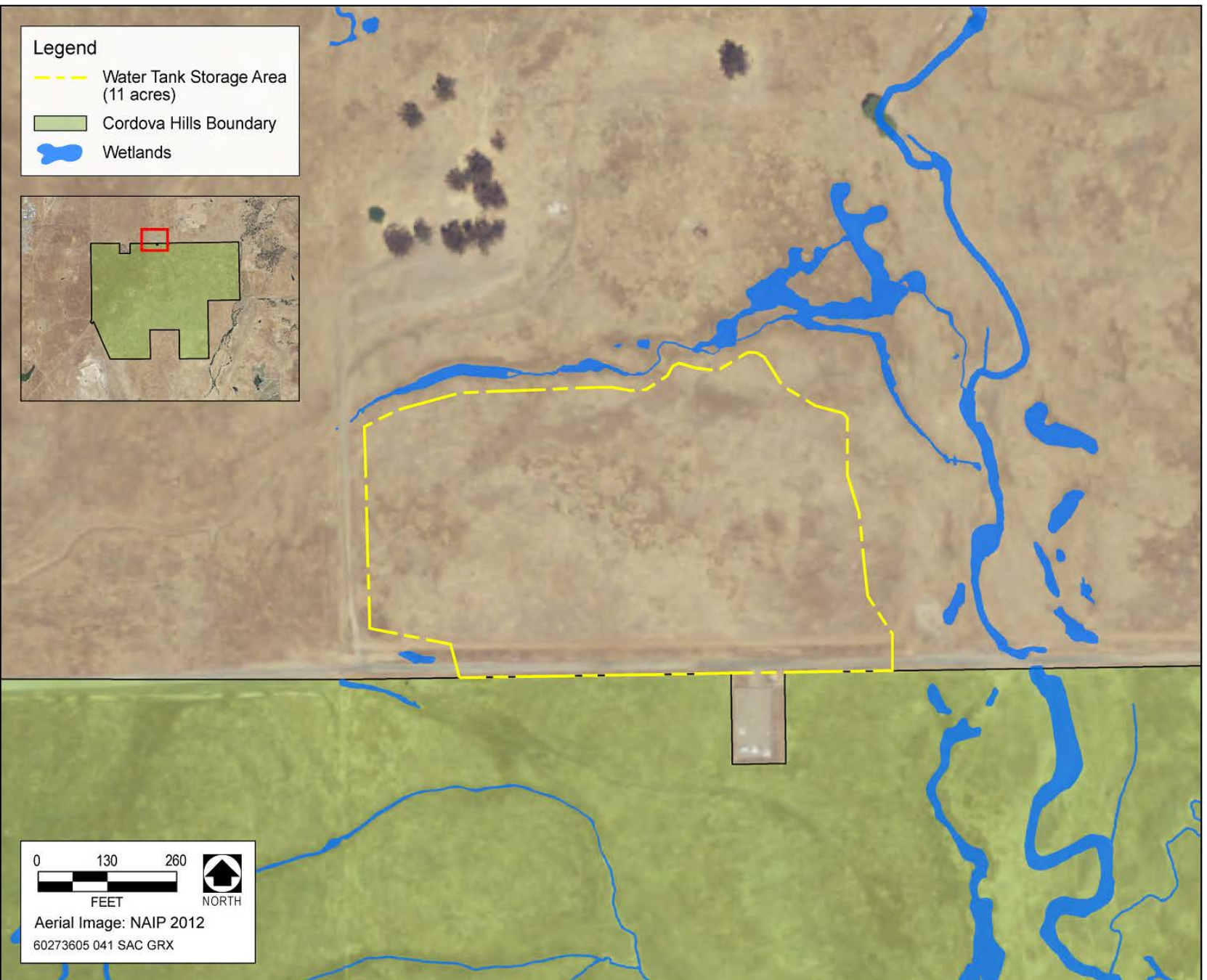
The Proposed Action would require the construction of certain off-site infrastructure. The North Service Area pipeline from the Vineyard Treatment Plant to the proposed storage tank south of Mather Lake and adjacent to and east of Eagles Nest Road is complete. This water pipeline would then be extended from the storage tank to existing water lines in the developments of Anatolia and the remainder of the Sunridge Specific Plan area. A 42-inch water line already exists along Douglas Road up to the North Douglas development along Douglas Road. A new transmission line would need to be extended from the existing 42-inch line approximately 1 3/4 of a mile to a tank site located at the Cordova Hills site. This pipeline would traverse along the frontages of other approved projects in the Sunridge Specific Plan area. Extension of this 42-inch transmission main to the proposed storage tank(s) on the Cordova Hills site would provide for the primary feed to meet demands under the Proposed Action. Water storage tanks could be located either within the Cordova Hills site or at an off-site location, likely on the Pilatus site, which is controlled by the project applicant and is just north of the Cordova Hills site’s boundary. Exhibit 2-11 illustrates the conceptual location of the off-site water tank.



Source: MacKay & Soms 2011, adapted by AECOM in 2012

Exhibit 2-10

Proposed Drainage Basin Plan – Proposed Action



Source: ECORP Consulting Inc. 2013

Exhibit 2-11

Proposed Off-site Water Tank Location – Proposed Action

Circulation

The Proposed Action would require improvements to the regional roadway network in southeast Sacramento County and would be required by the County to contribute to off-site roadway improvements on an incremental basis as the site builds out. The Proposed Action would be one of a number of projects in the vicinity with obligations to make off-site roadway improvements to the regional roadway system, including Grant Line Road. Among those projects with pending permit applications are projects within the Sunrise Douglas Specific Plan area including the Grantline 208 project (USACE ID SPK 1994 00365), the Douglas Road 98 project (USACE ID SPK 2002 00568), the Douglas Road 103 project (USACE ID SPK 1997 00006), and the Arista del Sol project (USACE ID SPK 2004 00458). The Rio Del Oro Specific Plan project (USACE ID SPK 1999 00590) has an approved USACE permit. These projects are illustrated on Exhibit 3.0-1 in Chapter 3, “Affected Environment, Environmental Consequences, and Mitigation Measures.” Other projects that are still in the Section 404 Permit application process, such as the SunCreek and Arboretum Specific Plans would likewise have obligations, previously established by Sacramento County, to fund or build portions of the regional roadway improvements to Grant Line Road. Some of the regional roadway improvements to Grant Line Road are part of the Capital Improvement Programs of the Sacramento County, city of Rancho Cordova, or city of Elk Grove. In addition, all of the projects that are required to contribute to regional roadway improvements to Grant Line Road also would be required to contribute to implementation of the Capital Southeast Connector project that is being proposed to replace Grant Line Road with a 4-lane expressway between U.S. 50 in Folsom and State Route (SR) 99 in Elk Grove, if that project is ultimately approved.

Development of the Proposed Action would require certain roadway improvements regardless of whether other regional projects or roadway improvements occur. Implementation of the following off-site roadway improvements would be required under implementation of the Proposed Action:

- ▶ connection of Grant Line Road and Chrysanthy Boulevard;
- ▶ connection of Grant Line Road and North Loop;
- ▶ connection of Grant Line Road and University Avenue;
- ▶ improve intersection of North Loop and Grant Line Road (when 1,250 dwelling unit equivalents are constructed);
- ▶ improve intersection of North Loop and Grant Line Road (when 1,800 dwelling unit equivalents are constructed);
- ▶ improve intersection of Jackson Highway/SR 16 and Grant Line Road (when 500 dwelling unit equivalents are constructed);
- ▶ improve intersection of Grant Line Road and Douglas Boulevard (when 850 dwelling unit equivalents are constructed);
- ▶ improve intersection of Grant Line Road and Douglas Boulevard (when 1,800 dwelling unit equivalents are constructed); and

- ▶ widening of Grant Line Road from two lanes to four lanes from North Loop to Douglas Boulevard (when 1,800 dwelling unit equivalents are constructed).

At this time, it is uncertain what entities would fund and build the remainder of the regional roadway improvements once the Proposed Action reaches 1,800 dwelling unit equivalents. If, at that time, no other project has permitted and constructed any of the necessary regional roadway improvements, then the project applicant would need to submit a subsequent Section 404 Permit application to build one or more of the remaining regional roadway improvements. Consequently, this EIS does not consider those future improvements as part of the Proposed Action; however, those future improvements are analyzed as part of the cumulative effect scenario in Section 3.15, “Traffic and Transportation”.

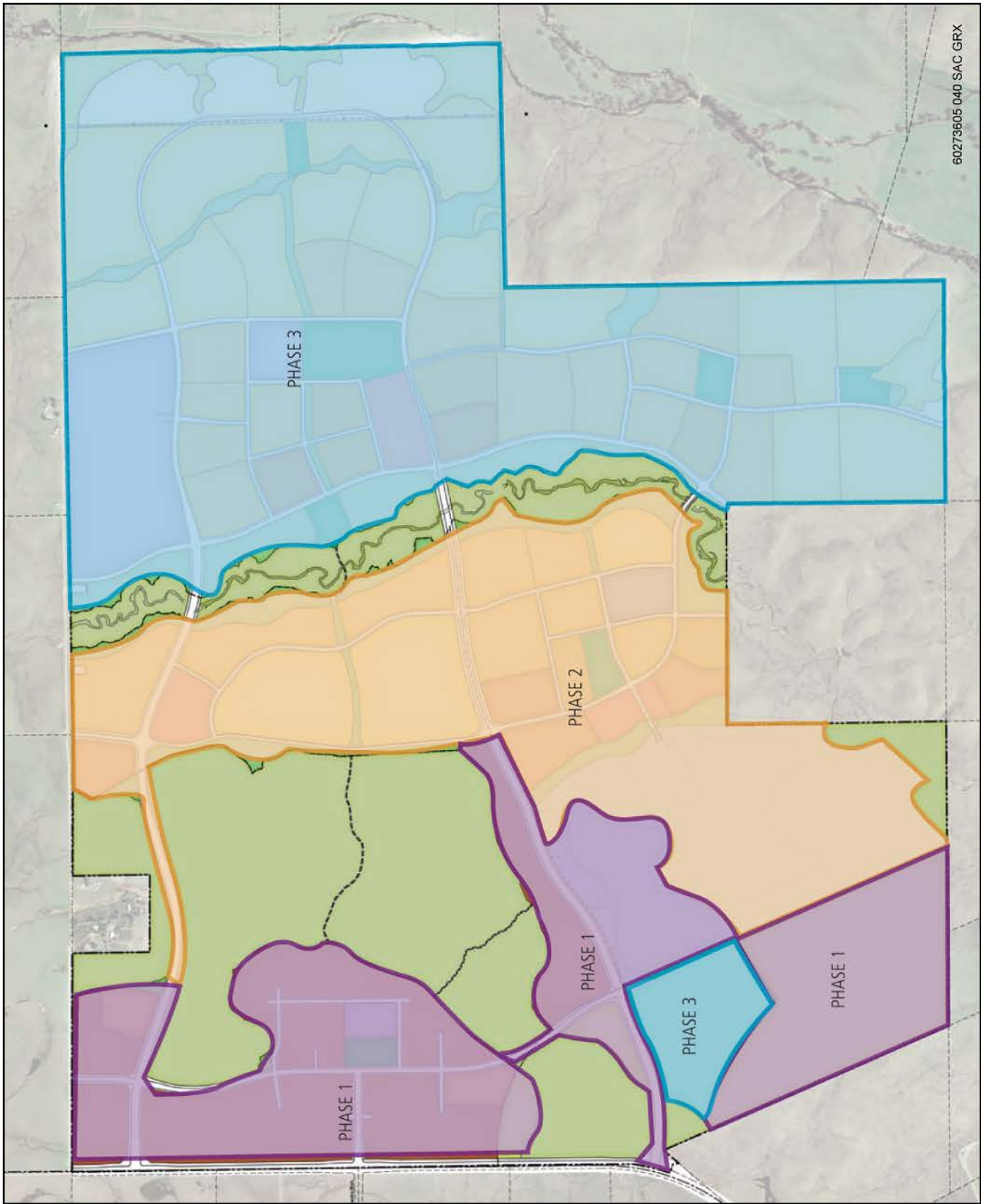
2.4.3 PHASING AND CONSTRUCTION

It is estimated currently that the Proposed Action would be constructed in three general phases, as shown in Exhibit 2-12. Development would generally begin at Grant Line Road and proceed in an easterly direction. The University/College Campus Center would develop incrementally over a 20-30 year period, as is described above. The proposed phasing plan shown in Exhibit 2-12 is intended to be an illustrative description of a likely scenario of phasing and development, but would not preclude phasing from occurring in the future in a different manner. The project application does not indicate full build-out of an earlier phase of development before initiating development activities in a subsequent phase of the Proposed Action. The *Cordova Hills Master Plan* indicates that market conditions and requirements for infrastructure phasing may dictate alternative development scenarios. It is currently projected that development of the Proposed Action would occur over 30 years.

Construction staging areas would be established as individual portions or features of the Proposed Action are developed. Staging areas would be fenced and would be used for storage of vehicles, equipment, and materials, including fuels, lubricants, and solvents. Stockpiling or vehicle staging areas would be identified in the improvement plans and would be located as far as practical and necessary from protected resources in the area such as native vegetation. The project applicant has indicated that all staging areas would be sited in already-disturbed areas.

2.4.4 MITIGATION MEASURES, CONDITIONS OF APPROVAL, AND OBLIGATIONS

The Sacramento County Board of Supervisors adopted the *Cordova Hills Master Plan* in January 2013. In adopting the plan, the Board of Supervisors required that the project applicant implement actions identified in conditions of approval, a development agreement, and mitigation measures. These actions have been included as part of the Proposed Action that is analyzed in this EIS. Table 2-8 summarizes the project applicant’s obligations found in the County certified EIR’s mitigation measures, in the Rezone and Tentative Large Lot Parcel Map Conditions of Approval, and the obligations found in the Development Agreement. These obligations are collectively referred to as “entitlements” in the effects analysis in Chapter 3 of this document. Appendix D includes the full text of all the entitlements.



Source: Conwy LLC 2012

Exhibit 2-12

Proposed Phasing – Proposed Action

**Table 2-8
 Sacramento County Certified EIR Mitigation Measures, Development Agreement Obligations, and Conditions of Approval**

EIR	DA	COA	Measure
✓			1. The SPA shall be amended to require all lighting applications subject to the 2008 Building Efficiency Standards Section 147 to use fixtures approved by the International Dark Sky Association (<i>Final EIR Mitigation Measure AE-1</i>).
✓			2. The applicant shall disclose to all prospective buyers of properties within 500 feet of the northern property boundary that they could be subject to inconvenience or discomfort resulting from accepted farming activities as per provisions of the County Right-To-Farm Ordinance and shall include a note on all final maps disclosing the Right-To-Farm Ordinance (<i>Final EIR Mitigation Measure AG-1</i>).
✓			3. The applicant shall enter into an agreement with an agricultural operator to maintain grazing use, or other more intensive use, on the land which is subject to Williamson Act contract 72-AP-109. Agricultural use shall be maintained until Williamson Act contract expiration. Documentation of this agreement shall be submitted to Environmental Coordinator prior to approval of the zoning agreement for the Williamson Act contracted property (<i>Final EIR Mitigation Measure AG-2</i>).
✓			4. Prior to the approval of improvement plans, building permits, or recordation of the final map, whichever occurs first, the applicant shall offset the loss of 8.6 acres of Unique Farmland and 242.4 acres of Grazing Land through 1:1 preservation of farmland within a permanent conservation easement. Preservation land must be in-kind or of similar resource value (<i>Final EIR Mitigation Measure AG-3</i>).
✓			5. The following language shall be added to the SPA: All individual development projects shall implement Sacramento Metropolitan Air Quality Management District rules and mitigation pertinent to construction-related ozone precursor emissions, as defined by the most current version of the Sacramento Metropolitan Air Quality Management District Guide to Air Quality Assessment (<i>Final EIR Mitigation Measure AQ-1</i>).
✓			6. Comply with the provisions of the Air Quality Management Plan dated June 1, 2011, as updated March 2012 (errata) and as amended January 2-13, and incorporate the requirements of this plan into the Cordova Hills Special Planning Area conditions. Also, the following text shall be added to the Cordova Hills SPA: “All amendments to the Cordova Hills SPA with the potential to result in a change in ozone precursor emissions shall include an analysis which quantifies, to the extent practicable, the effect of the proposed SPA amendment on ozone precursor emissions. The amendment shall not increase total ozone precursor emissions above what was considered in the AQMP for the entire Cordova Hills project and shall achieve the original 35% reduction in total overall project emissions. If the amendment would require a change in the AQMP to meet that requirement, then the proponent of the SPA amendment shall consult with SMAQMD on the revised analysis and shall prepare a revised AQMP for approval by the County, in consultation with SMAQMD.” (<i>Final EIR Mitigation Measure AQ-2</i>).
✓			7. The following language shall be added to the SPA: Buffers shall be established on a project-by-project basis and incorporated during permit or project review to provide for buffer separations between sensitive land uses and sources of air pollution or odor. The California Air Resources Board’s “Air Quality and Land Use Handbook: A Community Health Perspective”, or more current document, shall be utilized when establishing these buffers. Sensitive uses include schools, daycare facilities, congregate care facilities, hospitals, or other places of long-term residency for people (this includes both single- and multiple-family). The buffers shall be applied to the source of air pollution or odor, and shall be established based either on proximity to existing sensitive uses or proximity to the property boundary of land designated for sensitive uses. Buffers current at the time of the establishment of this SPA indicate that sensitive uses should be: <ul style="list-style-type: none"> a. A least 500 feet from auto body repair services. b. At least 50 feet from existing gasoline dispensing stations with an annual throughput of less than 3.6 million gallons and 300 feet from existing gasoline dispensing stations with an annual throughput at or above 3.6 million gallons.

Table 2-8 Sacramento County Certified EIR Mitigation Measures, Development Agreement Obligations, and Conditions of Approval			
EIR	DA	COA	Measure
			c. At least 300 feet from existing land uses that use methylene chloride or other solvents identified as a TAC, including furniture manufacturing and repair services (<i>Final EIR Mitigation Measure AQ-3</i>).
✓			8. Include in the SPA a requirement that the western perimeter of the Sports Park and University/College Campus Center (where these are within 2,000 feet of the Kiefer landfill) include a minimum 25-foot-wide landscaping area. This landscaping area shall include a dense mix of trees and shrubs, to screen the uses from the landfill. Acceptable tree species include those expected to reach minimum heights of 40 feet (<i>Final EIR Mitigation Measure AQ-4</i>).
✓			<p>9. To compensate for the permanent loss of wetlands, the applicant shall perform one or a combination of the following prior to issuance of building permits, and shall also obtain all applicable permits from the Army Corps of Engineers, the U.S. Fish and Wildlife Service, the Central Valley Regional Water Quality Control Board, and the California Department of Fish and Game:</p> <p>a. Where a Section 404 Permit has been issued by the Army Corps of Engineers, or an application has been made to obtain a Section 404 Permit, the Mitigation and Management Plan required by that permit or proposed to satisfy the requirements of the Corps for granting a permit may be submitted for purposes of achieving a no net-loss of wetlands. The required Plan shall be submitted to the Sacramento County Environmental Coordinator, U.S. Army Corps of Engineers, and U.S. Fish and Wildlife Service for approval prior to its implementation.</p> <p>b. If regulatory permitting processes result in less than a 1:1 compensation ratio for loss of wetlands, the Project applicant shall demonstrate that the wetlands which went unmitigated/uncompensated as a result of permitting have been mitigated through other means. Acceptable methods include payment into a mitigation bank or protection of off-site wetlands through the establishment of a permanent conservation subject to the approval of the Environmental Coordinator.</p> <p>c. The Project applicant may participate in the South Sacramento County Habitat Conservation Plan if it is adopted, and if the Project area and activities are covered. The applicant shall prepare Project plans in accordance with that Plan and any and all fees or land dedications shall be completed prior to construction (<i>Final EIR Mitigation Measure BR-1</i>).</p>
✓			10. Prior to issuance of building permits, all areas designated within the SPA as Avoided shall be placed within a permanent conservation easement, which shall be reviewed and approved by the Environmental Coordinator. At a minimum, the permanent conservation easements must cover all areas which are required to be preserved as part of the Section 404 and Section 401 wetland permits (<i>Final EIR Mitigation Measure BR-2</i>).
✓			11. If construction, grading, or Project-related improvements are to occur between March 1 and September 15, a focused tree survey for tree-or-ground nesting raptors within 500 feet of the construction site (1/2-mile for Swainson’s hawk) and for ground-nesting grasshopper sparrow shall be conducted by a qualified biologist within 14 days prior to the start of construction work (including clearing and grubbing). If active nests are found, the California Department of Fish and Game shall be contacted to determine appropriate protective measures. If no active nests are found during the focused survey, no further mitigation will be required (<i>Final EIR Mitigation Measure BR-3</i>).

**Table 2-8
 Sacramento County Certified EIR Mitigation Measures, Development Agreement Obligations, and Conditions of Approval**

EIR	DA	COA	Measure
✓			12. Prior to the approval of improvement plans, building permits, or recordation of the final map, whichever occurs first, implement one of the options below to mitigate for the loss of Swainson’s hawk foraging habitat on the Project site; based on current Project designs this is 2,267 acres. Based on current designs, this can be reduced to 2,231 acres of mitigation if the applicant establishes a permanent conservation easement over the areas designated Agriculture on the eastern and southeastern sides of the site (these are areas outside of the Urban Services Boundary). Foraging habitat preserved shall consist of grassland or similar habitat open habitat, not cropland, because this mitigation measure also offsets impacts to other species that do not use cropland habitat.
			a. The project proponent shall utilize one or more of the mitigation options (land dedication and/or fee payment) established in Sacramento County’s Swainson’s Hawk Impact Mitigation Program (Chapter 16.130 of the Sacramento County Code). b. The Project proponent shall, to the satisfaction of the California Department of Fish and Game, prepare and implement a Swainson’s hawk mitigation plan that will include preservation of Swainson’s hawk foraging habitat. c. Should the County Board of Supervisors adopt a new Swainson’s hawk mitigation policy/program (which may include a mitigation fee payable prior to issuance of building permits) prior to the implementation of one of the measures above, the Project proponent may be subject to that program instead. If the design of the primary avoided area on the western plateau (currently 382 acres in size) is increased in size in response to Section 404 wetland permitting requirements, the total amount of mitigation land required may be adjusted downward to reflect this increased avoidance, at the discretion of the Environmental Coordinator (<i>Final EIR Mitigation Measure BR-4</i>)
✓			13. Prior to construction activity (including site improvements, and building construction) focused surveys shall be conducted by a qualified biologist for burrowing owls in the construction area and within 500 feet of the construction area. Surveys shall be conducted no less than 14 days and no more than 30 days prior to commencement of construction activities. Surveys shall be conducted in accordance with “Burrowing Owl Survey Protocol and Mitigation Guidelines” published by The California Burrowing Owl Consortium (April 1993). The following shall also apply: a. If no occupied burrows are found in the survey area, a letter report documenting survey methods and findings shall be submitted to the County and no further mitigation is necessary. b. If an occupied burrow is found the applicant shall contact the Environmental Coordinator and consult with the California Department of Fish (CDFG), prior to construction, to determine if avoidance is possible or if burrow relocation will be required. c. If owls are to remain on-site, a minimum of 6.5 acres of foraging habitat for each occupied burrow needs to be permanently preserved according to California Department of Fish and Game guidelines. In addition, no activity shall take place within 160 feet of an active burrow from September 1 to January 31 (wintering season) or 250 feet from February 1 through August 31 (breeding season). Protective fencing shall be placed, at the distances above, around the active burrows and no activity shall occur within the protected buffer areas. Permanent improvements shall be a minimum of 250 feet from an occupied burrow. d. Any impact to active owl burrows, relocation of owls, or mitigation for habitat loss shall be done in accordance with the Fish and Game “Staff Report on Burrowing Owl Mitigation” (October 17, 1995) or the version current at the time of construction. Written evidence from Fish and Game staff shall be provided to Environmental Coordinator attesting to the permission to remove burrows, relocate owls, or mitigate for lost habitat, and shall include a plan to monitor mitigation success (<i>Final EIR Mitigation Measure BR-5</i>).

Table 2-8 Sacramento County Certified EIR Mitigation Measures, Development Agreement Obligations, and Conditions of Approval			
EIR	DA	COA	Measure
✓			<p>14. If construction occurs between March 1 and July 31 pre-construction surveys for nesting tricolored blackbirds shall be performed by a qualified biologist. Surveys shall include the construction site and areas of appropriate habitat within 300 feet of the construction site. The survey shall occur no longer than 14 days prior to the start of construction work (including clearing, grubbing or grading). The biologist shall supply a brief written report (including date, time of survey, survey method, name of surveyor and survey results) to the Environmental Coordinator prior to ground disturbing activity. If no tricolored blackbird were found during the pre-construction survey, no further mitigation would be required. If an active tricolored blackbird colony is found on-site or within 300 feet of the construction site the project proponent shall do the following:</p>
			<p>a. Consult with the California Department of Fish and Game to determine if project activity will impact the tricolored blackbird colony(s), and implement appropriate avoidance and impact minimization measures if so directed. Provide the Environmental Coordinator with written evidence of the consultation or a contact name and number from the California Department of Fish and Game.</p> <p>b. The applicant may avoid impacts to tricolored blackbird by establishing a 300- foot temporary setback with fencing that prevents any project activity within 300 feet of the colony. A qualified biologist shall verify that setbacks and fencing are adequate and will determine when the colonies are no longer dependent on the nesting habitat (i.e. nestlings have fledged and are no longer using habitat), which will determine when the fencing may be removed. The breeding season typically ends in July (<i>Final EIR Mitigation Measure BR-6</i>)</p>
✓			<p>15. Presence of California linderiella, midvalley fairy shrimp, vernal pool fairy shrimp and vernal pool tadpole shrimp shall be assumed unless determinate surveys that comply with U.S. Fish and Wildlife protocol conclude that the species are absent. If the protocol surveys are performed and all listed crustacean species are absent, Ricksecker’s water scavenger beetle may also be presumed absent, and no further mitigation shall be required for listed vernal pool invertebrates. If species are found, one or a combination of the following shall apply:</p> <p>a. <i>Total Avoidance: Species are present or assumed to be present.</i> Unless a smaller buffer is approved through formal consultation with the Fish and Wildlife Service, construction fencing shall be installed a minimum of 250 feet from all delineated vernal pool margins. All construction activities are prohibited within this buffer area. For all vernal pools where total avoidance is achieved, no further action is required.</p> <p>b. <i>Compensate for habitat removed.</i> Obtain all applicable permits from the U.S. Fish and Wildlife Service, U.S. Army Corps of Engineers, California Department of Fish and Game, and the Central Valley Regional Water Quality Control Board for any proposed modifications to vernal pools and mitigate for habitat loss in accordance with the Biological Opinion and Section 404 permits obtained for the Project. At a minimum, mitigation ratios shall be consistent with County General Plan Policy, which requires no net loss of wetland resources. Any vernal pool loss not mitigated through the permitting process shall be mitigated for by payment into a mitigation bank or protection of off-site wetlands through the establishment of a permanent conservation easement, subject to the approval of the Environmental Coordinator (<i>Final EIR Mitigation Measure BR-7</i>).</p>
✓			<p>16. If construction activities encroach within the 250-foot buffer for vernal pools 358, 363, 370, 426 or 511 the applicant shall prepare a pesticide and pollution prevention plan. The plan shall include measures to reduce pollution run-off, pesticide drift, and other similar potential contaminants, to protect surrounding preserve areas from urban contaminants. Measures shall include the implementation of best management practices (e.g. straw wattles, silt fencing, and soil stabilization) for stormwater control. The plan shall be incorporated in the Operations and Management Plan which is a requirement of the Section 404 permit process (<i>Final EIR Mitigation Measure BR-8</i>).</p>

**Table 2-8
 Sacramento County Certified EIR Mitigation Measures, Development Agreement Obligations, and Conditions of Approval**

EIR	DA	COA	Measure
✓			17. The project applicant shall prepare an invasive species removal and prevention plan. The plan shall provide methods to remove invasive species from preservation areas and to restore the affected wetland features. The plan shall include methods for the prevention of the introduction of new invasive species from landscapes associated with the development. Minimum components of such a plan shall include: mapping of existing invasive plant populations within the avoided areas, with the map being updated a minimum of every five years; a description of acceptable methods for removing invasive species, examples of which include hand removal or biological controls (e.g. natural parasites); and a prohibition on the use of non-native plants within either the avoided areas or the Recreation-2 areas. The plan shall be incorporated in the Operations and Management Plan which is a requirement of the Section 404 permit process (<i>Final EIR Mitigation Measure BR-9</i>)
✓			18. The following text shall be added to the Cordova Hills SPA: All amendments to the SPA with the potential to change SPA-wide GHG emissions shall include an analysis which quantifies, to the extent practicable, the effect of the Amendment on SPA-wide greenhouse gas emissions. The Amendment shall not increase SPA-wide greenhouse gas emissions above an average 5.80 metric tons per capita (including emissions from building energy usage and vehicles). If the SPA amendment would require a change in the approved GHG Reduction Plan in order to meet the 5.80 MT CO ₂ e threshold, then the proponent of the SPA amendment shall consult with the SMAQMD on the revised analysis and shall prepare a revised GHG Reduction Plan for approval by the County, in consultation with SMAQMD. (<i>Final EIR Mitigation Measure CC-1</i>)
✓			19. If subsurface deposits believed to be cultural or human in origin are discovered during construction, then all work must halt within a 200-foot radius of the discovery. A qualified professional archaeologist, meeting the Secretary of the Interior’s Professional Qualification Standards for prehistoric and historic archaeology, shall be retained at the Applicant’s expense to evaluate the significance of the find. If it is determined due to the types of deposits discovered that a Native American monitor is required, the Guidelines for Monitors/Consultants of Native American Cultural, Religious, and Burial Sites as established by the Native American Heritage Commission shall be followed, and the monitor shall be retained at the Applicant’s expense. Work cannot continue within the 200-foot radius of the discovery site until the archaeologist conducts sufficient research and data collection to make a determination that the resource is either 1) not cultural in origin; or 2) not potentially eligible for listing on the National Register of Historic Places or California Register of Historical Resources. If a potentially-eligible resource is encountered, then the archaeologist, Environmental Coordinator, and project proponent shall arrange for either 1) total avoidance of the resource, if possible; or 2) test excavations or total data recovery as mitigation. The determination shall be formally documented in writing and submitted to Environmental Coordinator as verification that the provisions of CEQA for managing unanticipated discoveries have been met. In addition, pursuant to Section 5097.97 of the State Public Resources Code and Section 7050.5 of the State Health and Safety Code, in the event of the discovery of human remains, all work is to stop and the County Coroner shall be immediately notified. If the remains are determined to be Native American, guidelines of the Native American Heritage Commission shall be adhered to in the treatment and disposition of the remains (<i>Final EIR Mitigation Measure CR-1</i>).
✓			20. Any structure within the project boundaries (including but not limited to, buildings, subsurface vaults, utilities, or any other areas where potential landfill gas buildup may cause adverse impacts to the public health or safety or the environment) within 1,000 feet of buried waste or proposed buried waste at Kiefer Landfill (refer to Plate HM-2 of the EIR) shall be continuously monitored by the owner/operator of said structure for landfill gas and be designed and constructed to prevent landfill gas accumulation in those structures (<i>Final EIR Mitigation Measure HM-1</i>).
✓			21. The location and nature of the Sacramento County Boys Ranch facility shall be disclosed to all prospective buyers of estate-residential properties (<i>Final EIR Mitigation Measure LU-1</i>).

**Table 2-8
Sacramento County Certified EIR Mitigation Measures, Development Agreement Obligations, and Conditions of Approval**

EIR	DA	COA	Measure
✓	✓		<p>22. The location and nature of the Kiefer Landfill facility shall be disclosed to all prospective buyers of properties within one mile of the ultimate active landfill boundary. The disclosure notice shall include:</p> <p style="padding-left: 40px;">a. A statement substantially consistent with the following: “The landfill will expand in height and land area over time, and thus the visibility and proximity of the landfill from the property at the time of purchase does not reflect how visible or proximate the landfill will be in the future.” This statement shall be supplemented with relevant facts about ultimate landfill design, including the distance of the property to the ultimate planned edge of the landfill waste disposal area to the nearest 100 feet and the ultimate planned height of the landfill (as set forth in the Solid Waste Facilities Permit).</p> <p style="padding-left: 40px;">b. Notification that the landfill operates under a Solid Waste Facilities Permit and is required to control pests, vectors, litter, and odor to the extent practicable, but that it is not possible to eliminate all of these nuisances. For this reason, property owners may experience some of these nuisance conditions.</p> <p style="padding-left: 40px;">c. Notification that the active landfill area is lighted at night. <i>(Final EIR Mitigation Measure LU-2).</i></p>
✓			<p>23. All residential development projects exposed to greater than 65 dB L_{dn} (as identified in Appendix NO-1) at the property line shall be designed and constructed to reduce noise levels to within General Plan Noise Element standards for exterior activity areas. Potential options for achieving compliance with noise standards include, but are not limited to, noise barriers, increased setbacks, and/or strategic placement of structures. An acoustical analysis substantiating the required noise level reduction, prepared by a qualified acoustical consultant shall be submitted to and verified by the Environmental Coordinator prior to the issuance of any building permits for affected sites <i>(Final EIR Mitigation Measure NO-1).</i></p>
✓			<p>24. All residential development projects exposed to greater than 70 dB L_{dn} (as identified in Appendix NO-1) at the property line shall be designed and constructed to achieve an interior noise level of 45 dB L_{dn} or less. Potential options for achieving compliance with noise standards include, but are not limited to, noise barriers, increased setbacks, strategic placement of structures and/or enhanced building construction techniques. An acoustical analysis substantiating the required noise level reduction, prepared by a qualified acoustical consultant, shall be submitted to and verified by the Environmental Coordinator prior to the issuance of any building permits for the site. <i>(Final EIR Mitigation Measure NO-2).</i></p>
✓			<p>25. Non-residential development projects such as churches, libraries, meeting halls, and schools exposed to greater than 60 dB L_{dn}, and all non-residential development projects such as transient lodging, hospitals and nursing homes, and office buildings exposed to greater than 65 dB L_{dn} (as identified in Appendix NO-1) at the property line shall demonstrate that interior noise volumes will not exceed General Plan Noise Element standards for non-residential uses exposed to traffic noise. This may be accomplished by providing documentation that the type of use is within acceptable limits based on the location of the identified noise contours and assuming standard exterior-to-interior attenuation of 25 dB. If this cannot be demonstrated, an acoustical analysis substantiating the required noise level reduction, prepared by a qualified acoustical consultant, shall be submitted to and verified by the Environmental Coordinator prior to the issuance of any building permits for affected sites. Potential options for achieving compliance with noise standards include, but are not limited to, noise barriers, increased setbacks, strategic placement of structures and/or enhanced building construction techniques. The measure does not apply to commercial uses <i>(Final EIR Mitigation Measure NO-3).</i></p>

**Table 2-8
 Sacramento County Certified EIR Mitigation Measures, Development Agreement Obligations, and Conditions of Approval**

EIR	DA	COA	Measure
✓			26. All parks exposed to noise volumes in excess of 70 dB (as identified in Appendix NO-1) at the property line shall be designed and constructed to reduce noise levels within park activity areas (benches, play structures, etc.) to within General Plan Noise Element standards for parks. Potential options for achieving compliance with noise standards include, but are not limited to, noise barriers, increased setbacks, and/or strategic placement of structures. For barrier and other structural options, an acoustical analysis substantiating the required noise level reduction, prepared by a qualified acoustical consultant shall be submitted to and verified by the Environmental Coordinator prior to the issuance of any building permits for affected sites (<i>Final EIR Mitigation Measure NO-4</i>).
✓			27. All non-residential development projects located adjacent to residentially designated properties shall be designed and constructed to ensure that noise levels generated by the uses do not result in General Plan Noise Element standards being exceeded on adjacent properties. An acoustical analysis substantiating the required noise level reduction, prepared by a qualified acoustical consultant shall be submitted to and verified by the Environmental Coordinator prior to the issuance of any building permits for the non-residential projects with the potential to generate substantial noise (e.g. car wash, auto repair, or buildings with heavy-duty truck loading docks) if those uses are adjacent to residentially designated properties. The acoustical analysis shall include, but not be limited to, consideration of potential noise conflicts due to operation of the following items: Outdoor playing fields; Mechanical building equipment, including HVAC systems; Loading docks and associated truck routes; Refuse pick up locations; and Refuse or recycling compactor units (<i>Final EIR Mitigation Measure NO-5</i>).
✓	✓		28. The following conditions will be required to ensure equate disclosure of Mather Airport operations: a. Notification in the Public Report prepared by the California Department of Real Estate shall be provided disclosing to prospective buyers that the parcel is located within the applicable Airport Planning Policy Area and that aircraft operations can be expected to overfly that area at varying altitudes less than 3,000 feet above ground level.
			b. Avigation Easements prepared by the Sacramento County Counsel’s Office shall be executed and recorded with the Sacramento County Recorder on each individual residential parcel contemplated in the development in favor of the County of Sacramento. All Avigation Easements recorded pursuant to this policy shall, once recorded, be copied to the director of Airports and shall acknowledge the property location within the appropriate Airport Planning Policy Area and shall grant the right of flight and obstructed passage of all aircraft into and out of the appropriate airport (<i>Final EIR Mitigation Measure NO-6</i>).
✓			29. The applicant shall construct or fund, as set forth in the phasing and financing plan approved by the Sacramento County Department of Transportation, the below mitigation measures. The phasing and financing plan shall ensure commencement of construction of traffic improvements prior to degradation of LOS below applicable County standards. This mitigation recognizes that should any of the measures below benefit other projects, a reimbursement agreement and/or a fee credit to the applicant may be considered. a. <i>Bradshaw Road and Jackson Road</i> – Provide a second westbound through lane.

**Table 2-8
Sacramento County Certified EIR Mitigation Measures, Development Agreement Obligations, and Conditions of Approval**

EIR	DA	COA	Measure
			<p>b. <i>Eagles Nest Road and Jackson Road</i> – Construct a new traffic signal. Provide a left turn lane and a through-right turn shared lane on the northbound and southbound approaches.</p> <p>d. <i>Grant Line Road and Sunrise Boulevard</i> – Provide a separate southbound right turn lane so the southbound approach has one left turn lane, one through lane and one right turn lane.</p> <p>e. <i>Grant Line Road and White Rock Road</i> – Modify the intersection and traffic signal to provide dual left turn lanes and two through lanes on the northbound approach; provide two through lanes and a separate right turn lane on the southbound approach; and provide separate two left turn lanes and a separate right turn lane on the eastbound approach. On the western leg of the intersection, two westbound departure lanes are required. (<i>Final EIR Mitigation Measure TR-1</i>).</p>
✓			<p>30. The applicant shall construct or fund, as set forth in the phasing and financing plan approved by the Sacramento County Department of Transportation, and in consultation with the City of Rancho Cordova, the below mitigation measures. The phasing and financing plan shall ensure commencement of construction of traffic improvements prior to degradation of LOS below the applicable County or City standards. This mitigation recognizes that should any of the measures below benefit other projects, a reimbursement agreement may be considered.</p> <p>a. <i>Zinfandel Drive and White Rock Road</i> – The applicant shall be responsible for a fair share of this measure. Provide separate dual right turns on the westbound approach so the westbound approach has two left turn lanes, two through lanes and two right turn lanes. The fair share shall be calculated to the satisfaction of Sacramento County Department of Transportation and may be up to 100% of the cost of the improvements.</p> <p>b. <i>Sunrise Boulevard and White Rock Road</i> – Provide overlap phasing on the eastbound and westbound approaches.</p> <p>c. <i>Sunrise Boulevard and Douglas Road</i> – Provide overlap phasing on the westbound approach.</p> <p>d. <i>Sunrise Boulevard and Jackson Road</i> – Provide an eastbound through lane, an eastbound through-right turn shared lane, and an eastbound left turn lane; a northbound left turn lane, two northbound through lanes, and a right turn lane; one westbound through lane, a westbound right turn lane, and a westbound left turn lane; a southbound through lane, a southbound left turn lane, and a southbound right turn lane.</p> <p>e. <i>Grant Line Road and Jackson Road</i> – The applicant shall be responsible for a fair share of this measure. Provide a left turn lane and a through-right shared turn lane on the eastbound and westbound approaches. Provide a separate left turn lane, a through lane and a separate right turn lane on the northbound and southbound approaches. The fair share shall be calculated to the satisfaction of Sacramento County Department of Transportation and may be up to 100% of the cost of the improvements.</p> <p>f. <i>Grant Line Road and Kiefer Boulevard</i> – Construct a new traffic signal. Provide a left turn lane, a through lane and a through-right turn shared lane on the northbound and southbound approaches; provide a left turn lane and a through-right turn shared lane on the eastbound and westbound approaches.</p> <p>g. <i>Grant Line Road and Douglas Road</i> – Construct a new traffic signal. Provide dual left turn lanes and a separate through lane on the northbound, a through lane and a through-right turn shared lane on the southbound approach, and a separate left turn lane and a free-right turn lane on the eastbound approach. Also an extra southbound departure lane is needed for the eastbound free-right movement. To be consistent with the segment mitigations a second northbound through lane is included.</p>

**Table 2-8
 Sacramento County Certified EIR Mitigation Measures, Development Agreement Obligations, and Conditions of Approval**

EIR	DA	COA	Measure
			<p>h. <i>Grant Line Road and North Loop Road</i> – Construct a new traffic signal. Provide two through lanes and a separate right turn lane on the northbound approach, dual left turn lanes and one through on the southbound approach, and one left turn lane and one free-right turn lane on the westbound approach. Also an extra northbound departure lane is needed for the westbound free-right movement. To be consistent with the segment mitigations a second southbound through lane is included.</p> <p>i. <i>Grant Line Road and Chrysanthy Boulevard</i> – Construct a new traffic signal. Provide a through lane and a separate right turn lane on the northbound approach, dual left turn lanes and a through lane on the southbound approach, and dual left turn lanes and one right turn lane on the westbound approach. To be consistent with the segment mitigations a second northbound and southbound through lane is included. Also provide two westbound through lanes for when Chrysanthy Boulevard is connected through Rancho Cordova.</p> <p>j. <i>Grant Line Road and University Boulevard</i> – Construct a new traffic signal. Provide a through lane and a separate free-right turn lane on the northbound approach, dual left turn lanes and one through lanes on the southbound approach, and dual left turn lanes and a right turn lane on the westbound approach. Also an extra eastbound departure lane is needed for the northbound free-right movement. To be consistent with the segment mitigations a second northbound and southbound through lane is included (<i>Final EIR Mitigation Measure TR-2</i>).</p>
✓			<p>31. The applicant shall construct or fund, as set forth in the phasing and financing plan approved by the Sacramento County Department of Transportation, the below mitigation measures. The phasing and financing plan shall ensure commencement of construction of traffic improvements prior to degradation of LOS below applicable County standards. This mitigation recognizes that should any of the measures below benefit other projects, a reimbursement agreement and/or a fee credit to the applicant may be considered.</p> <p>a. <i>Prairie City Road from US 50 to White Rock Road</i> – Increase roadway capacity by upgrading the capacity class for this segment from a rural highway without shoulders to a rural highway with shoulders (<i>Draft EIR Mitigation Measure TR-3</i>).</p>
✓			<p>32. The applicant shall construct or fund, as set forth in the phasing and financing plan approved by the Sacramento County Department of Transportation, and in consultation with the City of Elk Grove, the below mitigation measures. The phasing and financing plan shall ensure commencement of construction of traffic improvements prior to degradation of LOS below the applicable County or City standards. This mitigation recognizes that should any of the measures below benefit other projects, a reimbursement agreement may be considered.</p>
			<p>a. <i>Grant Line Road from Sheldon Road to Calvine Road</i> – Increase roadway capacity by widening this segment to 4 lanes and upgrading the capacity class to an arterial with moderate access control (<i>Final EIR Mitigation Measure TR-4</i>).</p>
✓			<p>33. The applicant shall construct or fund, as set forth in the phasing and financing plan approved by the Sacramento County Department of Transportation, and in consultation with the City of Rancho Cordova, the below mitigation measures. The phasing and financing plan shall ensure commencement of construction of traffic improvements prior to degradation of LOS below the applicable County or City standards. This mitigation recognizes that should any of the measures below benefit other projects, a reimbursement agreement may be considered.</p> <p>a. <i>Grant Line Road from Jackson Road to Kiefer Boulevard</i> – Increase roadway capacity by widening this segment to 4 lanes and upgrading the capacity class to an arterial with moderate access control.</p> <p>b. <i>Grant Line Road from Kiefer Boulevard to University Boulevard</i> – Increase roadway capacity by widening this segment to 4 lanes and upgrading the capacity class to an arterial with moderate access control.</p>

**Table 2-8
Sacramento County Certified EIR Mitigation Measures, Development Agreement Obligations, and Conditions of Approval**

EIR	DA	COA	Measure
			<p>c. <i>Grant Line Road from University Boulevard to Chrysanthy Boulevard</i> – Increase roadway capacity by widening this segment to 4 lanes and upgrading the capacity class to an arterial with moderate access control.</p> <p>d. <i>Grant Line Road from Chrysanthy Boulevard to North Loop</i> – Increase roadway capacity by widening this segment to 4 lanes and upgrading the capacity class to an arterial with moderate access control.</p> <p>e. <i>Grant Line Road from North Loop to Douglas Road</i> – Increase roadway capacity by widening this segment to 6 lanes and upgrading the capacity class to an arterial with moderate access control.</p> <p>f. <i>Grant Line Road from Douglas Road to White Rock Road</i> – Increase roadway capacity by widening this segment to 4 lanes and upgrading the capacity class to an arterial with moderate access control.</p> <p>g. <i>Jackson Road from Sunrise Boulevard to Grant Line Road</i> – Increase roadway capacity by widening this segment to 4 lanes and upgrading the capacity class to an arterial with moderate access control.</p> <p>h. <i>Douglas Road from Sunrise Boulevard to Rancho Cordova Parkway</i> – Increase roadway capacity by widening this segment to 4 lanes and upgrading the capacity class to an arterial with moderate access control.</p> <p>i. <i>Douglas Road from Rancho Cordova Parkway to Grant Line Road</i> – Increase roadway capacity by widening this segment to 4 lanes and upgrading the capacity class to an arterial with moderate access control between Americanos Boulevard and Grant Line Road, and by adding two westbound travel lanes to Douglas between Rancho Cordova Parkway to Americanos Boulevard. Construct interim sidewalk improvements (typically a detached asphaltic concrete path) and bicycle lanes (<i>Final EIR Mitigation Measure TR-5</i>).</p>
✓			<p>34. The applicant shall be responsible for funding a fair share of the construction costs of the below mitigation measures. The fair share shall be calculated to the satisfaction of Sacramento County Department of Transportation, in consultation with Caltrans.</p> <p>a. <i>Westbound US 50 from Hazel Avenue to Sunrise Boulevard</i> – Add an auxiliary lane.</p> <p>b. <i>Eastbound US 50 from Sunrise Boulevard to Hazel Avenue</i> – Add an auxiliary lane (<i>Final EIR Mitigation Measure TR-6</i>).</p>
✓			<p>35. The applicant shall be responsible for a fair share of the below mitigation measures. The fair share shall be calculated to the satisfaction of Sacramento County Department of Transportation and may be up to 100% of the cost of the improvements.</p> <p>a. Construct interim sidewalks improvements (typically a detached asphaltic concrete path) and bicycle lanes along Grant Line Road from Douglas Road to White Rock Road and on Douglas Road from Rancho Cordova Parkway to Grant Line Road, to the satisfaction of the Sacramento County Department of Transportation (<i>Final EIR Mitigation Measure TR-7</i>).</p>
✓			<p>36. The applicant shall be responsible for a fair share of the below mitigation measures. The fair share shall be calculated to the satisfaction of Sacramento County Department of Transportation and may be up to 100% of the cost of the improvements.</p> <p>a. <i>School Access and North Loop Road</i> – Provide dual eastbound left turn lanes (<i>Final EIR Mitigation Measure TR-8</i>).</p>

**Table 2-8
 Sacramento County Certified EIR Mitigation Measures, Development Agreement Obligations, and Conditions of Approval**

EIR	DA	COA	Measure
✓			<p>37. The applicant shall be responsible for a fair share of the below mitigation measures. The fair share shall be calculated to the satisfaction of Sacramento County Department of Transportation, in consultation with the City of Rancho Cordova, and may be up to 100% of the cost of the improvements.</p> <ul style="list-style-type: none"> a. <i>Sunrise Boulevard and Douglas Road</i> – Provide overlap phasing on the eastbound and westbound right turns. b. <i>Grant Line Road and Douglas Road</i> – Provide a third southbound through lane and overlap phasing on the eastbound right turn lane. To be consistent with the segment mitigations a third northbound through lane is included. c. <i>Grant Line Road and North Loop Road</i> – Provide a westbound free-right turn lane. Also an extra northbound departure lane is needed for the westbound free-right movement. d. <i>Grant Line Road and University Boulevard</i> – Provide a northbound free-right turn lane. Also an extra eastbound departure lane is needed for the northbound free-right movement (<i>Final EIR Mitigation Measure TR-9</i>).
✓			<p>38. The applicant shall be responsible for a fair share of the below mitigation measures. The fair share shall be calculated to the satisfaction of Sacramento County Department of Transportation and may be up to 100% of the cost of the improvements.</p> <ul style="list-style-type: none"> a. <i>North Loop Road from Street D to Street F</i> – Increase roadway capacity by widening this segment to 4 lanes and upgrading the capacity class to an arterial with low access control (<i>Final EIR Mitigation Measure TR-10</i>).
✓			<p>39. The applicant shall be responsible for a fair share of the below mitigation measures. The fair share shall be calculated to the satisfaction of Sacramento County Department of Transportation, in consultation with the City of Rancho Cordova, and may be up to 100% of the cost of the improvements.</p> <ul style="list-style-type: none"> a. <i>Grant Line Road from Rancho Cordova Parkway to Kiefer Boulevard</i> – Increase roadway capacity by widening this segment to a 6 lane arterial with moderate access control. b. <i>Grant Line Road from Kiefer Boulevard to University Boulevard</i> – Increase roadway capacity by widening this segment to a 6 lane arterial with moderate access control. c. <i>Grant Line Road from North Loop to Douglas Road</i> – Increase roadway capacity by widening this segment to a 6 lane arterial with moderate access control. d. <i>Grant Line Road from Douglas Road to White Rock Road</i> – Increase roadway capacity by widening this segment to a 6 lane arterial with moderate access control (<i>Final EIR Mitigation Measure TR-11</i>).

Table 2-8 Sacramento County Certified EIR Mitigation Measures, Development Agreement Obligations, and Conditions of Approval			
EIR	DA	COA	Measure
Rezone Conditions of Approval			
		✓	<p>Roadway Conditions from Department of Transportation</p> <p>Roadway Improvements</p> <p>The County Department of Transportation conditions below are based on traffic mitigation measures identified in the Draft Environmental Impact Report (DEIR) for the Cordova Hills SPA and on additional traffic analysis to determine the appropriate phasing of roadway improvements associated with development of approved land uses in the Cordova Hills SPA. For a complete description of the mitigation measure improvements, refer to the Cordova Hills SPA DEIR. These conditions apply to all development within the Cordova Hills area and are in addition to any other conditions applied to individual properties within the Cordova Hills SPA. Conditions of approval may call for partial roadway improvements or the expansion of existing facilities. The County recognizes and allows partial phased improvements. Fee credits or reimbursements for partially constructed, or phased, roadway facilities will be adjusted, at the County’s discretion, according to the portion of the cost incurred for permanent improvements eligible for credit or reimbursement under the applicable fee program. The partially phased interim improvements that are not the ultimate facility or are not at the ultimate location are considered a “throw away” item. The costs associated with “throw away” items of the partially phased improvements are non-reimbursable through the SCTDF program. It is recognized that circumstances may change over time and in cases where the developer of the Cordova Hills Project is obligated to construct or is constructing an item of roadway infrastructure pursuant to any of the below conditions, he County may request that Developer construct an additional item of infrastructure. Developer may construct such additional infrastructure provided County reimburses the Developer for all additional costs that are incurred by Developer to construct the requested additional infrastructure.</p>
		✓	<p>Fair Share Funding/Mitigation Measure: Trigger Adjustments</p> <p>40. Fair Share Funding/Mitigation Measure: Trigger Adjustments. The developer of the Cordova Hills Project or its successors, at their own expense, may submit an additional traffic analysis along with a request for an adjustment of their fair share funding and/or the improvement trigger requirement for any roadway infrastructure mitigation measures required below. The Director of the County’s Department of Transportation may adjust the fair share funding percentage and/or the improvement trigger in his discretion based on the traffic analysis as long as the required level of service is achieved. Whenever the County enters into a reciprocal funding agreement to address cross jurisdictional roadway impacts with an adjacent jurisdiction, the Cordova Hills Project’s fair share funding obligation and/or the mitigation measure trigger for such cross jurisdictional roadway impacts shall be adjusted by the County to take into account other new development projects which have cross jurisdictional roadway impacts and an obligation to build or contribute to the cost to build the roadway improvement in question.</p>
		✓	<p>Onsite Roadway Improvement Conditions to be Constructed by the Developer of the Cordova Hills Project (Rezone Conditions):</p> <p>41. As part of intersection improvements, provide dual eastbound left turn lanes at the intersection of North Loop Road and the proposed school access pursuant to the Sacramento County Improvement Standards and to the satisfaction of the Department of Transportation. <i>(Draft EIR Mitigation Measures TR-1.G and TR-8.A)</i></p>

**Table 2-8
 Sacramento County Certified EIR Mitigation Measures, Development Agreement Obligations, and Conditions of Approval**

EIR	DA	COA	Measure							
		✓	<p>42. On site roadways within the Cordova Hills Project area shall be subject to the requirements of the County policy concerning discontinuous roadway frontage improvements (“sawtooth”). Unless otherwise noted, a specific project subject to these requirements shall install roadway frontage improvements along logical segments of at least one-quarter mile in length, including the specific project’s frontage. If the length of the specific project’s conditioned on-site frontage improvements on a single roadway is equal to or greater than one-quarter mile in length, then the specific project will be deemed to have satisfied the logical segment condition for that roadway. If the specific project’s on-site frontage improvements are less than one-quarter mile, the specific project shall install additional off site frontage improvements within the Cordova Hills SPA in order to satisfy the logical segment condition. The location of limits of such on-site frontage improvements will be determined at the time of improvement plan approval and to the satisfaction of the Department of Transportation. On-site frontage improvements shall include the construction of the outside travel lane, bike lane or NEV lane, finished roadway edge, and a pedestrian walkway, all as per applicable SPA cross section. Specific projects that front on more than one of the roadways listed in Table A-1 (including corner lots) shall be responsible for meeting the logical segment condition on each fronting roadway.</p> <table border="1" data-bbox="445 669 1073 941" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th align="center" colspan="1">Table A-1 Cordova Hills Special Planning Area – Roadways Subject to Logical Segments:</th> </tr> </thead> <tbody> <tr> <td align="center">University Boulevard</td> </tr> <tr> <td align="center">Chrysanthy Boulevard</td> </tr> <tr> <td align="center">North Loop Road</td> </tr> <tr> <td align="center">Town Center Boulevard</td> </tr> <tr> <td align="center">Street “A”</td> </tr> <tr> <td align="center">Street “D”</td> </tr> </tbody> </table>	Table A-1 Cordova Hills Special Planning Area – Roadways Subject to Logical Segments:	University Boulevard	Chrysanthy Boulevard	North Loop Road	Town Center Boulevard	Street “A”	Street “D”
Table A-1 Cordova Hills Special Planning Area – Roadways Subject to Logical Segments:										
University Boulevard										
Chrysanthy Boulevard										
North Loop Road										
Town Center Boulevard										
Street “A”										
Street “D”										
		✓	<p>Roadway Improvement Conditions at Time of Connection to Grant Line Road</p> <p>43. At the time of connection of North Loop Road to Grant Line Road, install a stop sign on the westbound approach with one left turn lane, one right turn lane, and a 14-foot wide refuge lane for a length of 200 feet for the westbound to southbound movement; on the southbound approach (uncontrolled), install a left turn lane and a through lane; and on the northbound approach (uncontrolled), install a shared through-right turn lane to the satisfaction of the Department of Transportation, provided that the County and the City of Rancho Cordova have reached agreement for construction of the portion of the improvements within the City’s jurisdiction. Performance of this condition shall be held in abeyance pending such agreement and development may continue. Note: pursuant to Title 22 of the Sacramento County Code, developments greater than 40 units shall be served by two points of public access and the streets must be greater than 50 feet in width for 20 or more units.</p>							
		✓	<p>44. At the time of connection of Chrysanthy Boulevard to Grant Line Road, install a stop sign on the westbound approach with one left turn lane, one right turn lane, and a 14-foot wide refuge lane for a length of 200 feet for the westbound to southbound movement; on the southbound approach (uncontrolled), install a left turn lane and a through lane; and on the northbound approach (uncontrolled), install a shared through-right turn lane to the satisfaction of the Department of Transportation, provided that the County and the City of Rancho Cordova have reached agreement for construction of the portion of the improvements within the City’s jurisdiction. Performance of this condition shall be held in abeyance pending such agreement and development may continue. Note: pursuant to Title 22 of the Sacramento County Code, developments greater than 40 units shall be served by two points of public access and the streets must be greater than 50 feet in width for 20 or more units.</p>							

**Table 2-8
Sacramento County Certified EIR Mitigation Measures, Development Agreement Obligations, and Conditions of Approval**

EIR	DA	COA	Measure
		✓	45. At the time of connection of University Boulevard to Grant Line Road, install a stop sign on the westbound approach with one left turn lane, one right turn lane, and a 14-foot wide refuge lane for a length of 200 feet for the westbound to southbound movement; on the southbound approach (uncontrolled), install a left turn lane and a through lane; and on the northbound approach (uncontrolled), install a shared through-right turn lane to the satisfaction of the Department of Transportation, provided that the County and the City of Rancho Cordova have reached agreement for construction of the portion of the improvements within the City’s jurisdiction. Performance of this condition shall be held in abeyance pending such agreement and development may continue. Note: pursuant to Title 22 of the Sacramento County Code, developments greater than 40 units shall be served by two points of public access and the streets must be greater than 50 feet in width for 20 or more units.
		✓	<p>Roadway Improvement Trigger Conditions for Project Access to Grant Line Road Prior to the Recordation of the Final Maps for 1,250 Dwelling Unit Equivalents (DUEs) within the Cordova Hills SPA:</p> <p>46. Commence reconstruction and widening of the intersection of North Loop Road and Grant Line Road pursuant to the Sacramento County Improvement Standards and to the satisfaction of the Department of Transportation, provided that the County and the City of Rancho Cordova have reached agreement for construction of the portion of the improvements within the City’s jurisdiction. Performance of this condition shall be held in abeyance pending such agreement and development may continue. Improvements shall include the installation of a traffic signal, providing a u-turn lane and shared through-right turn lane on the northbound approach; two left turn lanes and a through lane on the southbound approach; and a left turn lane and a right turn lane on the westbound approach. Bus turnouts will be required on Grant Line Road and North Loop Road.</p>
		✓	47. Commence reconstruction and widening of the intersection of University Boulevard and Grant Line Road pursuant to the Sacramento County Improvement Standards and to the satisfaction of the Department of Transportation, provided that the County and the City of Rancho Cordova have reached agreement for construction of the portion of the improvements within the City’s jurisdiction. Performance of this condition shall be held in abeyance pending such agreement and development may continue. Improvements shall include the installation of a traffic signal, providing a u-turn lane and a through lane, and a right turn lane on the northbound approach; one left turn lane and one through lane on the southbound approach; and dual left turn lanes and a right turn lane on the westbound approach. Bus turnouts will be required on Grant Line Road and University Boulevard.
		✓	<p>Prior to the Recordation of the Final Maps for 1,800 DUEs within the Cordova Hills SPA:</p> <p>48. Commence reconstruction and widening of the intersection of North Loop Road and Grant Line Road pursuant to the Sacramento County Improvement Standards and to the satisfaction of the Department of Transportation, provided that the County and the City of Rancho Cordova have reached agreement for construction of the portion of the improvements within the City’s jurisdiction. Performance of this condition shall be held in abeyance pending such agreement and development may continue. Improvements shall include a modification to the traffic signal, providing a u-turn lane and two through turn lanes, and a right turn lane on the northbound approach; two left turn lanes and two through lanes on the southbound approach; and two left turn lanes and a free right turn lane on the westbound approach. For the free-right turn movement, provide sufficient acceleration lane and taper length and grant the right of direct vehicular access to the County of Sacramento along the acceleration lane/taper length to the satisfaction of the Department of Transportation. Bus turnouts will be required on Grant Line Road and North Loop Road.</p>

**Table 2-8
 Sacramento County Certified EIR Mitigation Measures, Development Agreement Obligations, and Conditions of Approval**

EIR	DA	COA	Measure
✓		✓	<p>Prior to the Recordation of the Final Maps for 3,200 DUEs within the Cordova Hills SPA:</p> <p>49. Commence reconstruction and widening of the intersection of University Boulevard and Grant Line Road pursuant to the Sacramento County Improvement Standards and to the satisfaction of the Department of Transportation, provided that the County and the City of Rancho Cordova have reached agreement for construction of the portion of the improvements within the City’s jurisdiction. Performance of this condition shall be held in abeyance pending such agreement and development may continue. Improvements shall include modification of the existing traffic signal, providing a u-turn lane, two through lanes, and a free right turn lane on the northbound approach; two left turn lanes and two through lanes on the southbound approach; and two left turn lanes and a right turn lane on the westbound approach. Note: The two westbound left turn lanes shall be extended to a length based on the queuing analysis and to the satisfaction of the Department of Transportation. For the free-right turn movement, provide sufficient acceleration lane and taper length and grant the right of direct vehicular access to the County of Sacramento along the acceleration lane/taper length to the satisfaction of the Department of Transportation. Bus turnouts will be required on Grant Line Road and University Boulevard. <i>(Final EIR Mitigation Measures TR-2.J and TR-9.D)</i></p>
		✓	<p>Prior to the Recordation of the Final Maps for 3,700 DUEs within the Cordova Hills SPA:</p> <p>50. Commence reconstruction and widening of the intersection of Chrysanthy Boulevard and Grant Line Road pursuant to the Sacramento County Improvement Standards and to the satisfaction of the Department of Transportation, provided that the County and the City of Rancho Cordova have reached agreement for construction of the portion of the improvements within the City’s jurisdiction. Performance of this condition shall be held in abeyance pending such agreement and development may continue. Improvements shall include the installation of a traffic signal, providing a u-turn lane and shared through-right turn lane on the northbound approach; a left turn lane and a through lane on the southbound approach; and a left turn lane and a right turn lane on the westbound approach. Bus turnouts will be required on Grant Line Road and Chrysanthy Boulevard.</p>
✓		✓	<p>Prior to the Recordation of the Final Maps for 6,500 DUEs within the Cordova Hills SPA:</p> <p>51. Commence reconstruction and widening of the intersection of North Loop Road and Grant Line Road pursuant to the latest Sacramento County Improvement Standards and to the satisfaction of the Department of Transportation, provided that the County and the City of Rancho Cordova have reached agreement for construction of the portion of the improvements within the City’s jurisdiction. Performance of this condition shall be held in abeyance pending such agreement and development may continue. Improvements shall include modification to the traffic signal, providing a u-turn lane, three through lanes, and a right turn lane on the northbound approach; two left turn lanes and a free right turn lane on the westbound approach; and two left turn lanes and three through lanes on the southbound approach. Note: The two southbound left turn lanes shall be extended to a length based on the queuing analysis and to the satisfaction of the Department of Transportation. For the free-right turn movement, provide sufficient acceleration lane and taper length and grant the right of direct vehicular access to the County of Sacramento along the acceleration lane/taper length to the satisfaction of the Department of Transportation. Bus turnouts will be required on Grant Line Road and North Loop Road. <i>(Final EIR Mitigation Measures TR- 2.H and TR-9.C)</i></p>

**Table 2-8
Sacramento County Certified EIR Mitigation Measures, Development Agreement Obligations, and Conditions of Approval**

EIR	DA	COA	Measure
✓		✓	<p>Prior to the Recordation of the Final Maps for 7,500 DUEs within the Cordova Hills SPA:</p> <p>52. Commence reconstruction and widening of the intersection of Chrysanthy Boulevard and Grant Line Road pursuant to the latest Sacramento County Improvement Standards and to the satisfaction of the Department of Transportation, provided that the County and the City of Rancho Cordova have reached agreement for construction of the portion of the improvements within the City’s jurisdiction. Performance of this condition shall be held in abeyance pending such agreement and development may continue. Improvements shall include modification to the traffic signal, providing a u-turn lane, two through lanes, and a right turn lane on the northbound approach; two left turn lanes and two through lanes on the southbound approach; and two left turn lanes, pavement for future two through lanes, and a right turn lane on the westbound approach. Note: The two southbound left turn lanes shall be extended to a length based on the queuing analysis and to the satisfaction of the Department of Transportation. Bus turnouts will be required on Grant Line Road and Chrysanthy Boulevard. <i>(Final EIR Mitigation Measure: TR-2.1)</i></p> <p>Offsite Roadway Improvement Trigger Conditions</p> <p>Construction of the improvements identified in each phased condition below (by the developer of the Cordova Hills Project or by another entity) must begin prior to the applicable trigger being exceeded. Once construction of the relevant improvement has begun, it is permissible for additional development to proceed beyond the cap identified in the Dwelling Unit Equivalent (DUEs) trigger, provided that construction continues to progress and is completed to the satisfaction of the Department of Transportation prior to reaching the next chronological set of DUE triggers or an additional 500 DUEs (whichever occurs first).</p>
		✓	<p>Prior to the Recordation of the Final Maps for 250 Dwelling Unit Equivalents (DUEs) within the Cordova Hills SPA:</p> <p>53. Commence construction of shoulders on both sides of the existing roadway segment of Grant Line Road from Douglas Road to White Rock Road to the satisfaction of the Department of Transportation, provided that the County and the City of Rancho Cordova have reached agreement for construction of the portion of the improvements within the City’s jurisdiction. Performance of this condition shall be held in abeyance pending such agreement and development may continue. It is the intent that these shoulders shall be designed and constructed to standard (six foot); however; flexibility in the design and construction of these shoulders will be allowed along the segment to avoid natural resources and their associated buffers.</p>
		✓	<p>Prior to the Recordation of the Final Maps for 500 Dwelling Unit Equivalents (DUEs) within the Cordova Hills SPA:</p> <p>54. Commence reconstruction and widening of the existing intersection of Grant Line Road at Jackson Road (SR 16) pursuant to the Sacramento County Improvement Standards and to the satisfaction of the Department of Transportation, provided that the County, Caltrans and the City of Rancho Cordova have reached agreement for construction of the portion of the improvements within the City’s jurisdiction. Improvements shall include a traffic signal modification to accommodate an eastbound through lane, an eastbound through-right turn shared lane, and an eastbound left turn lane; a westbound through lane, a westbound through-right turn shared lane, and a westbound left turn lane; a northbound through right lane, and a northbound left turn lane; and a southbound shared through-right turn lane, and a southbound left turn lane. The traffic signal phasing in the north-south on Grant Line Road shall be changed from split phase to provide protected left turn phasing. The east-west phasing on Jackson Road (SR 16) will remain protected left turn phasing.</p>

**Table 2-8
 Sacramento County Certified EIR Mitigation Measures, Development Agreement Obligations, and Conditions of Approval**

EIR	DA	COA	Measure
		✓	<p>Prior to the Recordation of the Final Maps for 850 DUEs within the Cordova Hills SPA:</p> <p>55. Commence reconstruction and widening of the existing intersection of Grant Line Road at Douglas Road to a signalized intersection pursuant to the Sacramento County Improvement Standards and to the satisfaction of the Department of Transportation, provided that the County and the City of Rancho Cordova have reached agreement for construction of the portion of the improvements within the City’s jurisdiction. Performance of this condition shall be held in abeyance pending such agreement and development may continue. Improvements shall include dual northbound left turn lanes and a northbound through lane; a southbound u-turn lane, a southbound through lane and a southbound right turn lane; and an eastbound left turn lane and an eastbound right turn lane. Note: Bus turnouts will be required on Grant Line Road and Douglas Road.</p>
		✓	<p>Prior to the Recordation of the Final Maps for 1,800 DUEs within the Cordova Hills SPA:</p> <p>56. Commence reconstruction and widening of the Grant Line Road at Douglas Road intersection to modify a signalized intersection pursuant to the Sacramento County Improvement Standards and to the satisfaction of the Department of Transportation, provided that the County and the City of Rancho Cordova have reached agreement for construction of the portion of the improvements within the City’s jurisdiction. Performance of this condition shall be held in abeyance pending such agreement and development may continue. Improvements shall include a southbound u-turn lane, two southbound through lanes and a southbound right turn lane; an eastbound left turn lane and an eastbound free right turn lane; and dual northbound left turn lane and two through lanes. For the free-right turn movements, provide sufficient acceleration lane length and grant the right of direct vehicular access to the County of Sacramento along the acceleration lane length to the satisfaction of the Department of Transportation. Note: Bus turnouts will be required on Grant Line Road and Douglas Road. The through lanes in the northbound and southbound directions shall be carried through the intersection.</p> <p>57. Commence reconstruction and widening of Grant Line Road from an existing two lane road section to a four-lane thoroughfare section from North Loop Road to Douglas Road based on a 96-foot standard thoroughfare pursuant to the Sacramento County Improvement Standards and to the satisfaction of the Department of Transportation, provided that the County and the City of Rancho Cordova have reached agreement for construction of the portion of the improvements within the City’s jurisdiction. Performance of this condition shall be held in abeyance pending such agreement and development may continue. (Note: Bus turnouts will be required on Grant Line Road. Note: Condition number 51 requires improvements to the intersection of North Loop Road and Grant Line Road and Condition number 56 requires improvements to the intersection of Douglas Road and Grant Line Road.)</p>
✓	✓		<p>Prior to the Recordation of the Final Maps for 2,000 DUEs within the Cordova Hills SPA:</p> <p>58. Modify the existing intersection of Bradshaw Road and Jackson Road (SR 16) to provide a second westbound through lane pursuant to the Sacramento County Improvement Standards and to the satisfaction of the Department of Transportation and Caltrans. Note: The additional westbound through lane shall be carried through the intersection. (<i>Final EIR Mitigation Measure: TR-1.A</i>)</p>

**Table 2-8
Sacramento County Certified EIR Mitigation Measures, Development Agreement Obligations, and Conditions of Approval**

EIR	DA	COA	Measure
		✓	59. Commence reconstruction and widening of the existing intersection of Grant Line Road at Kiefer Boulevard to a signalized intersection pursuant to the Sacramento County Improvement Standards and to the satisfaction of the Department of Transportation, provided that the County and the City of Rancho Cordova have reached agreement for construction of the portion of the improvements within the City’s jurisdiction. Performance of this condition shall be held in abeyance pending such agreement and development may continue. Improvements shall include a northbound left turn lane, and a northbound through-right turn shared lane; a westbound left-through-right turns shared lane; a southbound left turn lane, and a southbound through-right turn shared lane; and an eastbound left-through-right turns shared lane.
✓		✓	Prior to the Recordation of the Final Maps for 3,200 DUEs within the Cordova Hills SPA: 60. Commence reconstruction and widening of the existing intersection of Grant Line Road and White Rock Road pursuant to the Sacramento County Improvement Standards and to the satisfaction of the Department of Transportation. Improvements shall include dual northbound left turn lanes and two northbound through lanes; two southbound through lanes and one southbound right turn lane; two eastbound left turn lanes, and one eastbound right turn lane. On the western leg of the intersection, two westbound departure lanes are required. Note: A project to widen White Rock Road from two lanes to four lanes between Grant Line Road and Prairie City Road is currently (2012) under construction. <i>(Final EIR Mitigation Measure: TR-1.E)</i>
✓	✓	✓	61. Commence reconstruction and widening of the existing intersection of Sunrise Boulevard at Jackson Road (SR 16) pursuant to the Sacramento County Improvement Standards and to the satisfaction of the Department of Transportation and Caltrans, provided that the County, Caltrans and the City of Rancho Cordova have reached agreement for construction of the portion of the improvements within the City’s jurisdiction. Improvements shall include an eastbound through lane, an eastbound through-right turn shared lane, and an eastbound left turn lane; a northbound left turn lane and a northbound through-right turn shared lane; two westbound through lanes, a westbound right turn lane, and a westbound left turn lane; a southbound through lane, a southbound left turn lane, and a southbound right turn lane. Note: The two eastbound and westbound through lanes shall be carried through the intersection. <i>(Final EIR Mitigation Measure: TR-2.D)</i>
✓		✓	62. Commence reconstruction and widening of the Grant Line Road at Jackson Road (SR 16) intersection pursuant to the Sacramento County Improvement Standards and to the satisfaction of the Department of Transportation and Caltrans, provided that the County, Caltrans and the City of Rancho Cordova have reached agreement for construction of the portion of the improvements within the City’s jurisdiction. Performance of this condition shall be held in abeyance pending such agreement and development may continue. Improvements shall include a traffic signal modification to accommodate dual eastbound left turn lanes, an eastbound through lane, and an eastbound through-right turn shared lane; a westbound left turn lane, westbound through lane and a westbound through-right turn shared lane; a northbound left turn lane, a northbound through lane, and a northbound through-right turn shared lane; and a southbound shared through-right turn lane, a southbound through lane and a southbound left turn lane. <i>(Final EIR Mitigation Measure: TR-2.E)</i>

**Table 2-8
 Sacramento County Certified EIR Mitigation Measures, Development Agreement Obligations, and Conditions of Approval**

EIR	DA	COA	Measure
✓		✓	63. Commence reconstruction and widening of the existing intersection of Grant Line Road at Kiefer Boulevard to a signalized intersection pursuant to the Sacramento County Improvement Standards and to the satisfaction of the Department of Transportation, provided that the County and the City of Rancho Cordova have reached agreement for construction of the portion of the improvements within the City’s jurisdiction. Performance of this condition shall be held in abeyance pending such agreement and development may continue. Improvements shall include a northbound left turn lane, a northbound through lane, and a northbound through-right turn shared lane; a westbound left turn lane and a westbound through-right turn shared lane; a southbound left turn lane, a southbound through lane, and a southbound through-right turn shared lane; and an eastbound left turn lane and an eastbound through-right turn shared lane. <i>(Final EIR Mitigation Measure: TR-2.F).</i>
✓		✓	64. Commence reconstruction and widening of Grant Line Road from an existing two lane road section to a four-lane thoroughfare center section with interim AC paths and six-foot bike lanes from Jackson Road (SR 16) to Kiefer Boulevard based on a 96-foot standard thoroughfare pursuant to the Sacramento County Improvement Standards and to the satisfaction of the Department of Transportation, provided that the County and the City of Rancho Cordova have reached agreement for construction of the portion of the improvements within the City’s jurisdiction. Performance of this condition shall be held in abeyance pending such agreement and development may continue. <i>(Final EIR Mitigation Measure: TR-5.A)</i>
✓		✓	65. Commence reconstruction and widening of Grant Line Road from an existing two lane road section to a four-lane thoroughfare center section with interim AC paths and six-foot bike lanes from Kiefer Boulevard to University Boulevard based on a 96-foot standard thoroughfare pursuant to the Sacramento County Improvement Standards and to the satisfaction of the Department of Transportation, provided that the County and the City of Rancho Cordova have reached agreement for construction of the portion of the improvements within the City’s jurisdiction. Performance of this condition shall be held in abeyance pending such agreement and development may continue. Note: Bus turnouts will be required on Grant Line Road. Refer to Condition number 49 requires improvements to the intersection of University Boulevard and Grant Line Road. <i>(Final EIR Mitigation Measure: TR-5.B)</i>
✓		✓	66. Commence reconstruction and widening of Grant Line Road from an existing two lane road section to four-lane thoroughfare center section with interim AC paths and six-foot bike lanes from Douglas Road to White Rock Road based on a 96-foot standard thoroughfare pursuant to the Sacramento County Improvement Standards and to the satisfaction of the Department of Transportation, provided that the County and the City of Rancho Cordova have reached agreement for construction of the portion of the improvements within the City’s jurisdiction. Performance of this condition shall be held in abeyance pending such agreement and development may continue. <i>(Final EIR Mitigation Measures: TR-5.F and TR-7.A)</i>
✓		✓	Prior to the Recordation of the Final Maps for 4,500 DUEs within the Cordova Hills SPA: 67. Commence reconstruction and widening of the existing intersection of Eagles Nest Road at Jackson Road (SR 16) to a signalized intersection pursuant to the Sacramento County Improvement Standards and to the satisfaction of the Department of Transportation and Caltrans. Improvements shall include a left turn lane and a through-right turn shared lane on the all approaches. <i>(Final EIR Mitigation Measure: TR-1.C)</i>
✓		✓	Prior to the Recordation of the Final Maps for 5,800 DUEs within the Cordova Hills SPA: 68. Commence reconstruction and widening of the existing intersection of Grant Line Road at Sunrise Boulevard to provide a separate southbound right turn lane so the southbound approach has one left turn lane, one through lane, and one right turn lane pursuant to the Sacramento County Improvement Standards and to the satisfaction of the Department of Transportation. <i>(Final EIR Mitigation Measure: TR-1.D).</i>

**Table 2-8
Sacramento County Certified EIR Mitigation Measures, Development Agreement Obligations, and Conditions of Approval**

EIR	DA	COA	Measure
✓		✓	<p>Prior to the Recordation of the Final Maps for 6,500 DUEs within the Cordova Hills SPA:</p> <p>69. Commence reconstruction and widening of the Grant Line Road at Douglas Road intersection to a signalized intersection pursuant to the Sacramento County Improvement Standards and to the satisfaction of the Department of Transportation, provided that the County and the City of Rancho Cordova have reached agreement for construction of the portion of the improvements within the City’s jurisdiction. Performance of this condition shall be held in abeyance pending such agreement and development may continue. Improvements shall include dual northbound left turn lanes (length of northbound left turn lanes to be determined based on future analysis) and three northbound through lanes; a southbound u-turn lane, three southbound through lanes and a southbound right turn lane; and an eastbound left turn lane and an eastbound free right turn lane. For the free-right turn movements, provide sufficient acceleration lane length to the satisfaction of the Department of Transportation. Note: The through lanes in the northbound and southbound directions shall be carried through the intersection. <i>(Final EIR Mitigation Measure: TR-2.G, and TR-9.B)</i></p>
✓		✓	<p>70. Commence reconstruction and widening of Prairie City Road from a rural highway without shoulders to a rural highway with shoulders from U.S. 50 to White Rock Road pursuant to the Sacramento County Improvement Standards and to the satisfaction of the Department of Transportation, provided that the County and the City of Folsom have reached agreement for construction of the portion of the improvements within the City’s jurisdiction. Performance of this condition shall be held in abeyance pending such agreement and development may continue. <i>(Final EIR Mitigation Measure: TR-3.A)</i></p>
✓		✓	<p>71. Commence reconstruction and widening of Grant Line Road from a four-lane road section to a six-lane thoroughfare section from North Loop Road to Douglas Road based on a 96-foot standard thoroughfare pursuant to the Sacramento County improvement Standards and to the satisfaction of the Department of Transportation, provided that the County and the City of Rancho Cordova have reached agreement for construction of the portion of the improvements within the City’s jurisdiction. Performance of this condition shall be held in abeyance pending such agreement and development may continue. (Note: Bus turnouts will be required on Grant Line Road. Condition number 51 requires improvements to the intersection of North Loop Road and Grant Line Road and Condition number 69 requires improvements to the intersection of Douglas Road and Grant Line Road.) <i>(Final EIR Mitigation Measures TR-5.E and TR-11.C)</i></p>
✓		✓	<p>Prior to the Recordation of the Final Maps for 6,900 DUEs within the Cordova Hills SPA:</p> <p>72. Commence reconstruction and widening of Jackson Road (SR 16) from an existing two-lane road section to four-lane thoroughfare center section with interim AC paths and six-foot bike lanes from Sunrise Boulevard to Grant Line Road based on a 96-foot standard thoroughfare pursuant to the Sacramento County Improvement standards and to the satisfaction of the Department of Transportation, provided that the County and the City of Rancho Cordova have reached agreement for construction of the portion of the improvements within the City’s jurisdiction. Performance of this condition shall be held in abeyance pending such agreement and development may continue. <i>(Final EIR Mitigation Measure: TR-5.G)</i></p>
✓		✓	<p>73. Commence reconstruction and widening of Grant Line Road from an existing two lane road section to a four-lane thoroughfare center road section with interim AC paths and six-foot bike lanes from University Boulevard to Chrysanthy Boulevard based on a 96-foot standard thoroughfare pursuant to the Sacramento County Improvement Standards and to the satisfaction of the Department of Transportation, provided that the County and the City of Rancho Cordova have reached agreement for construction of the portion of the improvements within the City’s jurisdiction. Performance of this condition shall be held in abeyance pending such agreement and development may continue. <i>(Final EIR Mitigation Measure: TR-5.C)</i></p>

**Table 2-8
 Sacramento County Certified EIR Mitigation Measures, Development Agreement Obligations, and Conditions of Approval**

EIR	DA	COA	Measure
✓		✓	74. Commence reconstruction and widening of Grant Line Road from an existing two lane road section to a four-lane thoroughfare center road section with interim AC paths and six-foot bike lanes from Chrysanthy Boulevard to North Loop Road based on a 96-foot standard thoroughfare pursuant to the Sacramento County Improvement Standards and to the satisfaction of the Department of Transportation, provided that the County and the City of Rancho Cordova have reached agreement for construction of the portion of the improvements within the City’s jurisdiction. Performance of this condition shall be held in abeyance pending such agreement and development may continue. <i>(Final EIR Mitigation Measure: TR-5.D)</i>
			Provide a fair share contribution for the following mitigation measures for roadway and intersection facilities to the satisfaction of the Department of Transportation. If the Southeast Connector Project is adopted into the County General Plan, then the Cordova Hills Project shall only pay its fair share contribution for the cost of the facilities needed for the connector project which replaces them, not to exceed the amount that would have been owed as the Cordova Hills Project’s fair share contribution for the original improvements.
✓		✓	75. Pay a fair share (21%) contribution towards the reconstruction and widening of Grant Line Road from an existing four-lane thoroughfare center road section to a six-lane thoroughfare section from Douglas Road to White Rock Road pursuant to the Sacramento County Improvement Standards and to the satisfaction of the Department of Transportation. <i>(Final EIR Mitigation Measure: TR-11.D)</i>
✓		✓	76. Pay a fair share (34%) contribution towards the reconstruction and widening of Grant Line Road from an existing four-lane thoroughfare center road section to a six-lane thoroughfare section from Rancho Cordova Parkway to Kiefer Boulevard. <i>(Final EIR Mitigation Measure: TR-11.A)</i>
✓		✓	77. Pay a fair share (54%) contribution towards the reconstruction and widening of Grant Line Road from an existing four-lane thoroughfare center road section to a six-lane thoroughfare section from Kiefer Boulevard to University Boulevard. <i>(Final EIR Mitigation Measure: TR-11.B)</i>
			Freeway improvements located under the jurisdiction of the Caltrans. Provide a fair share contribution for the following mitigation measures for Caltrans freeway facilities to the satisfaction of the Department of Transportation:
✓		✓	78. Pay a fair share (4%) contribution towards the addition of an auxiliary lane on westbound U.S. 50 from Hazel Avenue to Sunrise Boulevard. <i>(Final EIR Mitigation Measure: TR-6.A)</i>
✓		✓	79. Pay a fair share (9%) contribution towards the addition of an auxiliary lane on eastbound U.S. 50 from Sunrise Boulevard to Hazel Avenue. <i>(Final EIR Mitigation Measure: TR-6.B)</i>
			Roadway Improvements Located in the City of Rancho Cordova and the City of Elk Grove: The roadway improvements located within the adjacent jurisdictions of the City of Rancho Cordova and the City of Elk Grove are not required to be constructed pursuant to development threshold restrictions. The County and Cordova Hills Developer will pursue a reciprocal funding agreement and operational agreement with the respective jurisdictions as discussed in the Development Agreement to address the cross jurisdictional roadway impacts.
			Provide a fair share contribution for the following roadway and intersection improvements entirely within the City of Elk Grove to the satisfaction of the Department of Transportation. If the Southeast Connector Project is adopted into the County General Plan, then the Cordova Hills Project shall only pay its fair share contribution for the cost of the facilities needed for the Connector Project which replaces them, not to exceed the amount that would have been owed as the Cordova Hills Project’s fair share contribution for the original improvements.

**Table 2-8
Sacramento County Certified EIR Mitigation Measures, Development Agreement Obligations, and Conditions of Approval**

EIR	DA	COA	Measure
✓		✓	80. Pay a fair share (9%) contribution towards the reconstruction and widening of Grant Line Road from an existing two-lane road section to a four-lane thoroughfare center road section from Sheldon Road to Calvine Road pursuant to the Sacramento County Improvement Standards and to the satisfaction of the Department of Transportation. <i>(Final EIR Mitigation Measure: TR-4.A)</i>
✓		✓	Provide a fair share contribution for the following roadway and intersection improvements entirely within the City of Rancho Cordova to the satisfaction of the Department of Transportation: 81. Pay a fair share (18%) contribution towards the modification and associated improvements at the intersection of Sunrise Boulevard and White Rock Road pursuant to the Sacramento County Improvement Standards and to the satisfaction of the Department of Transportation to provide overlap phasing on the eastbound and westbound approaches. <i>(Final EIR Mitigation Measure: TR-2.B)</i>
✓		✓	82. Pay a fair share (16%) contribution towards the modification and associated improvements at the intersection of Sunrise Boulevard and Douglas Road pursuant to the Sacramento County Improvement Standards and to the satisfaction of the Department of Transportation to provide overlap phasing on the eastbound and westbound right turns. <i>(Final EIR Mitigation Measure: TR-9.A)</i>
✓		✓	83. Pay a fair share (58%) contribution towards the reconstruction and widening of Douglas Road from an existing two-lane road section to a four-lane arterial section from Americanos Boulevard to Grant Line Road, including interim AC paths and six-foot bike lanes. Also, pay a fair share (58%) contribution towards construction of a landscape median, two westbound travel lanes (any turn lanes at major intersections as applicable), a westbound six foot bike lane, and a westbound interim AC path for 5,030 feet on Douglas Road from Rancho Cordova Parkway to Americanos Boulevard. <i>(Final EIR Mitigation Measures: TR-5.I and TR-7.A)</i>
✓		✓	84. Pay a fair share (16%) contribution towards the modification and associated improvements at the intersection of Zinfandel Drive and White Rock Road pursuant to the Sacramento County Improvement Standards and to the satisfaction of the Department of Transportation in order to provide separate dual right turns on the westbound approach so the westbound approach has two left turn lanes, two through lanes and two right turn lanes. <i>(Final EIR Mitigation Measure: TR-2.A)</i>
✓		✓	85. Pay a fair share (16%) contribution towards the modification and associated improvements at the intersection of Sunrise Boulevard and Douglas Road pursuant to the Sacramento County Improvement Standards and to the satisfaction of the Department of Transportation to provide overlap phasing on the westbound approach. <i>(Final EIR Mitigation Measure: TR-2.C)</i>
	✓	✓	Special Districts Section 86. No residential final maps, with the exception of large lot final maps, shall be recorded and no residential building permits shall be issued thereon, nor any building permits issued for any other use until the financing mechanisms recommended in the approved Cordova Hills Special Planning Area Public Facilities Financing Plan are implemented. The property owners shall comply with the implementation of financing mechanisms including any future amendments and revisions adopted by the Board of Supervisors.

**Table 2-8
 Sacramento County Certified EIR Mitigation Measures, Development Agreement Obligations, and Conditions of Approval**

EIR	DA	COA	Measure
		✓	87. Prior to the recordation of a final map or issuance of a building permit, whichever may occur first, the property owner shall annex to County Service Area No. 10 (CSA 10) or establish an equivalent financing mechanism to the satisfaction of the Board of Supervisors, for the purpose of funding a variety of transportation demand management (TDM) services to implement an overall TDM strategy that will contribute to the goal of reducing vehicle trips and shall participate in CSA 10 or an equivalent financing mechanism by approving the levy of annual service charges or special taxes. If the property would to be annexed to CSA 10, to activate annual property related service charges for CSA 10, the protest ballot process is required by Proposition 218. If an equivalent financing mechanism is the choice of the development for TDM services, the mechanism needs to be established with approved levy of annual service charges or special taxes prior to the recordation of a final map or issuance of a building permit. In the event the property owners fail to annex to CSA 10, or establish a financing mechanism, or approve a service charge or special tax, no final map shall be recorded or building permits shall be issued. The annexation and protest ballot process for CSA 10 takes approximately three (3) months and the establishment of a new financing district could take six (6) months or longer. The applicants are advised to contact the County of Sacramento Special District Section at (916) 874-6525 at the earliest possible time to initiate the process. In no event shall a building permit be issued prior to the successful completion of protest ballot or election proceedings that approve the levy of annual service charges or special taxes to fund the TDM services.
		✓	88. Prior to recordation of any final map, the property shall annex into the County of Sacramento Community Facilities District No. 2005-1 (Police Services). The annexation process takes approximately 6 months and the applicants must contact the County of Sacramento Special Districts Section at (916) 874-6525 at the earliest possible time to initiate the process.
		✓	89. To the extent required by the Biological Opinion issued for the Freeport Regional Water Project, new water service will not be authorized or provided until compliance with the Endangered Species Act is demonstrated. Depending upon the source of water, compliance may be demonstrated by one of the following: participation in the SSHCP if the SSHCP is approved and implemented; a letter from the US Fish and Wildlife Service (USFWS) to the Project proponent and/or federal agency indicating the Project is not likely to adversely affect or result in a take of listed species; incidental take coverage through a biological opinion for the Project; or, incidental take coverage through an Endangered Species Act section 10(a)(1)(B) permit for the Project. Such compliance must be demonstrated to the satisfaction of the Director of the Department of Water Resources before approval of final map or issuance of the first building permit, whichever occurs first.
	✓	✓	90. In accordance with the Cordova Hills Development Agreement, the project shall be required to participate in any future County-wide Storm Water CFD required to fund maintenance of expanded stormwater /stormwater quality/hydromodification basins and facilities required as a result of State or Federal mandates and which are not included in the existing county Storm Water Utility program.
Large Lot Tentative Map Conditions of Approval			
			Large Lot Tentative Subdivision Maps are Subject to the Conditions Listed Below
			Sacramento Area Sewer District
		✓	1. Annex the subject property to both the Sacramento Regional County Sanitation District (SRCSD) and the Sacramento Area Sewer District (SASD) prior to recordation of the Final Map or submission of any improvement plans, whichever occurs first. Upon annexation, following conditions will apply to this project.

**Table 2-8
Sacramento County Certified EIR Mitigation Measures, Development Agreement Obligations, and Conditions of Approval**

EIR	DA	COA	Measure
			<p>Connection to the SASD’s sewer system shall be required to the satisfaction of SASD. SASD Design Standards apply to sewer construction.</p> <ul style="list-style-type: none"> ▶ Each parcel with a sewage source shall have a separate connection to the SASD public sewer system. If there is more than one building in any single parcel and the parcel is not proposed for split, then each building on that parcel shall have a separate connection to a private on-site sewer line or the SASD public sewer line. ▶ A Level 2 Sewer Study (Master Plan Level) has already been approved by SASD/SRCSD. However, to address a recently developed sewer alternate for the area an addendum to the Level 2 Sewer study will be required before recordation of the large lot map or submission of any improvement plans. A Level 3 Sewer Study (Subdivision Level) will also be required before recordation of small lot maps or submission of the improvement plans. The sewer study shall demonstrate the quantity of discharge and any “flow through sewage” along with the appropriate pipe sizes, elevations, downstream connections(s), upstream responsibilities, etc., and shall be done in accordance with SASD’s most recent “Minimum Sewer Study Requirements.” The study shall be done on a no “Shed-Shift” basis unless approved by SASD in advance and in compliance with the SASD Design Standards. ▶ To obtain public sewer service, construction of necessary onsite and offsite sewer infrastructure will be required to serve this project. ▶ Sewer easements may be required. All sewer easements shall be dedicated to SASD, in a form approved by the District Engineer. All SASD sewer easements shall be at least 20 feet in width and ensure continuous access for installation and maintenance. SASD will provide maintenance only in public right-of-ways and in easements dedicated to SASD. ▶ SASD requires their sewers to be located a minimum of 10 feet (measured horizontally (from edge of pipe to edge of pipe) from all potable water lines. Separation of sewer line from other parallel utilities, such as storm drain and other ‘dry’ utilities (electrical, telephone, cable, etc.) shall be a minimum of 7 feet (measured horizontally from the center of pipe to the center of pipe). Any deviation from the above separation due to depth and roadway width must be approved by SASD on a case by case basis. ▶ The trunk and collector sewer system for the project will not be accepted for operation and maintenance until the downstream sewer system serving the project is also accepted for operation and maintenance. All sewer facilities shall be accepted for operation and maintenance prior to issuance of a building permit as necessary to serve this project.
			Sacramento Regional County Sanitation District
		✓	2. Annexation to both SRCSD and the local sewer provider will be required to receive public sewer service.
		✓	3. To obtain public sewer service, construction of necessary onsite and offsite sewer infrastructure will be required to serve this project.
		✓	4. An approved sewer study will be required prior to recordation of the large lot map or submission of any improvement plans, whichever occurs first. The sewer study will be done in accordance with SASD's most recent Minimum Sewer Study Requirements and in compliance with SASD's Design Standards.
		✓	5. The applicant shall provide an area for sewer pump station facilities. The location and size of the area will be in accordance with the applicant's approved sewer study.

**Table 2-8
 Sacramento County Certified EIR Mitigation Measures, Development Agreement Obligations, and Conditions of Approval**

EIR	DA	COA	Measure
			Sacramento Fire Protection District
		✓	6. The final number and locations of the fire stations is to be determined by the comprehensive District's Standards of Coverage Study covering the Cordova Hills' project site and adjacent development areas where fire response may overlap, at the Developer's expense. The final site selection will also be subject to real property negotiations to acquire property for a fire station. The District's requirements for a fire station site include a minimum of 2.5 net acres of level property with a minimum of 330 feet of frontage and 330 feet of depth complete with utilities adequate to support the fire station. Please contact the District's Chief Administrative Officer, Larry Davis at (916) 708-6377, to determine specific site location(s), and then show the location of the final project plan.
		✓	7. The installation of approved traffic control equipment shall be installed on all signal lights installed or modified as a part of this project to allow emergency fire apparatus to activate the traffic signal.
		✓	8. Approved fire hydrants capable of providing the required fire flow for the protection of any and all structures shall be located along the route of the public roadways or fire apparatus access lanes. Hydrants shall be located at 300 foot spacing for commercial areas, and 500 foot spacing for residential areas, or as approved by Sacramento Metropolitan Fire District. Fire hydrants shall not be located in the bulb area of cul-de-sacs. The required fire hydrants shall be installed and operational prior to any construction or on-site storage of combustible materials.
		✓	9. Residences located within a high fire hazard severity zone are subject to more stringent requirements that may include wider access roadways, Class A roof coverings, fire sprinklers, and additional clearance from unimproved lands. Such requirements shall be determined with subsequent individual development applications.
		✓	10. Residential roof coverings shall consist of materials having a minimum Class C rating.
		✓	11. Traffic calming measures, speed bumps, humps, etc. shall not be installed in private fire apparatus access roadways.
		✓	12. All residential, commercial, and recreational structures in the proposed subdivision will be connected to the public water supply; private wells shall not be permitted.
		✓	13. Fire apparatus access shall be provided into wetland, wild land, unimproved open space areas, and large park and recreation areas for emergency medical and fire suppression purposes. Access to the aforementioned sites shall comply with the following requirements: <ul style="list-style-type: none"> a. Access roadways designed for vehicle use shall be a minimum of 20 feet in width. b. Pedestrian, bicycle, and non-vehicle recreational trails shall be a minimum of 10 feet in width. c. Class I Trail surfacing materials utilized for bicycle and pedestrian shall be all weather driving surface designed to meet the requirements of Sacramento County Road improvement standards (a minimum of 2 inches of asphalt on 6 inches of aggregate base). d. The Fire District shall approve the number and location of required apparatus access points.

Table 2-8 Sacramento County Certified EIR Mitigation Measures, Development Agreement Obligations, and Conditions of Approval			
EIR	DA	COA	Measure
		✓	14. Firebreaks shall be provided to separate unimproved areas, wetland (when permitted by federal and state agencies), wild land, open space areas, etc., from adjacent commercial, residential, and recreational development. Firebreaks shall provide a minimum of 30-feet of separation from combustible fences, structures, and ornamental vegetation. When a fire break is not permitted, a minimum of 30' of irrigated landscaping or a paved road must separate the unimproved areas. Where non-combustible fencing is provided, fire-resistive plants may be used to reduce or eliminate the firebreak subject to approval by the Fire District.
		✓	15. Backyard fencing separating residences from wetland, wild land, unimproved, open space, recreational areas, etc., shall be, constructed of non-combustible materials. New fencing shall be of the metal, open grate variety.
			Airport System
✓	✓	✓	16. Execution and recordation with the Sacramento County Recorder of an Avigation Easement to Sacramento County and compliance with all other conditions as required by the Sacramento County Board of Supervisors adoption of the Airport Planning Policy Area for Mather Air Field.
			Sheriff
		✓	17. Rounded curbs shall be avoided whenever possible.
	✓	✓	18. Prior to the recordation of the first final parcel map, Property Owners shall cooperate with the County Sheriff’s Department, in consultation with the City of Rancho Cordova, in the creation and implementation of a police services plan approved by the County for providing adequate levels of police services for the needs of the Cordova Hills Project Areas during the early phases of development.
			SIPS
		✓	19. Grant to the County an IOD for the on-site portion of roadways as shown on the tentative map and consistent with the Cordova Hills SPA to the satisfaction of Municipal Services Agency.
		✓	20. Dedicate a Public Utility Easement for underground facilities and appurtenances adjacent to all roadway IODs as shown on the Tentative Map and consistent public utility easements shown on street sections within the Cordova Hills Master Plan.
		✓	21. Conduct an assessment ballot to annex into the Enhanced or the Decorative street light benefit categories within CSA 1.
			Water Resources
		✓	22. Coincident with the approval of the improvement plans, provide drainage easements as needed and pay any fee required by the Sacramento County Water Agency Code. Install facilities pursuant to the Sacramento County Floodplain Management Ordinance, Sacramento County Water Agency Code, approved Drainage Master Plan, and Sacramento County Improvement Standards. All basins and channel alignments are contingent upon development interest. Any SCWA funding is contingent upon a need by SCWA, pursuant to title 2 of the SCWA Code. All drainage studies are subject to alternative analyses. Basin land shall not be credited within the Zone 11A fee program.

**Table 2-8
 Sacramento County Certified EIR Mitigation Measures, Development Agreement Obligations, and Conditions of Approval**

EIR	DA	COA	Measure
		✓	23. The Department of Water Resources shall require an approved drainage study incorporating all the items contained in the latest version of the document “ COUNTY OF SACRAMENTO DEPARTMENT OF WATER RESOURCES DRAINAGE DEVELOPMENT AND HYDROLOGY SECTION, Drainage Study Requirements ” and all the requirements listed in the Sacramento County Drainage Improvement Standards, prior to recordation of the large lot map. The study shall describe permanent stormwater quality treatment facilities capable of treating stormwater to the satisfaction of DWR groundwater engineering for infiltration into the Mehrten formation. The study must also identify, to the satisfaction of the Sacramento County DWR, hydromodification mitigation measures and flood detention facilities, to be implemented by the Cordova Hills development, in conformance with applicable County ordinances & standards, and state and federal law.
		✓	24. An existing condition (pre-project) Letter of Map Revision, must be approved by FEMA prior to recordation of the first large lot final map, approval of improvement plans, or grading plans, whichever comes first.
		✓	25. A CLOMR must be approved by FEMA for proposed development prior to approval of improvement plans, or grading plans, whichever comes first. Afterwards, a submittal to FEMA for a Letter of Map Revision is required prior to final map recordation. The development related CLOMR/LOMR process may be tied to the scope of the development phases with DWR approval.
		✓	26. An approved Letter of Map Revision for the developed condition shall be required prior to Building Permit issuance.
		✓	27. Prior to the first large lot map recordation, annex to the County of Sacramento Stormwater Utility District pursuant to the Sacramento County Water Agency Code, and the Sacramento County Improvement Standards.
		✓	28. There shall be no net loss of storage for any fill placed within the 100-year floodplain without in-kind excavation, unless documented and approved through the submittal and review of a comprehensive drainage study.
		✓	29. Provide post & cable, split rail, or wrought iron fencing around storm water detention basins consistent with the Cordova Hills Master Plan and to the satisfaction of the Sacramento County Department of Water Resources. Design the basins to be aesthetically pleasant and safe to accessing public.
		✓	30. Provide a permanent concrete stamp, or other permanently applied message to the satisfaction of DWR not including paint, which reads “No Dumping-Flows to Creek” or other approved message at each storm drain inlet in the site improvement plans.
			Department of Transportation
	✓	✓	31. The developer shall irrevocably offer to dedicate to the County up to 100 feet of right-of-way east of the centerline of Grant Line Road to the satisfaction of the Department of Transportation. The developer shall install frontage improvements along Grant Line Road for the length of the Project’s frontage east of the centerline based on the Design Standards for the proposed Capital Southeast Connector (Connector). Alternatively, the developer may install interim improvements to the satisfaction of the Department of Transportation. Frontage improvements shall be constructed for the full length between major intersections or up to the Project’s boundary at the earlier of the segment widening threshold or development of 50% (by total length of the associated frontage) of the parcels located immediately adjacent to the affected frontage. For instance, the entire frontage along Grant Line Road east of the centerline between Chrysanthy Boulevard and University Boulevard must be constructed once 50% of the Cordova Hills Project’s developable land frontage in this area is developed. This condition in no way precludes trigger conditions due to advancement of projects within the interior of the Cordova Hills plan area. Cash-in-lieu of improvements may be considered as satisfying the frontage improvement requirement.

**Table 2-8
Sacramento County Certified EIR Mitigation Measures, Development Agreement Obligations, and Conditions of Approval**

EIR	DA	COA	Measure
		✓	32. The developer shall dedicate to the County additional right-of-way for at-grade intersection widening at the at-grade intersections of Grant Line Road with University Boulevard, Chrysanthy Boulevard, and North Loop Road pursuant to Sacramento County Improvement Standards and to the satisfaction of the Department of Transportation.
		✓	33. The developer shall grant the right of direct vehicular access to the County of Sacramento along Grant Line Road to the satisfaction of the Department of Transportation, except at the intersections of University Boulevard, Chrysanthy Boulevard, and North Loop Road.
	✓	✓	34. All subdivision and/or parcel maps with land adjacent to Grant Line Road shall include an irrevocable setback line consistent with a future one hundred foot (100 ft.) right-of-way line to accommodate the Connector project which shall be the basis for development/building setbacks.
	✓	✓	35. If interim access road improvements are deemed appropriate by the County, the developer shall install Class “C” intersection improvements on Grant Line Road at the project entrance streets pursuant to the Sacramento County Improvement Standards and to the satisfaction of the Department of Transportation.
		✓	36. The geometric design of the right turn and left turn pockets, including bay tapers, at the intersections of Grant Line Road with North Loop Road, Chrysanthy Boulevard, and University Boulevard shall be based on an engineering analysis to the satisfaction of the Department of Transportation.
	✓	✓	<p>37. There are three alternative conditions depending on the status of the Connector Project: (i) the Connector is included in the General Plan before any tentative maps are approved at the Project; (ii) the Connector is included in the General Plan after a tentative map is approved but before a final map is recorded; or (iii) the Connector is not included in the General Plan at the time a final map is recorded. The alternative conditions are as follows:</p> <p style="margin-left: 40px;">a. Alternative #1 - <u>Connector Incorporated in General Plan before Map Approval</u>. In the event that the Connector is incorporated into the County’s General Plan prior to approval of any tentative maps at the Cordova Hills Project, the following conditions shall be applicable to any tentative subdivision maps or tentative parcel maps.</p> <p style="margin-left: 80px;">(1) The proposed access for the Cordova Hills Project to Grant Line Road, via University Avenue, Chrysanthy Boulevard, and North Loop Road, may be modified in the future with the implementation of the Connector project. It is anticipated that full roadway access to and from Grant Line Road at University Boulevard and Chrysanthy Boulevard will be accommodated with grade separated interchanges. Access to and from Grant Line Road at North Loop Road may be limited and/or accommodated with some form of grade separated interchange incorporating a special design or through an alternative access location. Any future changes to the Cordova Hills Project’s access points to and from Grant Line Road will be a part of the Connector project and will be subject to future CEQA review as an element of the Connector project.</p> <p style="margin-left: 80px;">(2) The developer shall have the right to coordinate with the Capital Southeast Connector Joint Powers Authority (“Connector JPA”) and the Sacramento County Department of Transportation in the development of an alternative access design for the North Loop Road intersection with Grant Line Road. Prior to physical implementation of the Connector with an alternative access configuration at North Loop Road and Grant Line Road, full at-grade access of North Loop Road to Grant Line Road may be maintained.</p>

**Table 2-8
 Sacramento County Certified EIR Mitigation Measures, Development Agreement Obligations, and Conditions of Approval**

EIR	DA	COA	Measure
			<p>(3) In the event the Connector JPA commences construction of the Connector’s Grant Line Road and North Loop Road access point before the developer’s construction of the Grant Line Road and North Loop Road at-grade intersection begins, then the Cordova Hills Project shall make a financial contribution to the construction cost of the Grant Line Road and North Loop Road access point, up to the total amount that the Cordova Hills Project would have otherwise contributed as its fair share of the construction cost of the Grant Line Road and North Loop Road at-grade intersection improvements at build-out of the Cordova Hills Project without the Connector project. Should the developer of the Cordova Hills Project build any portion of the Grant Line Road and North Loop Road at grade intersection improvements prior to the time the Connector JPA commences construction of the Connector’s Grant Line Road and North Loop Road access point, then the Cordova Hills Project’s fair share of the construction cost of the Connector’s Grant Line Road and North Loop Road access point shall be a sum not to exceed the total amount that the Cordova Hills Project would have otherwise contributed as its fair share of the construction cost of the Grant Line Road and North Loop Road at grade intersection improvements at build-out of the Cordova Hills Project without the Connector project, minus the amount previously incurred by the developer for that portion of the Grant Line Road and North Loop Road at-grade intersection improvements that actually were built.</p> <p>(4) The developer shall grant the right of direct vehicular access to the County of Sacramento along any grade separated interchange approaches of University Boulevard, Chrysanthy Boulevard and North Loop Road to Grant Line Road to the satisfaction of the Department of Transportation.</p> <p>(5) The developer shall irrevocably offer to dedicate to the County additional right-of-way to accommodate the grade separated interchanges pursuant to the Connector Design Standards at the applicable intersections of Grant Line Road with University Boulevard, Chrysanthy Boulevard, and North Loop Road to the satisfaction of the Department of Transportation and the Capital Southeast Connector Joint Powers Authority. This dedication shall be the basis for development/building setbacks.</p>
			<p>b. <u>Alternative #2 - Connector Incorporated into General Plan after Tentative Map is Approved But Before Final Map is Recorded.</u> In the event that the Connector is incorporated into the County’s General Plan after the County approves any tentative parcel map or tentative subdivision map, but before a final map based thereon is recorded, then notwithstanding Sections 1.2.17 and 4.2 of the Development Agreement, the County shall have the right to require revisions to the final map in accordance with the Subdivision Map Act, provided the revisions are in substantial compliance with approved tentative map, based upon the following conditions:</p> <p>(1) The developer shall provide a reservation for the additional land needed for the Connector project interchanges at the at-grade intersections of Grant Line Road with University Boulevard, Chrysanthy Boulevard, and North Loop Road. County and Property Owners agree that the value of lands subject to the reservation for the proposed Connector project interchanges shall be based upon the value for comparable unentitled lands then being paid by the Connector JPA at the time the land subject to the reservation is acquired for the Connector project. The reservation area limit shall be the basis for development/building setbacks.</p> <p>(2) The County shall have the right to require revisions to address the Connector project in final maps so long as the revisions are in substantial compliance with the previously approved tentative maps as allowed by Section 66474.1 of the Government Code (the Subdivision Map Act). The County and developer shall work together on any redesign of the Grant Line Road access points to minimize costs to the Cordova Hills Project and preserve the viability and feasibility of the development of land uses within the Cordova Hills Project along Grant Line Road, as well as avoid a substantial redesign or modification of the planned or then existing backbone infrastructure related to the Cordova Hills Project.</p>

**Table 2-8
Sacramento County Certified EIR Mitigation Measures, Development Agreement Obligations, and Conditions of Approval**

EIR	DA	COA	Measure
			<p>(3) In the event the Connector JPA commences construction of the Connector’s Grant Line Road and North Loop Road access point before the developer’s construction of the Grant Line Road and North Loop Road at-grade intersection begins, then the Cordova Hills Project shall make a financial contribution to the construction cost of the Grant Line Road and North Loop Road access point, up to the total amount that the Cordova Hills Project would have otherwise contributed as its fair share of the construction cost of the Grant Line Road and North Loop Road at-grade intersection improvements at build-out of the Cordova Hills Project without the Connector project. Should the developer of the Cordova Hills Project build any portion of the Grant Line Road and North Loop Road at grade intersection improvements prior to the time the Connector JPA commences construction of the Connector’s Grant Line Road and North Loop Road access point, then the Cordova Hills Project’s fair share of the construction cost of the Connector’s Grant Line Road and North Loop Road access point shall be a sum not to exceed the total amount that the Cordova Hills Project would have otherwise contributed as its fair share of the construction cost of the Grant Line Road and North Loop Road at grade intersection improvements at build-out of the Cordova Hills Project without the Connector project, minus the amount previously incurred by the developer for that portion of the Grant Line Road and North Loop Road at-grade intersection improvements that actually were built.</p> <p>c. <u>Alternative #3 – Connector Not Incorporated into General Plan Prior to Final Map Recordation.</u> In the event that the Connector has not been incorporated into the County’s General Plan by the time a final map is recorded, then notwithstanding Sections 1.2.17 and 4.2 of the Development Agreement, the following condition shall be applicable:</p> <p>(i) The developer shall provide a reservation for the additional land needed for the Connector project interchanges at the at-grade intersections of Grant Line Road with University Boulevard, Chrysanthy Boulevard, and North Loop Road. County and Property Owners agree that the value of lands subject to the reservation for the proposed Connector project interchanges shall be based upon the value for comparable unentitled lands then being paid by the Connector JPA at the time the land subject to the reservation is acquired for the Connector project. This reservation shall be the basis for development/building setbacks.</p>
		✓	38. The feasibility of allowing left-turn access and the design of left turn pockets on Chrysanthy Boulevard, Town Center Boulevard, North Loop Road, and University Boulevard at commercial driveways and village entries shall be based on a focused access study that considers the entirety of the median design and the impacts to capacity and safety to the satisfaction of the Department of Transportation.
		✓	39. Prior to the recordation of any final map applicable to the Town Center Village within the Cordova Hills SPA, a focused access study addressing internal Cordova Hills’ circulation and roadway design shall be completed. This study shall address the operations of the internal circulation and connections to Grant Line Road, Chrysanthy Boulevard, Town Center Boulevard, North Loop Road, and University Boulevard. A micro-simulation or manual operational analysis shall be conducted to finalize the design of internal circulation and road connections to ensure they operate acceptably. The scope of work for the analysis shall be approved by the Sacramento County Department of Transportation staff. Upon completion, the analysis shall be submitted to the Sacramento County Department of Transportation for approval and recommendations.

**Table 2-8
 Sacramento County Certified EIR Mitigation Measures, Development Agreement Obligations, and Conditions of Approval**

EIR	DA	COA	Measure
	✓	✓	40. The developer shall reserve an additional ten feet (10 ft.) of right-of-way east of the one hundred feet (100 ft.) of right-of-way that is being dedicated east of the centerline of Grant Line Road between Chrysanthy Boulevard and the Project’s northern boundary at Glory Lane. County and developer agree that the value of lands subject to the foregoing reservation shall be based upon the value for comparable unentitled lands then being paid by the Connector JPA at the time the land subject to this reservation is acquired for the Connector project. The foregoing reservation shall state that the developer and the public agency for whose benefit the reservation is being provided shall have a period of five (5) years following approval of the applicable final parcel map or final subdivision map within which to enter into a binding agreement for the acquisition of the reserved land area shown on the map, which area may be acquired in fee title or easement at the discretion of the public agency.
	✓	✓	41. The developer shall provide a reservation for the additional land needed for the Connector project interchanges at the at-grade intersections of Grant Line Road with University Boulevard and Chrysanthy Boulevard. County and developer agree that the value of lands subject to the reservation for the proposed Connector project interchanges shall be based upon the value for comparable unentitled lands then being paid by the Connector JPA at the time the land subject to the reservation is acquired for the Connector project. The reservation area limit shall be the basis for development/building setbacks. The foregoing reservation shall state that the developer and the public agency for whose benefit the reservation is being provided shall have a period of five (5) years following approval of the applicable final parcel map or final subdivision map within which to enter into a binding agreement for the acquisition of the reserved land area shown on the map, which area may be acquired in fee title or easement at the discretion of the public agency. If the Connector is included in the General Plan before a final map is recorded for any portion of the Cordova Hills Project that includes an access point along Grant Line Road, the County shall have the right to require revisions to address the Connector project in final maps so long as the revisions are in substantial compliance with the previously approved tentative maps as allowed by Section 66474.1 of the Government Code (the Subdivision Map Act), and further provided that: (a) the County’s revision shall not convert a reservation into an irrevocable offer of dedication; and (b) the County, the Connector JPA and developer shall work together on any redesign of the Grant Line Road access points.
		✓	42. The developer shall provide County with an irrevocable offer of dedication for a 76 ft. wide roadway right-of-way with 28 ft. wide landscape maintenance easements on both sides of the roadway right-of-way for that segment of Town Center Boulevard between its intersection with North Loop Road to the northern boundary of the Cordova Hills Project.
		✓	43. To the extent required by the Biological Opinion issued for the Freeport Regional Water Project, new water service will not be authorized or provided until compliance with the Endangered Species Act is demonstrated. Depending upon the source of water, compliance may be demonstrated by one of the following: participation in the SSHCP if the SSHCP is approved and implemented; a letter from the US Fish and Wildlife Service (USFWS) to the Project proponent and/or federal agency indicating the Project is not likely to adversely affect or result in a take of listed species; incidental take coverage through a biological opinion for the Project; or, incidental take coverage through an Endangered Species Act section 10(a)(1)(B) permit for the Project. Such compliance must be demonstrated to the satisfaction of the Director of the Department of Water Resources before approval of final map or issuance of the first building permit, whichever occurs first.
Development Agreement Obligations			
	✓		1. Transfer ownership of the University/College Campus Center site to County if no institution of higher education locates there before expiration of the 30-year Initial Term of Development Agreement. (<i>Development Agreement 2.3.1</i>)

**Table 2-8
Sacramento County Certified EIR Mitigation Measures, Development Agreement Obligations, and Conditions of Approval**

EIR	DA	COA	Measure
	✓		2. Developer will not seek or apply for a change in the land use designation for University/College Campus Center site. <i>(Development Agreement 2.3.1.1)</i>
	✓		3. Developer to provide annual written reports to County Board of Supervisors on progress made to attract an institution of higher education as user of the University/College Campus Center site. <i>(Development Agreement 2.3.1.2)</i>
	✓		4. Deposit \$2 Million into escrow account with County if ownership of University/College Campus Center site has not been transferred and the first building permit issued to an institution of higher education by the time building permits for 1,000 DUEs have been issued at the Project; deposit an additional \$2 Million into escrow if the site has not been transferred and the first building permit issued for a higher education building by the time building permits for 1,750 DUEs have been issued; if site has not been transferred and the first building permit for the first higher education building issued by the time building permits for 2,985 DUEs have been issued, then deposit an additional \$2 Million into escrow with County. <i>(Development Agreement 2.3.1.3)</i>
	✓		5. Provide backbone infrastructure to the frontage of the University / College Campus Center site as part of Phase 1 of Project. <i>(Development Agreement 2.3.1.4)</i>
	✓		6. Offer to dedicate to County a public recreational trail easement along Carson Creek once County adopts a Trail Alignment Plan for eastern Sacramento County. <i>(Development Agreement 2.3.2)</i>
	✓		7. Comply with Cordova Hills Affordable Housing Plan. <i>(Development Agreement 2.3.3)</i>
	✓		8. Prior to recordation of the first small lot subdivision map or issuance of the first building permit, whichever is first, support formation of a special financing district to fund the transit system and the Cordova Hills Transportation Management Association (“TMA”). <i>(Development Agreement 2.3.4)</i>
	✓		9. Form the Cordova Hills TMA prior to issuance of the first residential building permit. <i>(Development Agreement 2.3.4)</i>
	✓		10. Prior to approval of the first small lot tentative subdivision map, enter into a park development agreement for the Sports Park. <i>(Development Agreement 2.3.6)</i>
	✓		11. Prior to approval of the first small lot tentative subdivision map for each sub-area, enter into individual park development agreements for the applicable sub-area’s parks. <i>(Development Agreement 2.3.7)</i>
	✓		12. Dedicate park sites as final small lot subdivision maps are recorded. <i>(Development Agreement 2.3.8)</i>
✓	✓		13. Provide the Kiefer Landfill Disclosure to purchasers at the Project. <i>(Development Agreement 2.3.9)</i>
	✓		14. Provide adequate space on all commercial parcels and multi-family parcels for the separate collection of recyclable materials. <i>(Development Agreement 2.3.10)</i>
✓	✓	✓	15. Provide an avigation easement for Mather Airport. <i>(Development Agreement 2.3.11)</i>
	✓	✓	16. Participate on fair share basis in any Capital Southeast Connector finance plan or funding mechanism. <i>(Development Agreement 2.3.12.2)</i>

**Table 2-8
 Sacramento County Certified EIR Mitigation Measures, Development Agreement Obligations, and Conditions of Approval**

EIR	DA	COA	Measure
	✓	✓	17. Dedicate 100 ft of right-of-way for the Connector along Grant Line Road. <i>(Development Agreement 2.3.12.3)</i>
	✓	✓	18. Reserve an additional 10 ft. behind the 100 ft. dedication area along Grant Line Road for future acquisition by the Connector JPA or County. <i>(Development Agreement 2.3.12.4)</i>
	✓	✓	19. Reserve additional land needed for the Connector’s interchanges at the University and Chrysanthy intersections with Grant Line Road. <i>(Development Agreement 2.3.12.7)</i>
	✓		20. Disclose future Connector to purchasers. <i>(Development Agreement 2.3.12.8)</i>
	✓		21. Provide Ag-80 deed restriction on lands along floodplain of Carson Creek prior to recordation of first small lot subdivision map. <i>(Development Agreement 2.3.14)</i>
	✓		22. Dedicate the park-and-ride lot at the Sports Park prior to issuance of the 1,000 th residential building permit and fully improve it with 64 parking spaces by the 1,500 th residential building permit. <i>(Development Agreement 2.3.17)</i>
	✓		23. Dedicate trail segments along roadway rights-of-way when the roadway segments are dedicated, and build the trail segment when the roadway segment is constructed. <i>(Development Agreement 2.3.18[a])</i>
	✓		24. Transfer ownership of R-2 zoned parcels to County or CHCSA when the first adjacent final small lot subdivision map is recorded or upon completion of a development plan review when the developing parcel is not being further subdivided. <i>(Development Agreement 2.3.18[b])</i>
	✓		25. Trails within R-2 parcels must be constructed when first adjacent developing parcel begins construction. <i>(Development Agreement 2.3.18[b])</i>
	✓		26. Trails within developing parcels shall be dedicated when the first final map is recorded or upon completion of development plan review if the parcel is not being further subdivided. <i>(Development Agreement 2.3.19[c])</i>
	✓		27. Construction of trails within developing parcels shall be commenced when the first building permit is issued or when required by the tentative map conditions of approval. <i>(Development Agreement 2.3.18[c])</i>
	✓		28. Locations of Paseos shall be identified on approval of the small lot tentative map or during the development plan review process if no further subdivision of the parcel is taking place. <i>(Development Agreement 2.3.18[d])</i>
	✓		29. Record a conservation easement on the East Carson Creek Property (APN 073-0050-051) prior to issuance of any building permit within the Project Area. <i>(Development Agreement 2.3.19)</i>
	✓	✓	30. Prepare a police services plan during early phases of development prior to recordation of first final parcel map in cooperation with Sheriff’s Dept. and in consultation with City of Rancho Cordova. <i>(Development Agreement 2.6)</i>
✓	✓	✓	31. Improve intersection of Sunrise Blvd. and Jackson Highway with an eastbound through lane; an eastbound through-right turn shared lane; eastbound left turn lane; northbound left turn lane; two northbound through lanes; northbound right turn lane; westbound through lane; westbound right turn lane; westbound left turn lane; southbound through lane; southbound left turn lane; and southbound right turn lane. Pay all construction costs in excess of the \$800,000 being contributed by County from SCTDF revenues generated by the Project Area. Commence construction when required by Conditions of Approval to prevent degradation below Level of Service “E.” <i>(Development Agreement 2.7)</i>

**Table 2-8
Sacramento County Certified EIR Mitigation Measures, Development Agreement Obligations, and Conditions of Approval**

EIR	DA	COA	Measure
	✓		32. Advance funds to form and implement the Cordova Hills County Services Area (“CHCSA”) and its initial operation. <i>(Development Agreement 3.5.1 and 3.5.3)</i>
	✓	✓	33. Form the financing mechanisms needed for the CHCSA, Cordova Hills Finance Plan, and Urban Services Plan prior to recordation of the first final small lot subdivision map or issuance of any building permit. <i>(Development Agreement 3.5.2, 4.14 and 4.16)</i>
			33. Form the financing mechanisms needed for the CHCSA, Cordova Hills Finance Plan, and Urban Services Plan prior to recordation of the first final small lot subdivision map or issuance of any building permit. <i>(Development Agreement 3.5.2, 4.14 and 4.16)</i>
			34. Advance County’s costs to form and implement the fee programs needed for the Project Area’s infrastructure and public facilities contemplated by the Finance Plan. <i>(Development Agreement 4.16.3)</i>
			35. Fund any revenue shortfalls that arise under the Urban Services Plan with a tax on undeveloped parcels after the maximum special tax has been imposed on the developed properties. <i>(Development Agreement 4.16.5)</i>
			36. Provide evidence of compliance with Development Agreement to County on each anniversary of the Agreement. <i>(Development Agreement 6.1)</i>

Note: COA = Conditions of Approval; DA = Development Agreement; EIR = Sacramento County Certified EIR; SR = State Route
 Source: County of Sacramento Board of Supervisors 2013.

2.5 EXPANDED DRAINAGE PRESERVATION ALTERNATIVE

Under the Expanded Drainage Preservation Alternative, a substantially larger portion of the on-site drainages would be preserved as compared to the Proposed Action, particularly in the drainage that trends south/southwest through the central portion of the Cordova Hills site (which ultimately connects to Deer Creek south of the Cordova Hills site). This drainage would also have a 50-foot buffer zone from the adjacent residential development. The south/southwest-trending drainage in the eastern portion of the Cordova Hills site would also have increased preservation. This alternative would result in a total of 921 acres of preservation, as compared to 539 acres preserved under the Proposed Action. Land with the AV (Avoided Area) use designation would be set aside as natural habitat with no urban development. A conceptual land use plan showing proposed development is provided in Exhibit 2-13. Table 2-1 describes the land uses, and Table 2-9 provides a summary of the acreages of each land use that would be included in the Expanded Drainage Preservation Alternative. Phasing would be similar to that described for the Proposed Action in Section 2.4.3.

Table 2-9		
Summary of Land Use Designations – Expanded Drainage Preservation Alternative		
Land Use Designations		Acres
AG	Agriculture	77.8
P/QP	Public/Quasi Public	99.4
R	Recreation	53.2
R2	Recreation and Open Space	242.2
AV	Avoided Areas	926.6
ER	Estates Residential (1 to 4 du/ac)	97.2
LDR	Low Density Residential (4 to 7 du/ac)	304.2
MDR	Medium Density Residential (7 to 15 du/ac)	228.5
RD20	Medium/High Density Residential (20 du/ac)	17.6
HDR1	High Density Residential (20 to 30 du/ac)	36.3
FC	Flex Commercial	38.9
TC	Town Center	119.7
	University	200.6
	Roads and Open Space	226.3
Total Gross Acreage		2,668.5
Note: du/ac = dwelling units per acre Source: MacKay & Somps, Conwy LLC, William Hezmalhalch Architects Inc. 2012, adapted by AECOM in 2012		

Under the Expanded Drainage Preservation Alternative, 18.19 acres of jurisdictional waters of the U.S. would be filled, as compared to 39.63 acres that would be filled under the Proposed Action (a difference of 21.44 fewer acres filled). A total of 70.92 acres of waters of the U.S. would be preserved under this alternative, as compared to 49.48 acres preserved under the Proposed Action. Table 2-10 presents direct effects of the Expanded Drainage Preservation Alternative on wetlands on the Cordova Hills site.

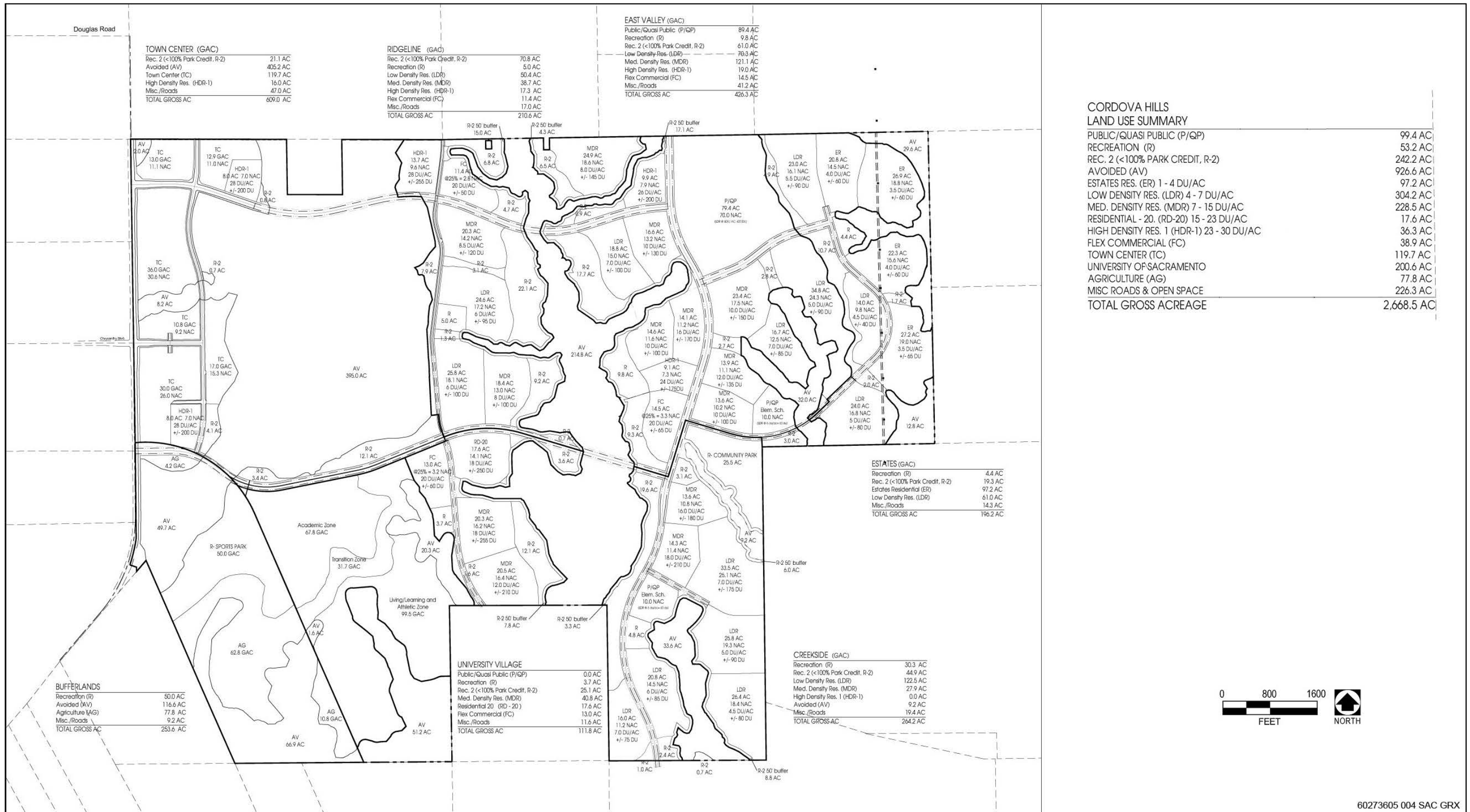
Water Type	Existing On-Site	On-Site Direct Effect	On-Site Preservation
Carson Creek	0.174	0	0.17
Intermittent Drainage	16.90	0.87	16.03
Seasonal Wetland	4.77	1.17	3.61
Seasonal Wetland Swale	18.22	4.93	13.29
Seep	0.01	0.01	0
Stock Pond	1.52	0.69	0.84
Vernal Pool	47.51	10.53	36.98
Total Acreage Affected	89.11	18.19	70.92
Source: Data compiled by AECOM in 2013			

Exhibits 2-14, 2-15 and 2-16 illustrate the proposed backbone infrastructure improvements. Tables 2-2 and 2-4 list the total estimated residential and commercial development under the Expanded Drainage Preservation Alternative as compared to the Proposed Action.

2.6 EXPANDED PRESERVATION ALTERNATIVE

Under the Expanded Preservation Alternative, substantially more drainage swales would be preserved as compared to the Proposed Action. However, this alternative would also preserve the entire northwestern portion of the Cordova Hills site, which contains the largest concentration of wetland habitat. All preserved areas on the Cordova Hills site would have a 50-foot buffer zone from adjacent land uses. This alternative would result in 1,188 acres of preservation, as compared to 539 acres preserved under the Proposed Action. A conceptual land use plan showing proposed development is provided in Exhibit 2-17. Table 2-1 describes the land uses, and Table 2-11 provides a summary of the acreages of each land use that would be included in the Expanded Preservation Alternative. Land with the AV (Avoided Area) use designation would be set aside as natural habitat with no urban development. Phasing would be similar to that described for the Proposed Action in Section 2.4.3.

Under the Expanded Preservation Alternative, 9.38 acres of jurisdictional waters of the U.S. would be filled, as compared to 39.63 acres that would be filled under the Proposed Action (a difference of 30.25 fewer acres filled). A total of 79.72 acres of waters of the U.S. would be preserved under this alternative, as compared to 49.48 acres preserved under the Proposed Action. Table 2-12 presents direct effects of the Expanded Preservation Alternative on wetlands on the Cordova Hills site. Exhibits 2-18, 2-19, and 2-20 illustrate the proposed backbone infrastructure improvements.

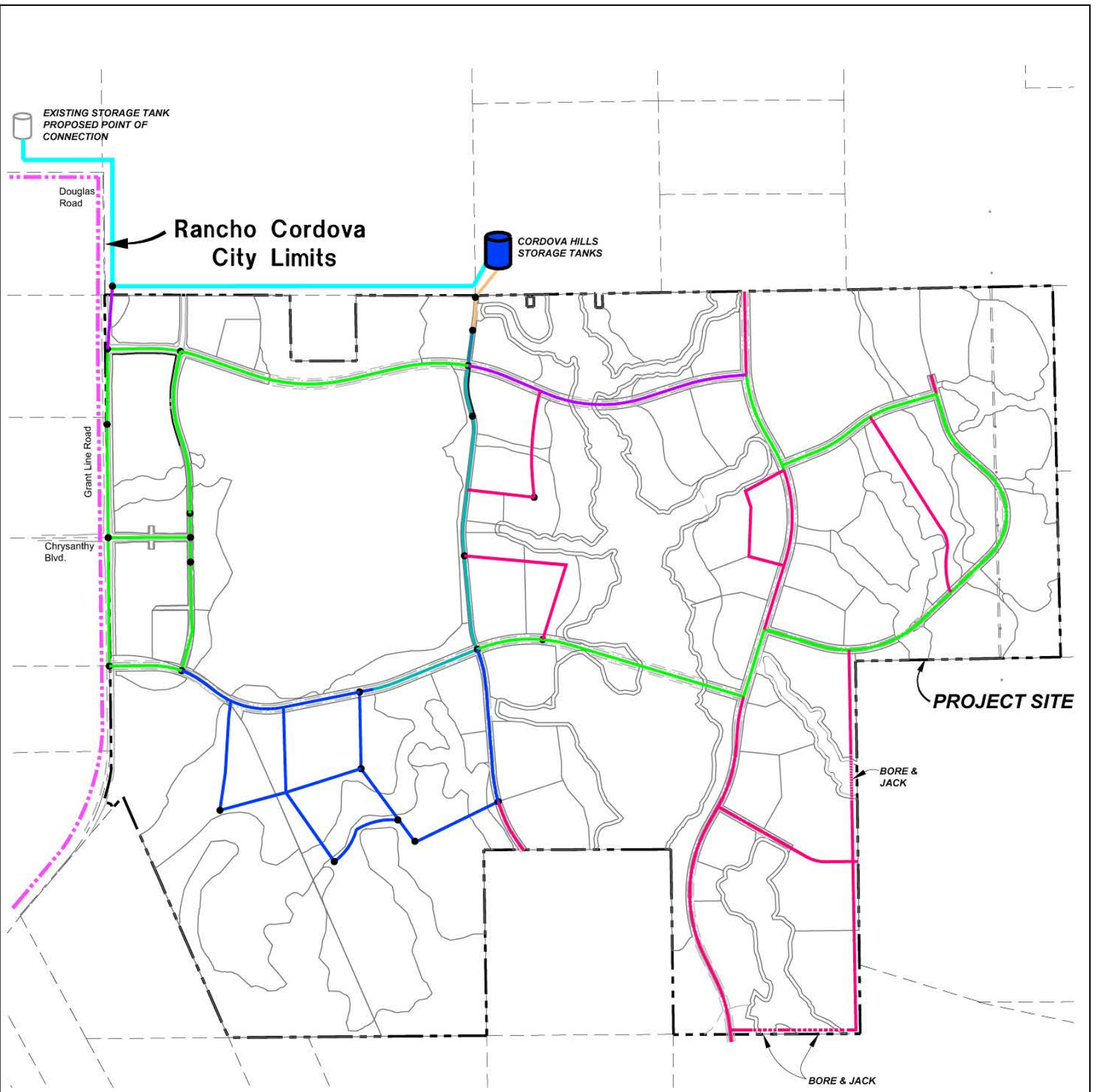


Sources: MacKay & Soms, Conwy LLC, William Hezmalhach Architects Inc. 2012, adapted by AECOM in 2012

Exhibit 2-13

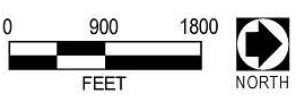
Expanded Drainage Preservation Alternative Land Use Plan

60273605 004 SAC GRX



Legend

- Project Boundary
- 12" Waterline
- 16" Waterline
- 18" Waterline
- 24" Waterline
- 30" Waterline
- 36" Waterline
- 42" Waterline
- 30" Storage Tank Feed Line
- - - Future Offsite Waterline (by others)
- Proposed Water Storage Tanks
- ⊗ Pressure Reducing Valve

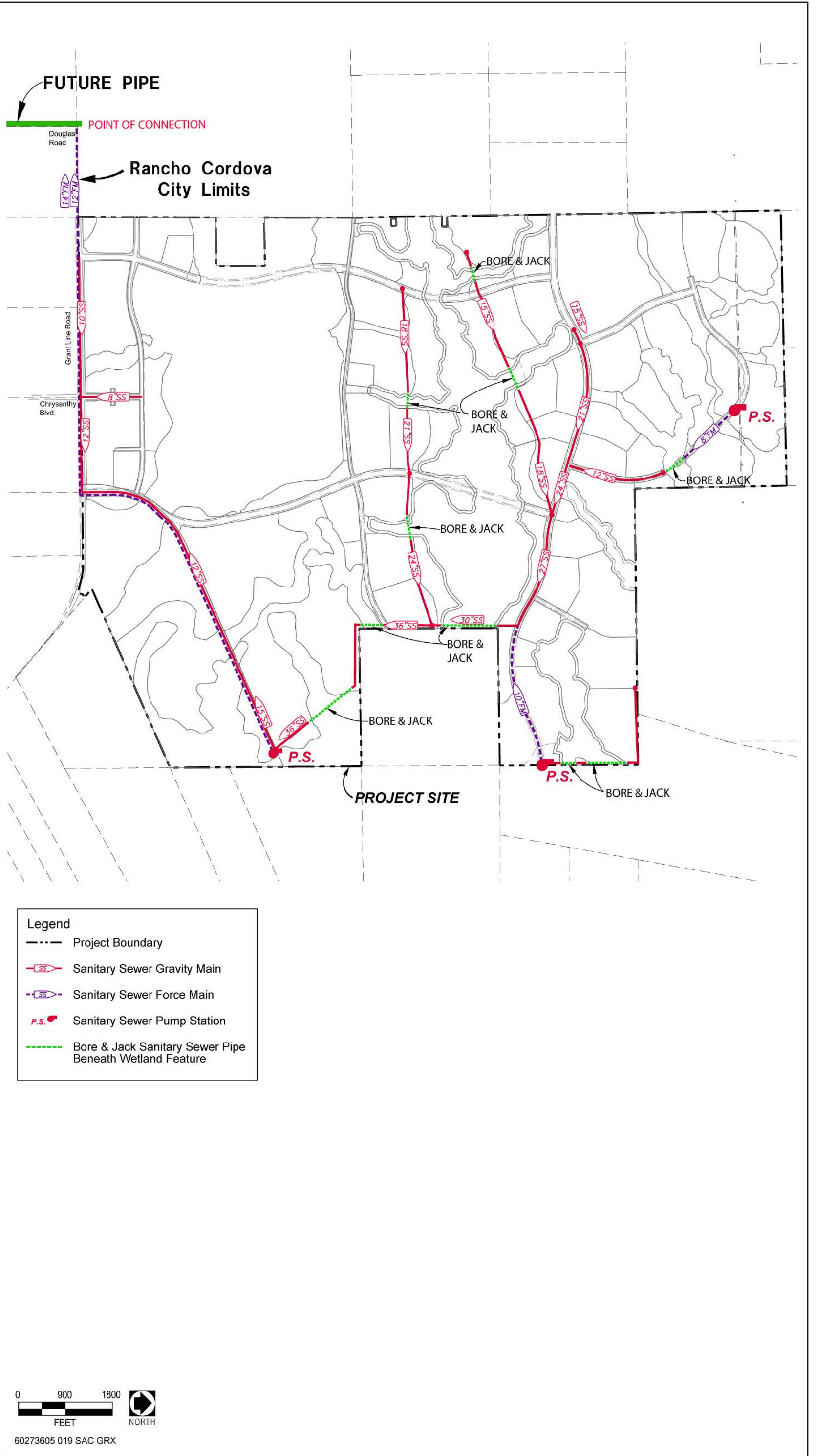


60273605 020 SAC GRX

Source: Mackay & Soms 2012, adapted by AECOM in 2012

Proposed Water System – Expanded Drainage Preservation Alternative

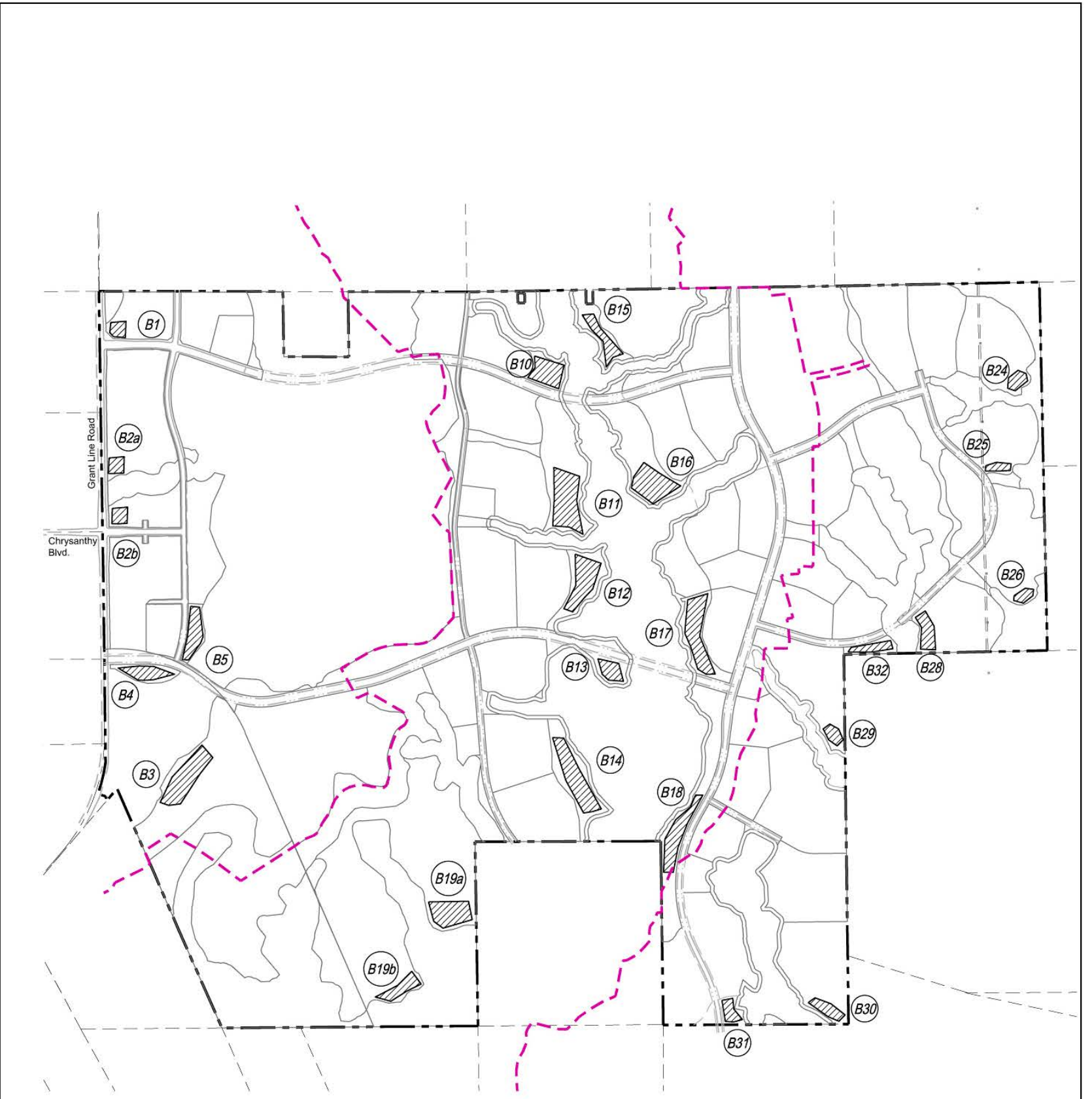
Exhibit 2-14



Source: Mackay & Soms 2012, adapted by AECOM in 2012

Exhibit 2-15

Proposed Sanitary Sewer Plan – Expanded Drainage Preservation Alternative

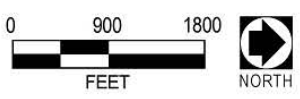


Legend

- Project Boundary
- - - Major Shed Boundaries (developed condition)
- ▨ Schematic Basin Layout (typical)
- B18 Basin Identifiers

Notes:

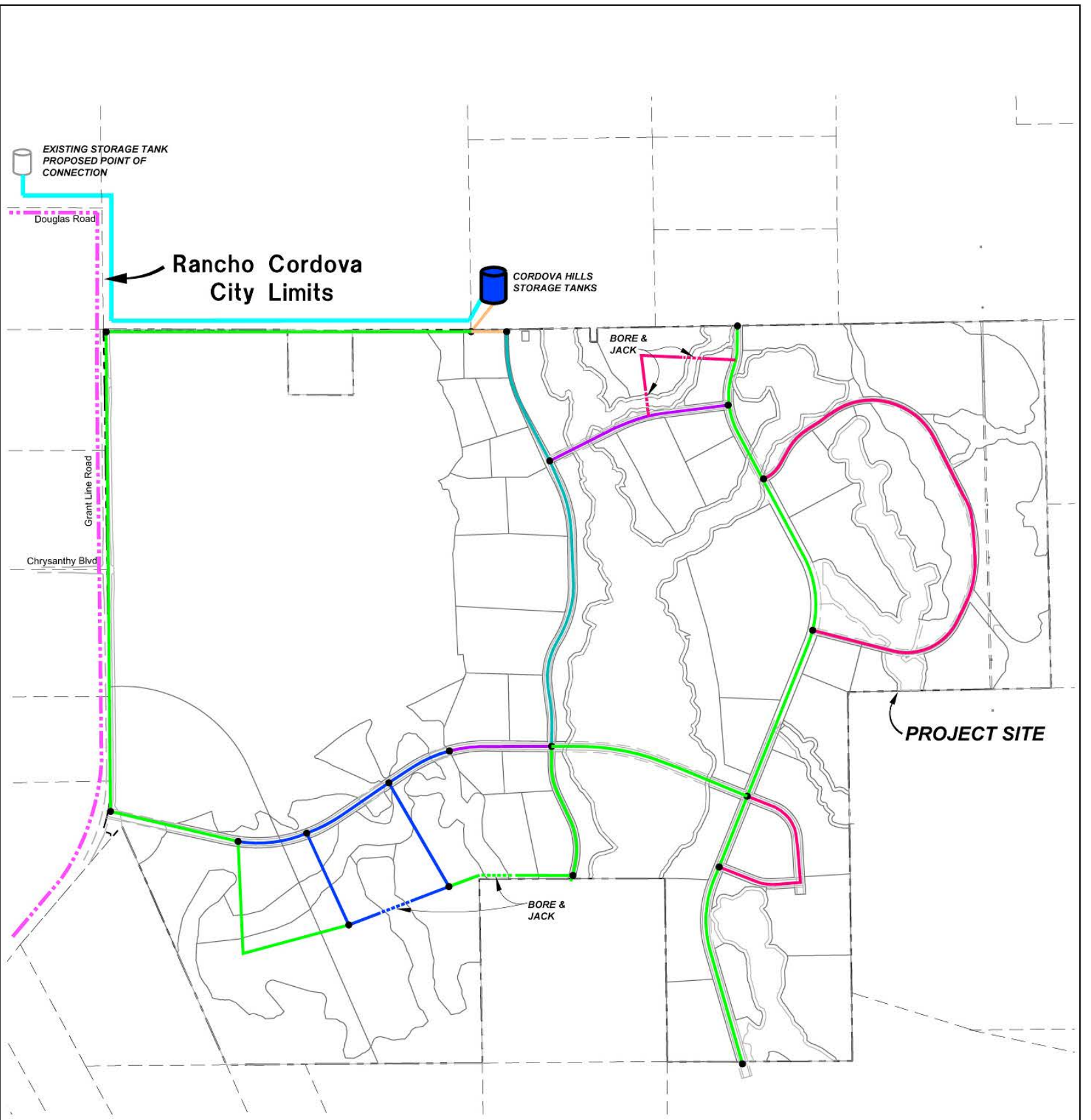
1. NAVD Vertical Datum
2. Each basin location and design subject to change based on final site plan design.



60273605 018 SAC GRX

Source: Mackay & Sumps 2012, adapted by AECOM in 2012

Proposed Drainage Facilities – Expanded Drainage Preservation Alternative



Legend

- Project Boundary
- 12" Waterline
- 16" Waterline
- 18" Waterline
- 24" Waterline
- 30" Waterline
- 36" Waterline
- 42" Waterline
- 30" Storage Tank Feed Line
- - - Future Offsite Waterline (by others)
- Proposed Water Storage Tanks
- Pressure Reducing Valve

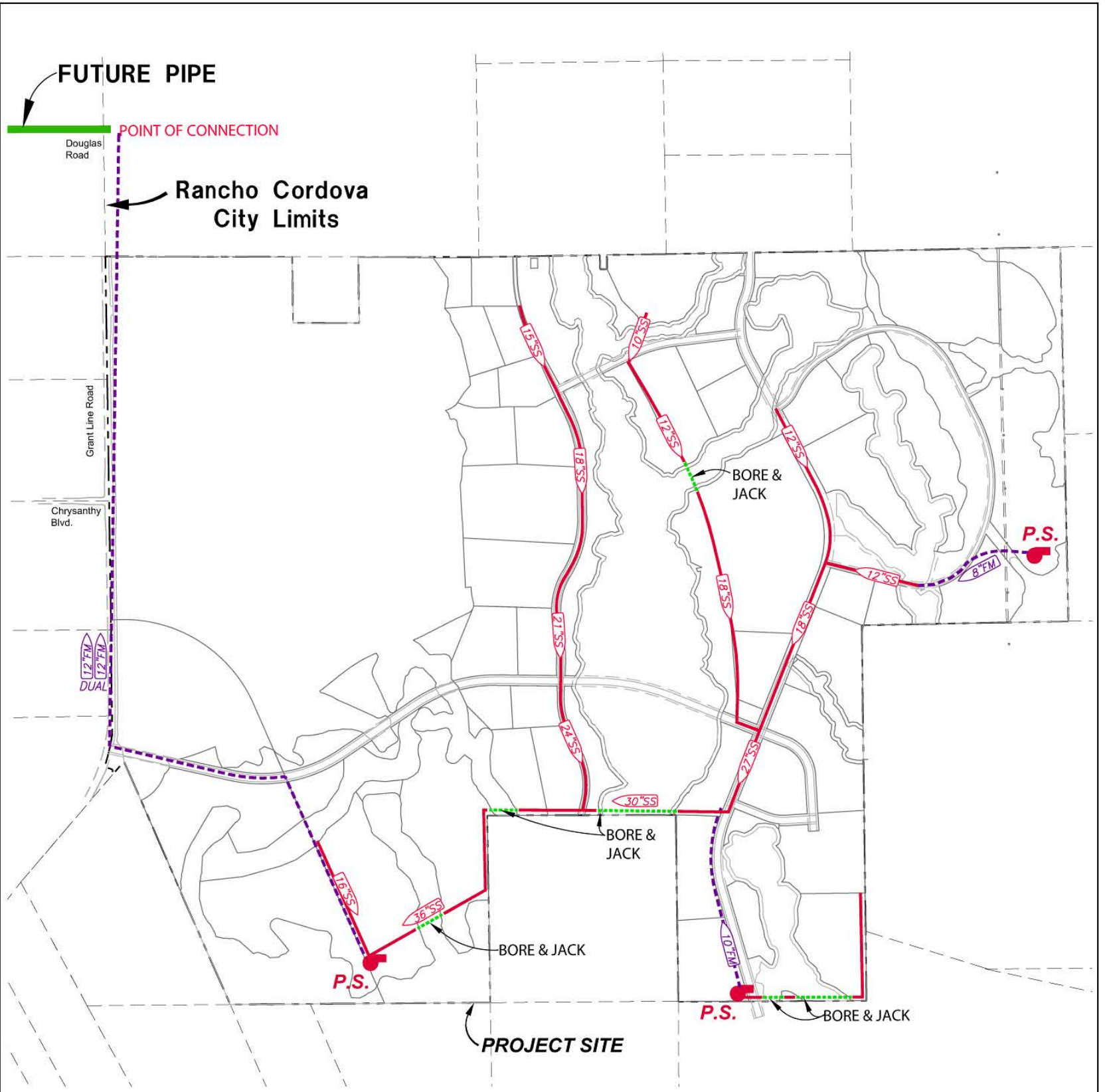


60273605 029 SAC GRX

Source: Mackay & Soms 2012, adapted by AECOM in 2012

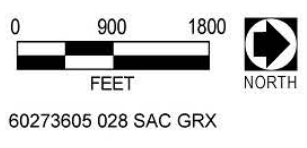
Exhibit 2-18

Proposed Water System – Expanded Preservation Alternative



Legend

- Project Boundary
- SS — Sanitary Sewer Gravity Main
- - - SS - - - Sanitary Sewer Force Main
- P.S. Sanitary Sewer Pump Station
- - - Bore & Jack Sanitary Sewer Pipe Beneath Wetland Feature

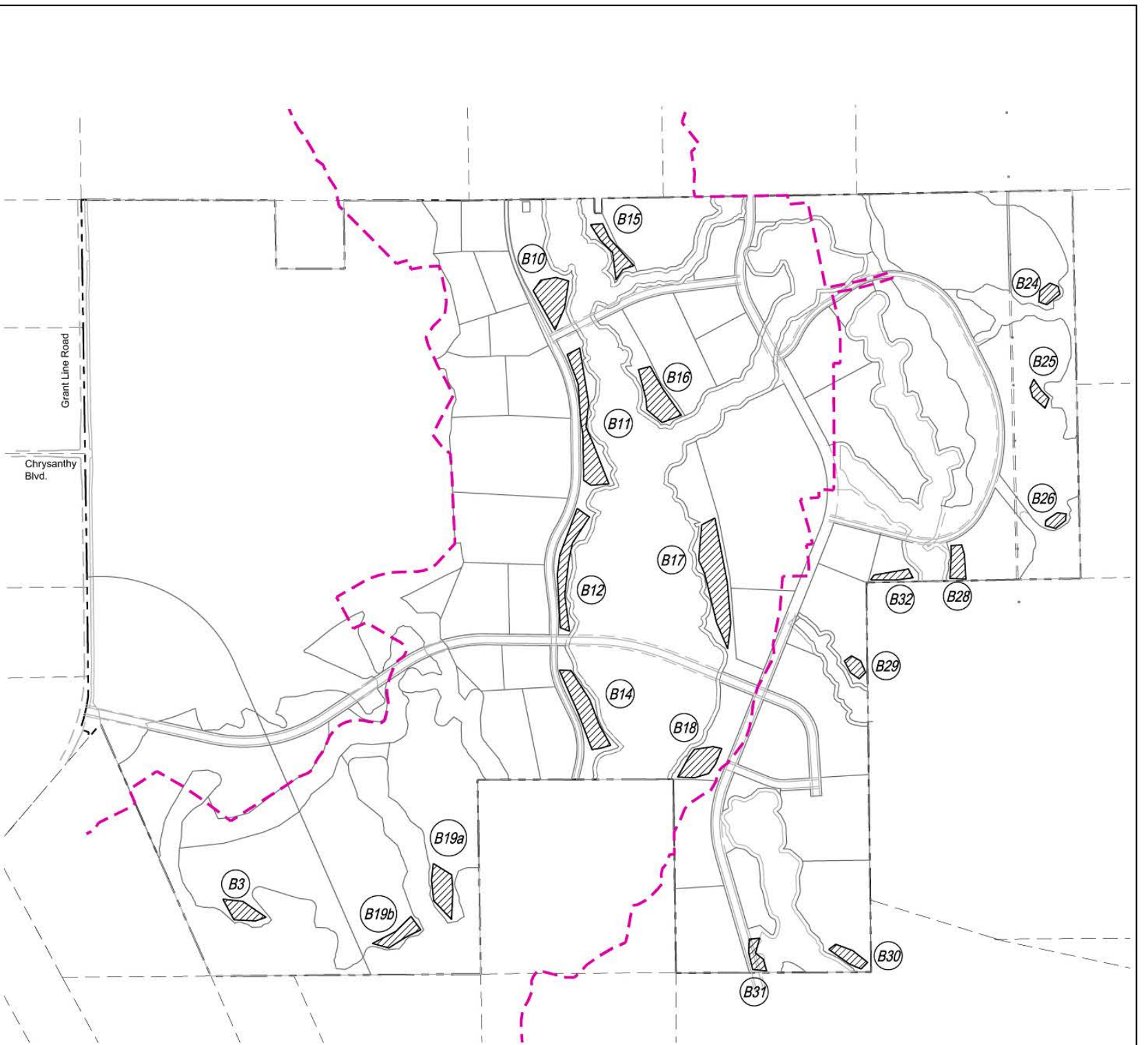


60273605 028 SAC GRX

Source: Mackay & Soms 2012, adapted by AECOM in 2012

Exhibit 2-19

Proposed Sanitary Sewer Plan – Expanded Preservation Alternative

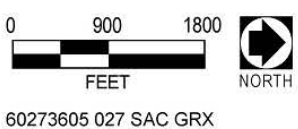


Legend

- Project Boundary
- - - Major Shed Boundaries (developed condition)
- ▨ Schematic Basin Layout (typical)
- B18 Basin Identifiers

Notes:

1. NAVD Vertical Datum
2. Each basin location and design subject to change based on final site plan design.



60273605 027 SAC GRX

Source: Mackay & Soms 2012, adapted by AECOM in 2012

Exhibit 2-20 Proposed Drainage Facilities – Expanded Preservation Alternative

**Table 2-11
Summary of Land Use Designations – Expanded Preservation Alternative**

Land Use Designations		Acres
AG	Agriculture	55.0
P/QP	Public/Quasi Public	99.4
R	Recreation	39.0
R2	Recreation and Open Space	225.0
AV	Avoided Areas	1,193.2
ER	Estates Residential (1 to 4 du/ac)	77.1
LDR	Low Density Residential (4 to 7 du/ac)	363.2
MDR	Medium Density Residential (7 to 15 du/ac)	204.8
RD20	Medium/High Density Residential (20 du/ac)	10.0
HDR1	High Density Residential (20 to 30 du/ac)	29.0
FC	Flex Commercial	27.5
TC	Town Center	0.0
	University	135.7
	Roads and Open Space	210.1
Total Gross Acreage		2,668.5
Note: du/ac = dwelling units per acre		
Source: MacKay & Somps, Conwy LLC, William Hezmalhalch Architects Inc. 2012, adapted by AECOM in 2012		

**Table 2-12
Acreage and Type of Waters Directly Affected – Expanded Preservation Alternative**

Water Type	Existing On-Site	Direct Effect	On-Site Preservation
Carson Creek	0.17	0.00	0.17
Intermittent Drainage	16.90	0.96	15.94
Seasonal Wetland	4.77	0.93	3.84
Seasonal Wetland Swale	18.22	4.26	13.96
Seep	0.01	0.01	0.00
Stock Pond	1.52	0.00	1.52
Vernal Pool	47.51	3.23	44.28
Total Acreage Affected	89.11	9.38	79.72
Source: Data compiled by AECOM in 2013			

2.7 PILATUS ALTERNATIVE

The Pilatus Alternative consists of the Cordova Hills site plus the Pilatus site, an approximately 882.5 acre property located to the north, and thereby increases the total Cordova Hills site acreage from approximately 2,668.5 to 3,551.0 acres. The Pilatus site is owned by the project applicant and the inclusion of this northern parcel for the Pilatus Alternative is a plausible extension of development for the project applicant.

A larger area of the drainage that trends south/southwest through the central portion of the Cordova Hills site would be preserved; this drainage also extends north into the Pilatus site, and it would be preserved there as well. In addition, the western preserve site (adjacent to the proposed Town Center) would be somewhat reconfigured and increased in size by approximately 36 acres. A total of 962 acres (out of the 3,551-acre Pilatus site) would be preserved under this alternative, as compared to 539 acres preserved (out of the 2,668.5-acre Cordova Hills site) under the Proposed Action. A conceptual land use plan showing proposed development is provided in Exhibit 2-21. Table 2-1 describes the land uses, and Table 2-13 provides a summary of the acreages of each land use that would be included in the Pilatus Alternative. Land with the AV (Avoided Area) use designation would be set aside as natural habitat with no urban development. Phasing would be similar to that described for the Proposed Action in Section 2.4.3.

Table 2-13 Summary of Land Use Designations – Pilatus Alternative			
Land Use Designations		Acres – Cordova Hills Site	Acres – Pilatus Site
AG	Agriculture	74.5	24.8
P/QP	Public/Quasi Public	105.4	10.0
R	Recreation	93.4	27.8
R2	Recreation and Open Space	167.9	95.0
AV	Avoided Areas	786.7	169.8
ER	Estates Residential (1 to 4 du/ac)	59.6	36.6
LDR	Low Density Residential (4 to 7 du/ac)	399.4	269.1
MDR	Medium Density Residential (7 to 15 du/ac)	196.9	41.2
RD20	Medium/High Density Residential (20 du/ac)	37.8	6.9
HDR1	High Density Residential (20 to 30 du/ac)	79.7	8.7
FC	Flex Commercial	34.6	17.6
TC	Town Center	155.6	--
	University	217.3	--
	Roads and Open Space	259.7	75.0
Total Gross Acreage		2,668.5	882.5
Note: du/ac = dwelling units per acre			
Source: MacKay & Somps, Conwy LLC, William Hezmalhalch Architects Inc. 2012, adapted by AECOM in 2012			

Sources: Mackay & Somps, Conwy LLC, William Hezmalhach Architects Inc. 2012, adapted by AECOM in 2012

**PILATUS PARCEL
LAND USE SUMMARY**

PUBLIC/QUASI PUBLIC (P/QP)	10.0 AC
RECREATION (R)	27.8 AC
REC. 2 (<100% PARK CREDIT, R-2)	95.0 AC
AVOIDED (AV)	169.8 AC
ESTATES RES. (ER) 1 - 4 DU/AC	36.6 AC
LOW DENSITY RES. (LDR) 4 - 7 DU/AC	269.1 AC
MED. DENSITY RES. (MDR) 7 - 15 DU/AC	41.2 AC
RESIDENTIAL - 20. (RD-20) 15 - 23 DU/AC	6.9 AC
HIGH DENSITY RES. 1 (HDR-1) 23 - 30 DU/AC	8.7 AC
FLEX COMMERCIAL (FC)	17.6 AC
AGRICULTURE (AG)	24.8 AC
MISC ROADS & OPEN SPACE	75.0 AC
TOTAL GROSS ACREAGE	882.5 AC

PILATUS WEST PARCEL (GAC)

Public/Quasi Public (P/QP)	10.0 AC
Recreation (R)	8.3 AC
Rec. 2 (<100% Park Credit, R-2)	45.2 AC
Low Density Res. (LDR)	149.3 AC
Med. Density Res. (MDR)	61.4 AC
Residential 20 (RD-20)	6.9 AC
High Density Res. (HDR-1)	0.0 AC
Agriculture (AG)	0.0 AC
Misc./Roads	29.8 AC
TOTAL GROSS AC	300.9 AC

PILATUS EAST PARCEL (GAC)

Public/Quasi Public (P/QP)	0.0 AC
Recreation (R)	19.5 AC
Rec. 2 (<100% Park Credit, R-2)	49.8 AC
Low Density Res. (LDR)	119.8 AC
Med. Density Res. (MDR)	89.8 AC
Residential 20 (RD-20)	0.0 AC
High Density Res. (HDR-1)	8.7 AC
Estate Res. (ER)	36.6 AC
Flex Commercial (FC)	17.6 AC
Agriculture (AG)	24.8 AC
Avoidance (AV)	0.0 AC
Misc./Roads	45.2 AC
TOTAL GROSS AC	411.8 AC

TOWN CENTER (GAC)

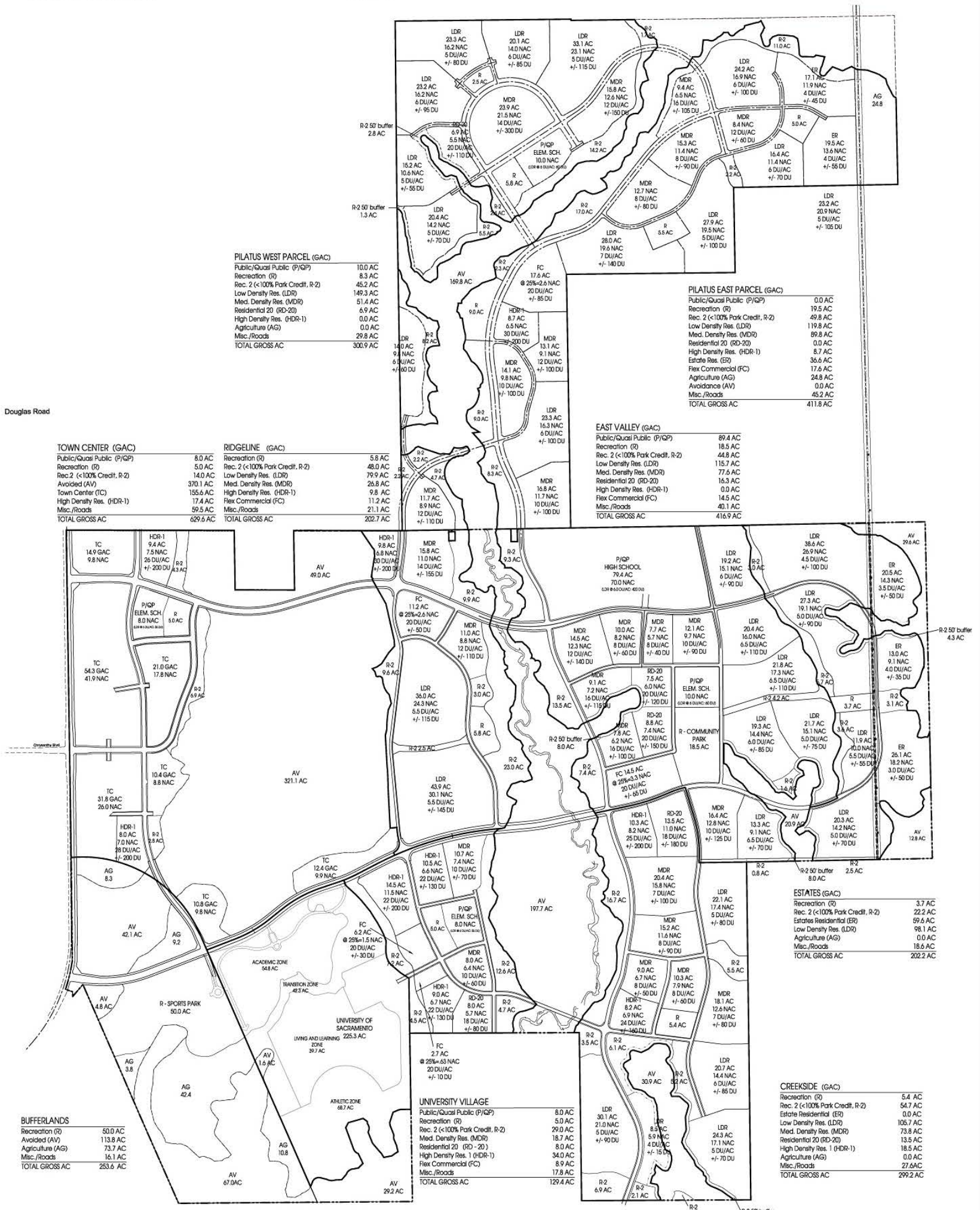
Public/Quasi Public (P/QP)	8.0 AC
Recreation (R)	5.0 AC
Rec. 2 (<100% Credit, R-2)	14.0 AC
Avoided (AV)	370.1 AC
Town Center (TC)	155.6 AC
High Density Res. (HDR-1)	17.4 AC
Misc./Roads	59.5 AC
TOTAL GROSS AC	629.6 AC

RIDGELINE (GAC)

Recreation (R)	5.8 AC
Rec. 2 (<100% Park Credit, R-2)	48.0 AC
Low Density Res. (LDR)	79.9 AC
Med. Density Res. (MDR)	26.8 AC
High Density Res. (HDR-1)	9.8 AC
Flex Commercial (FC)	11.2 AC
Misc./Roads	21.1 AC
TOTAL GROSS AC	202.7 AC

EAST VALLEY (GAC)

Public/Quasi Public (P/QP)	89.4 AC
Recreation (R)	18.5 AC
Rec. 2 (<100% Park Credit, R-2)	44.8 AC
Low Density Res. (LDR)	77.6 AC
Med. Density Res. (MDR)	16.3 AC
High Density Res. (HDR-1)	0.0 AC
Flex Commercial (FC)	14.5 AC
Misc./Roads	40.1 AC
TOTAL GROSS AC	416.9 AC



**CORDOVA HILLS
LAND USE SUMMARY**

PUBLIC/QUASI PUBLIC (P/QP)	105.4 AC
RECREATION (R)	93.4 AC
REC. 2 (<100% PARK CREDIT, R-2)	167.9 AC
AVOIDED (AV)	786.7 AC
ESTATES RES. (ER) 1 - 4 DU/AC	59.6 AC
LOW DENSITY RES. (LDR) 4 - 7 DU/AC	399.4 AC
MED. DENSITY RES. (MDR) 7 - 15 DU/AC	196.9 AC
RESIDENTIAL - 20. (RD-20) 15 - 23 DU/AC	37.8 AC
HIGH DENSITY RES. 1 (HDR-1) 23 - 30 DU/AC	79.7 AC
FLEX COMMERCIAL (FC)	34.6 AC
TOWN CENTER (TC)	155.6 AC
UNIVERSITY OF SACRAMENTO	217.3 AC
AGRICULTURE (AG)	74.5 AC
MISC ROADS & OPEN SPACE	259.7 AC
TOTAL GROSS ACREAGE	2,668.5 AC



Under the Pilatus Alternative, 33.17 acres of jurisdictional waters of the U.S. would be filled out of a total of 109.82 acres present. Under the Proposed Action, 39.63 acres would be filled out of a total of 89.11 acres present on the Cordova Hills site. Thus, under the Pilatus Alternative, 7.90 fewer overall acres of jurisdictional waters of the U.S. would be filled. Table 2-14 presents effects of the Pilatus Alternative on wetlands on the Pilatus site.

Table 2-14 Acreage and Type of Waters Directly Affected – Pilatus Alternative			
Water Type	Existing On-Site	On-site Direct Effect	On-site Preservation
Creek	0.17	0	0.17
Intermittent Drainage	20.27	2.56	17.72
Seasonal Wetland	8.82	3.64	5.18
Seasonal Wetland Swale	24.55	9.66	14.89
Seep	0.04	0.04	0
Stock Pond	1.87	0.72	1.15
Vernal Pool	54.10	16.56	37.54
Total Acreage Affected	109.82	33.17	76.65
Source: Data compiled by AECOM in 2013			

Exhibits 2-22, 2-23, and 2-24 illustrate the proposed backbone infrastructure improvements. Tables 2-2 and 2-4 list the total estimated residential and commercial development under the Pilatus Alternative as compared to the Proposed Action.

2.8 REGIONAL CONSERVATION ALTERNATIVE

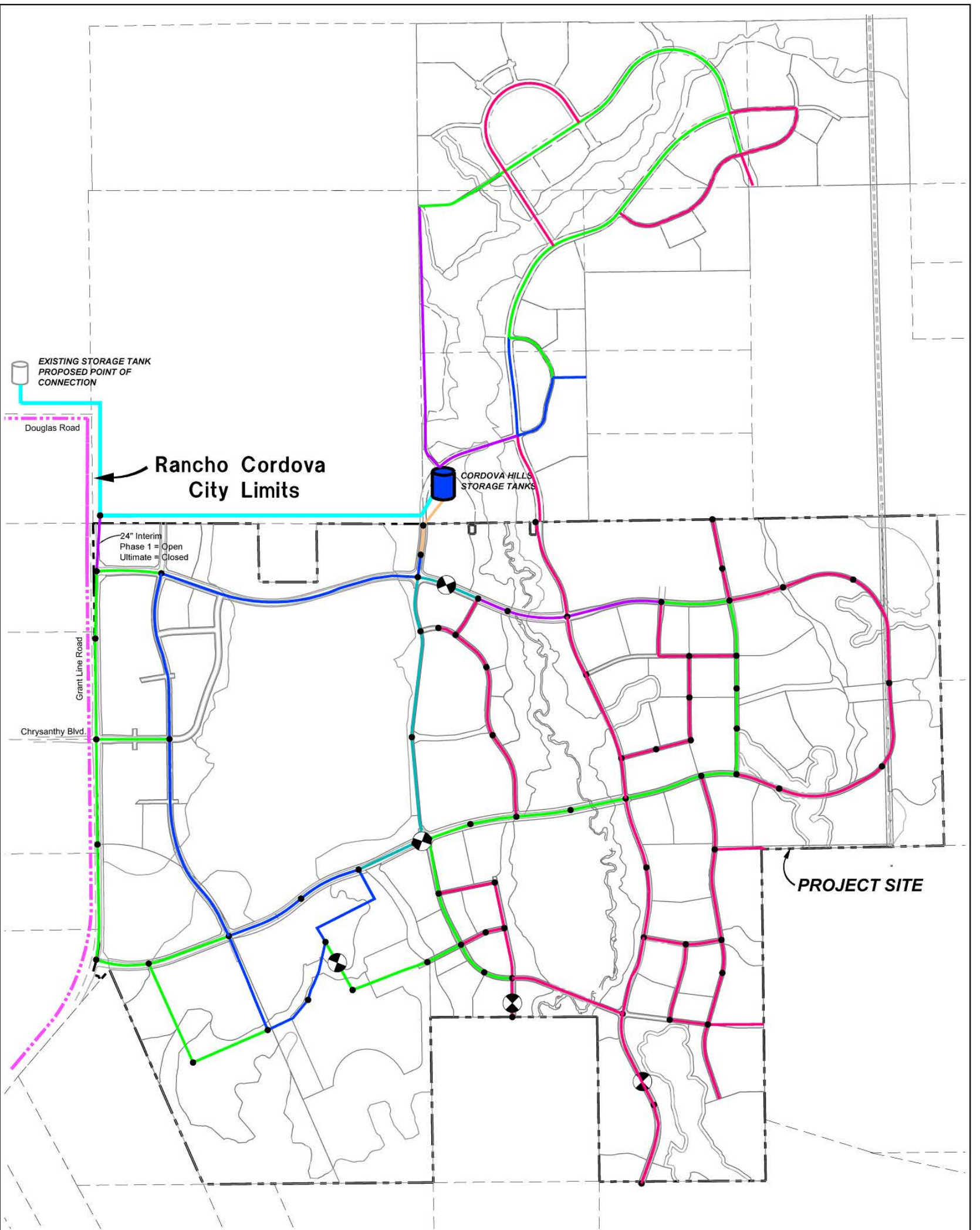
The Regional Conservation Alternative was developed to avoid development specifically in the areas that would be preserved consistent with the Proposed Reserve System identified in the October 28, 2013 notice of preparation published by Sacramento County for the proposed South Sacramento Habitat Conservation Plan (SSHCP). One of the key development requirements of the Proposed Action or Alternatives is the construction of a large commercial center that would provide jobs and generate revenue for the County and the proposed Cordova Hills community. For a large commercial center to be viable, easy access and high visibility from the major travel corridor in the vicinity are required; in this case, Grant Line Road. Under this alternative, the central portion of the proposed Town Center area has been reconfigured to be more linear in nature in a north-south orientation along Grant Line Road. Along with this reconfiguration, the proposed wetland preserve area would be expanded to the west to more closely match the preservation areas identified in the Notice of Preparation for the proposed SSHCP. Development in the central and eastern portions of the Cordova Hills site would remain the same as that contemplated under the Proposed Action. A conceptual land use plan showing proposed development is provided in Exhibit 2-25. Table 2-1 describes the land uses, and Table 2-15 provides a summary of the acreages of each land use that would be included in the Regional Conservation Alternative. Phasing would be similar to that described for the Proposed Action in Section 2.4.3.

**Table 2-15
Summary of Land Use Designations – Regional Conservation Alternative**

Land Use Designations		Acres
AG	Agriculture	194.0
P/QP	Public/Quasi Public	107.8
R	Recreation	99.2
R2	Recreation and Open Space	156.5
AV	Avoided Areas	505.2
ER	Estates Residential (1 to 4 du/ac)	64.7
LDR	Low Density Residential (4 to 7 du/ac)	441.0
MDR	Medium Density Residential (7 to 15 du/ac)	310.5
RD20	Medium/High Density Residential (20 du/ac)	54.0
HDR1	High Density Residential (20 to 30 du/ac)	79.6
FC	Flex Commercial	34.6
TC	Town Center	177.9
	University	223.5
	Roads and Open Space	220.0
Total Gross Acreage		2,668.5
Note: du/ac = dwelling units per acre		
Source: MacKay & Somps, Conwy LLC, William Hezmalhalch Architects Inc. 2012, adapted by AECOM in 2012		

Under this alternative, approximately 555 acres would be preserved, as compared to approximately 539 acres of preservation under the Proposed Action. Land with this AV (Avoided Area) use designation would be set aside as natural habitat with no urban development. Under the Regional Conservation Alternative, 38.41 acres of jurisdictional waters of the U.S. would be filled, as compared to 39.63 acres that would be filled under the Proposed Action (a difference of 1.22 fewer acres filled). Avoided areas in the central and eastern portions of the Cordova Hills site would remain the same as those contemplated under the Proposed Action. A total of 50.69 acres of waters of the U.S. would be preserved under this alternative, as compared to 49.48 acres preserved under the Proposed Action. Table 2-16 presents the direct effects of the Regional Conservation Alternative on wetlands on the Cordova Hills site.

Exhibits 2-26, 2-27 and 2-28 illustrate the proposed backbone infrastructure improvements of the Regional Conservation Alternative. Tables 2-2 and 2-4 list the total estimated residential and commercial development under the Regional Conservation Alternative as compared to the Proposed Action.



EXISTING STORAGE TANK
PROPOSED POINT OF
CONNECTION

Douglas Road

Rancho Cordova
City Limits

CORDOVA HILLS
STORAGE TANKS

24" Interim
Phase 1 = Open
Ultimate = Closed

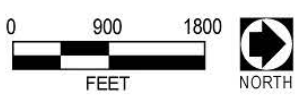
Grant Line Road

Chrysanthy Blvd

PROJECT SITE

Legend

- Project Boundary
- 12" Waterline
- 16" Waterline
- 18" Waterline
- 24" Waterline
- 30" Waterline
- 36" Waterline
- 42" Waterline
- 30" Storage Tank Feed Line
- Future Offsite Waterline (by others)
- Proposed Water Storage Tanks
- ⊗ Pressure Reducing Valve



60273605 026 SAC GRX

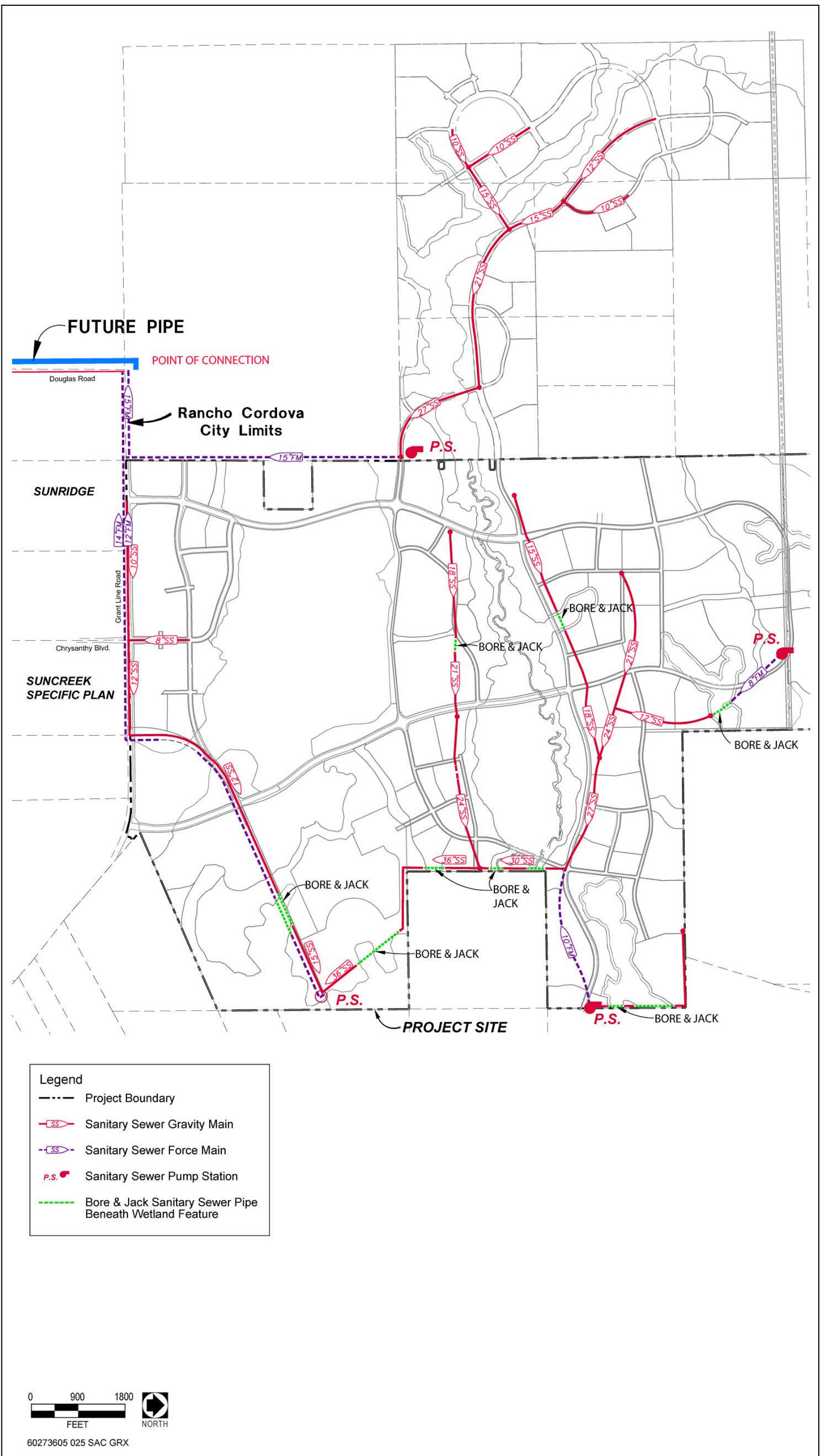
Source: Mackay & Sumps, adapted by AECOM in 2012

Exhibit 2-22

Proposed Water System – Pilatus Alternative

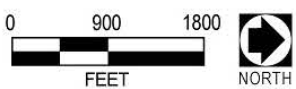
Source: Mackay & Sumps 2012, adapted by AECOM in 2012

Exhibit 2-23



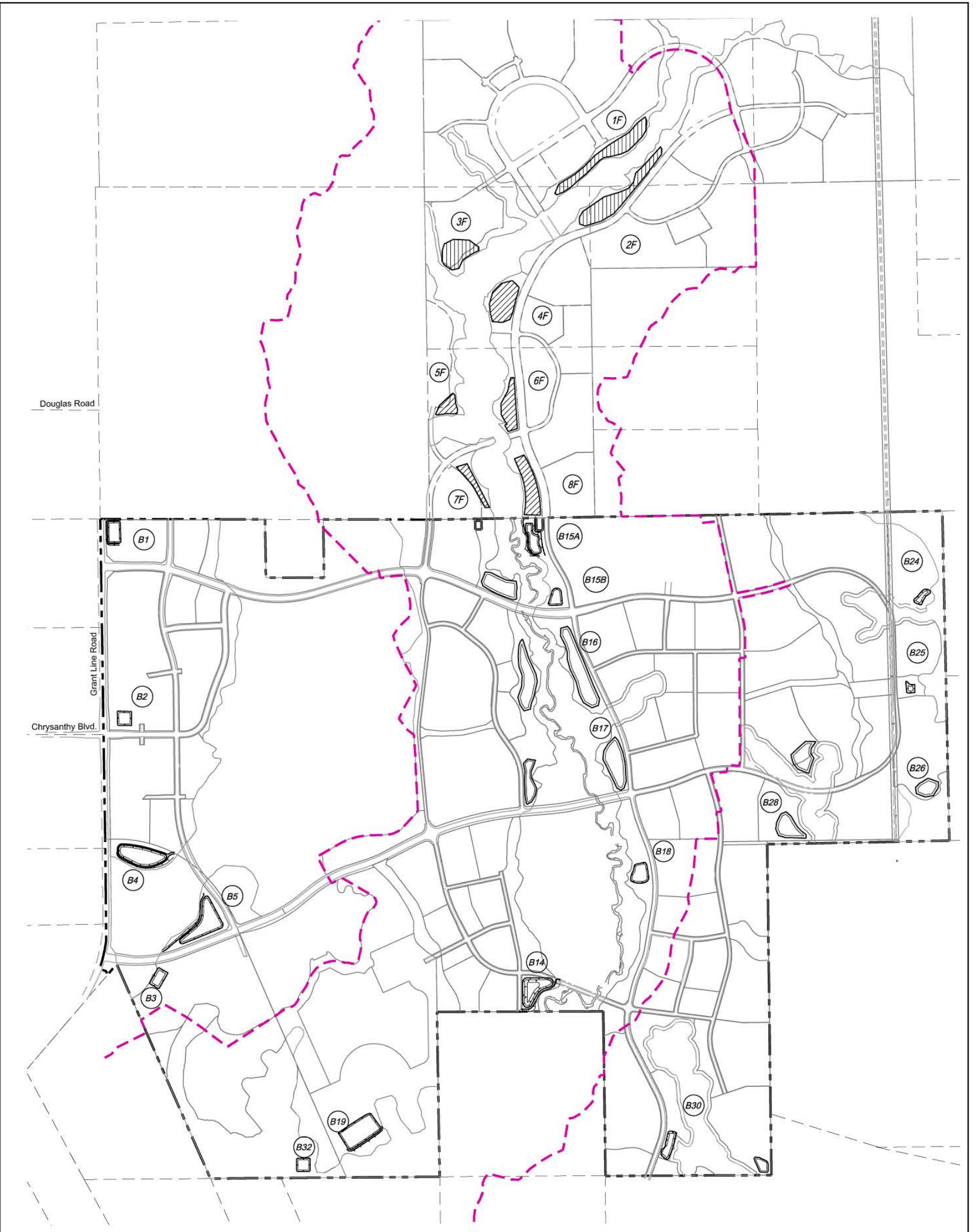
Legend

- Project Boundary
- SS — Sanitary Sewer Gravity Main
- FM — Sanitary Sewer Force Main
- P.S. Sanitary Sewer Pump Station
- Bore & Jack Sanitary Sewer Pipe Beneath Wetland Feature





60273605 025 SAC GRX

Proposed Sanitary Sewer Plan – Pilatus Alternative

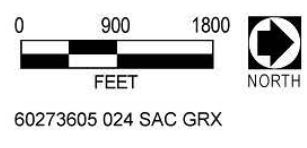


Legend

- Project Boundary
- - - Major Shed Boundaries (developed condition)
-  Schematic Basin Layout (typical)
-  Basin Identifiers

Notes:

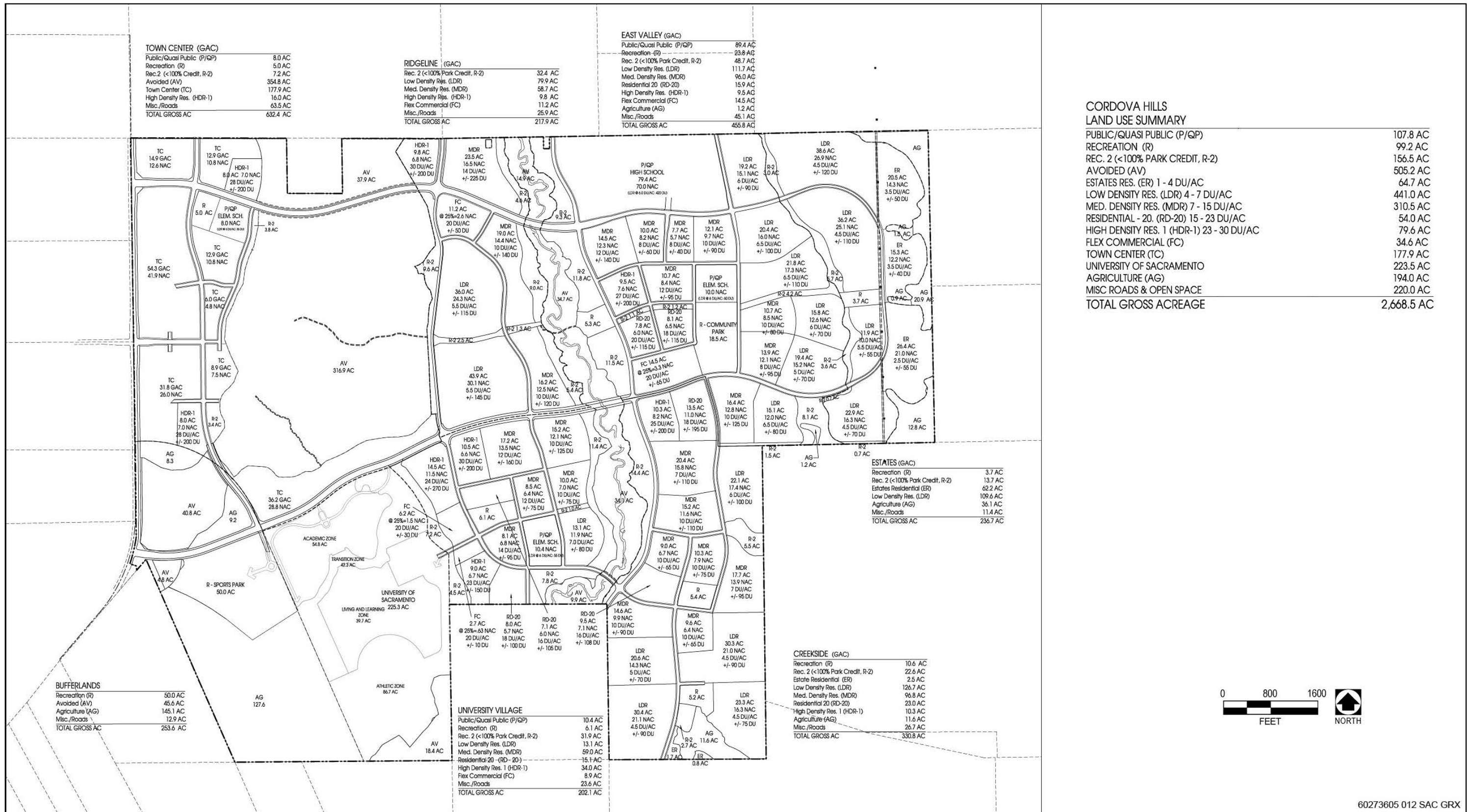
1. NAVD Vertical Datum
2. Each basin location and design subject to change based on final site plan design.



60273605 024 SAC GRX

Source: Mackay & Sumps 2012, adapted by AECOM in 2012

Proposed Drainage Facilities – Pilatus Alternative

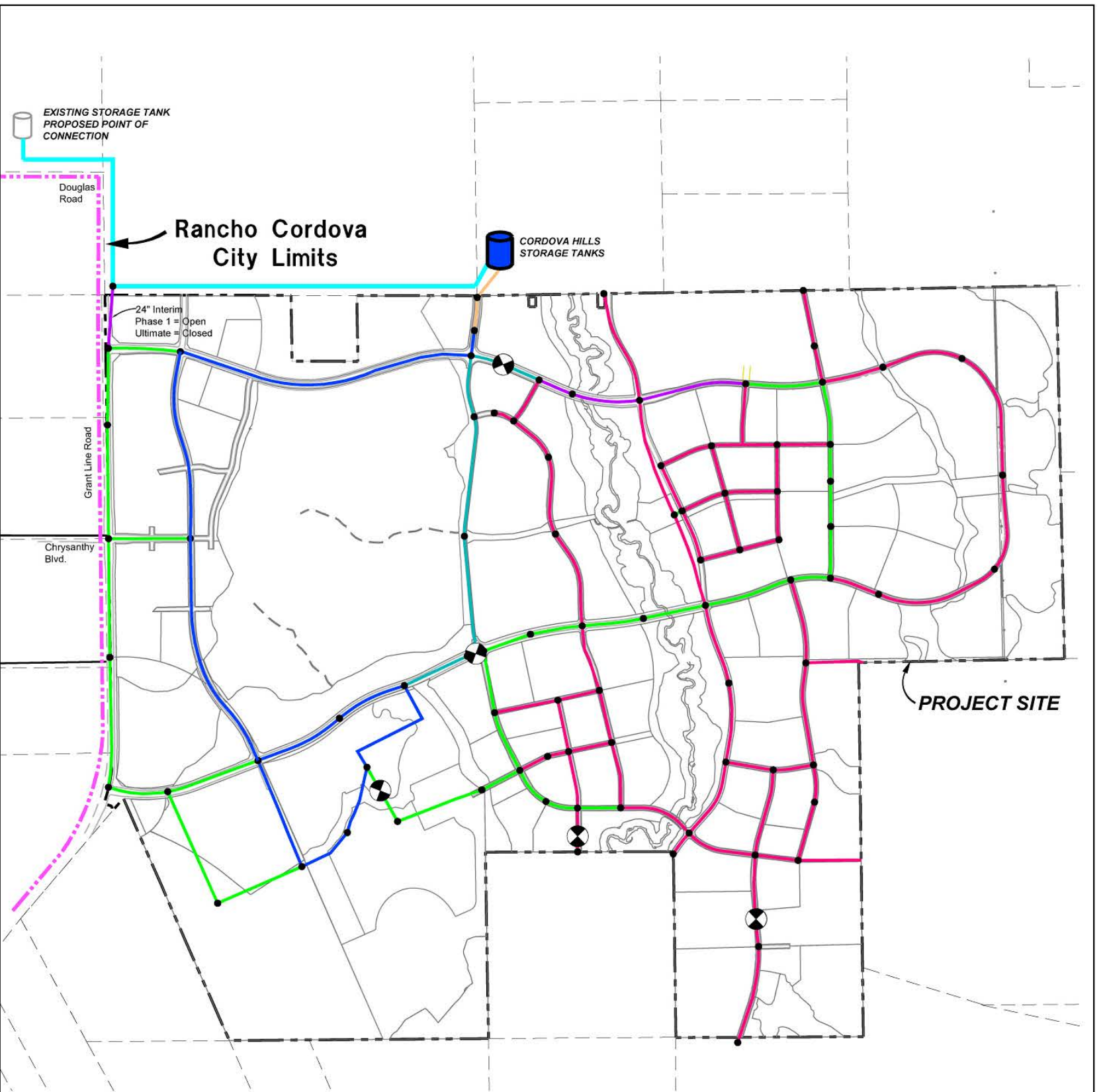


Sources: MacKay & Soms, Conwy LLC, William Hezmalhach Architects Inc. 2012, adapted by AECOM in 2012

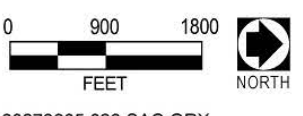
Exhibit 2-25

Regional Conservation Alternative Land Use Plan

60273605 012 SAC GRX



- Legend**
- Project Boundary
 - 12" Waterline
 - 16" Waterline
 - 18" Waterline
 - 24" Waterline
 - 30" Waterline
 - 36" Waterline
 - 42" Waterline
 - 30" Storage Tank Feed Line
 - - - Future Offsite Waterline (by others)
 - Proposed Water Storage Tanks
 - ⊗ Pressure Reducing Valve

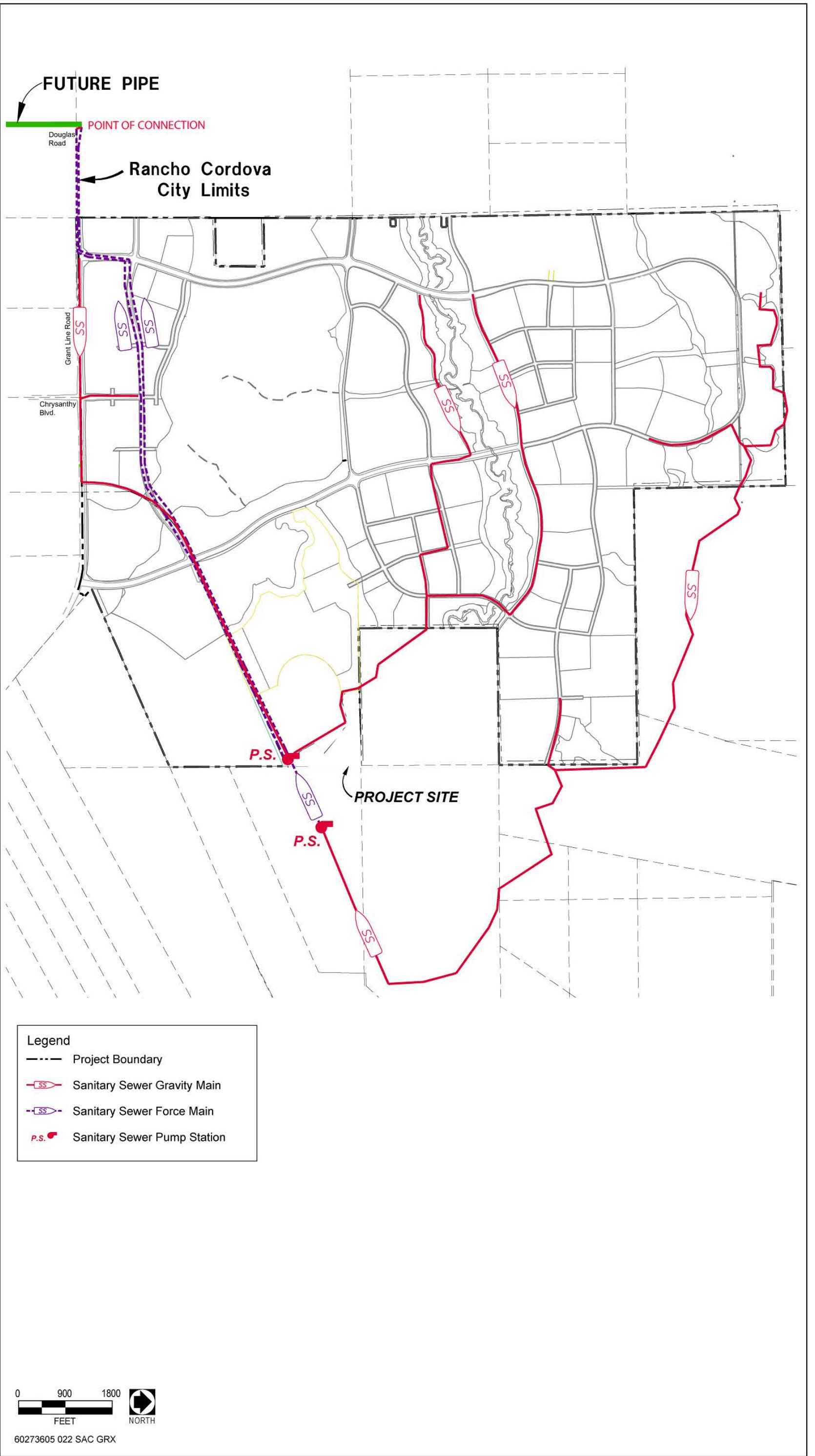


60273605 023 SAC GRX

Source: Mackay & Soms, adapted by AECOM in 2012

Proposed Water System – Regional Conservation Alternative

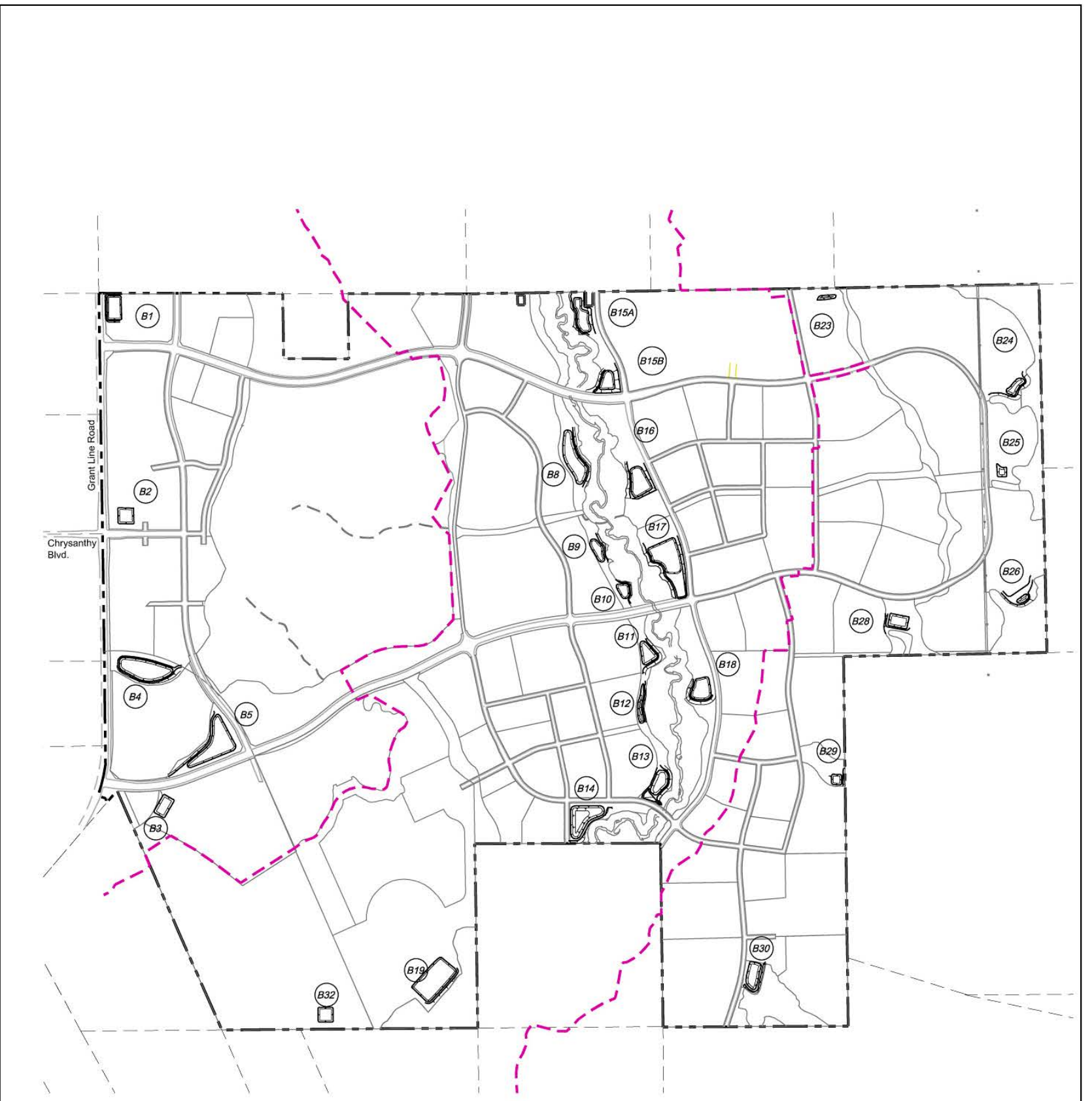
Exhibit 2-26





Source: Mackay & Soms 2012, adapted by AECOM in 2012

Exhibit 2-27

Proposed Sanitary Sewer System – Regional Conservation Alternative

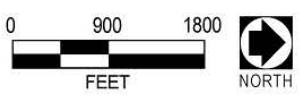


Legend

- Project Boundary
- - - Major Shed Boundaries (developed condition)
-  Schematic Basin Layout (typical)
-  Basin Identifiers

Notes:

1. NAVD Vertical Datum
2. Each basin location and design subject to change based on final site plan design.



60273605 021 SAC GRX

Source: Mackay & Samps 2012, adapted by AECOM in 2012

Proposed Drainage Facilities Regional Conservation Alternative

Exhibit 2-28

Table 2-16 Acreages and Types of Waters Directly Affected – Regional Conservation Alternative			
Water Type	Existing On-Site	Direct Effect	On-Site Preservation
Creek	0.17	0.00	0.17
Intermittent Drainage	16.90	4.62	12.28
Seasonal Wetland	4.77	2.96	1.82
Seasonal Wetland Swale	18.22	13.25	4.97
Seep	0.01	0.01	0.00
Stock Pond	1.52	0.69	0.84
Vernal Pool	47.51	16.89	30.62
Total Acreage Affected	89.11	38.41	50.69
Source: Data compiled by AECOM in 2013			

2.9 ALTERNATIVES CONSIDERED BUT NOT CARRIED FORWARD FOR FURTHER EVALUATION

2.9.1 ORIGINAL PROJECT APPLICATION ALTERNATIVE

The Original Project Application Alternative follows the original project land uses and the wetlands originally proposed to be filled under the 404(b)(1) permit application submitted for consideration by the project applicant in 2008. The land use plan shown in this alternative was the original development proposed for Cordova Hills before the negotiations with various local environmental groups and regulatory agencies in June 2010, which resulted in agreement by the project applicant to preserve additional on-site wetlands. This alternative would result in 349 acres of preservation, as compared to 539 acres preserved under the Proposed Action. Because this alternative was withdrawn by the project applicant and would not reduce or avoid any of the Proposed Action's environmental effects, and would result in effects to a larger area of wetlands, this alternative is not analyzed in this EIS.

2.9.2 OFF-SITE ALTERNATIVES

Off-site alternatives are usually considered in environmental documents when one of the means to avoid or eliminate the significant effects of a project is to develop it in a different available location. To satisfy USACE's requirements under NEPA and the Section 404(b)(1) Guidelines, off-site alternatives are to be considered that meet the overall project purpose, are available, and are practicable based on costs, logistics, and existing technology. To meet the overall project purpose, the off-site alternative would need to be of sufficient size to support a large-scale, master planned, mixed-use development, and would need to be located within the USB of southeastern Sacramento County. USACE has determined that an alternative site is not available if USACE has issued a permit for development of the site, if a Department of the Army permit application is currently being evaluated, or if it is known that a Department of the Army permit application will be submitted in the reasonably foreseeable future.

The primary obstacle in identifying an off-site land development alternative is aggregating enough parcels to create a project of an adequate size. It is infeasible to aggregate numerous small parcels to create a project of

sufficient size and of a contiguous nature. The majority of undeveloped land in eastern Sacramento County and within the USB is within the city of Rancho Cordova and unincorporated portions of Sacramento County east of Grant Line Road. Several large, undeveloped tracts of land were identified in these areas but were determined to be unavailable. This included the Sunrise Douglas Community Plan Area, Rio del Oro, Folsom South of U.S. Highway 50 Specific Plan Area, Mather Specific Plan, Jackson Township Specific Plan, West Jackson Specific Plan, and SunCreek Specific Plan Area.

There is one area within the USB in eastern Sacramento County that could potentially meet the USACE-defined purpose and need, and is potentially available, identified as the North of Glory Lane Off-Site Alternative. This alternative was further evaluated to determine if the site is practicable for development, and whether it would reduce any of the adverse environmental effects of the Proposed Action (particularly related to fill of wetlands and other waters of the U.S.).

Qualitative Assessment of the North of Glory Lane Off-Site Alternative

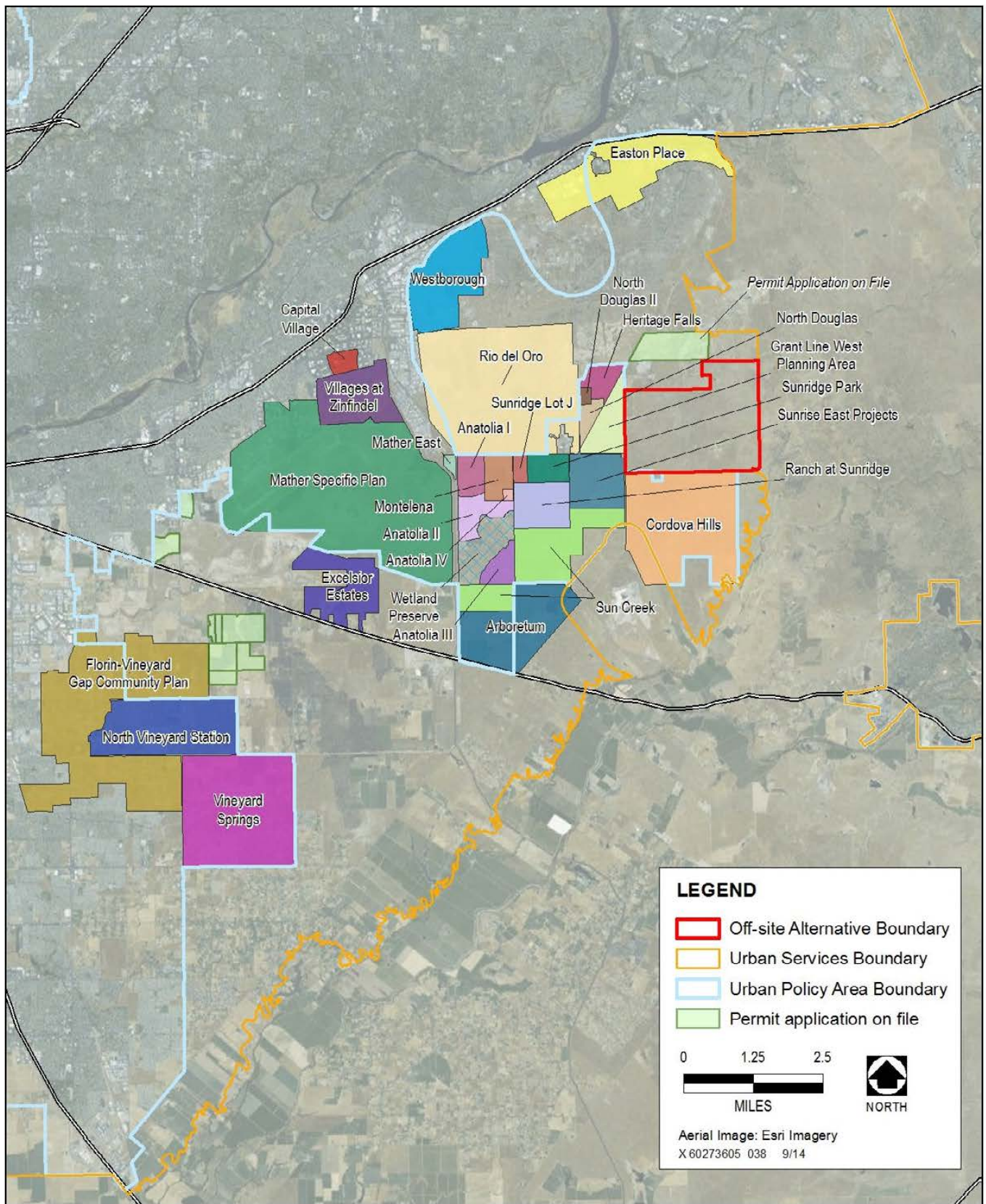
For biological resources, the screening analysis of the off-site location was based on:

- ▶ searches of the California Native Plant Society's (CNPS's) electronic database and the California Natural Diversity Database (CNDDDB),
- ▶ review and interpretation of aerial photographs of the sites,
- ▶ AECOM biologists' and USACE knowledge of biological resources occurring in the vicinity of the Cordova Hills site,
- ▶ USACE's Six County Aquatic Resources Inventory (SCARI), an inventory of the aquatic resources, including wetlands, streams, lakes, and ponds in Sacramento, Placer, Yolo, El Dorado, Yuba and Sutter Counties. SCARI was created through a combination of watershed assessment, remote sensing, spatial analysis, and field work, and
- ▶ review of relevant literature.

Exhibit 2-29 shows the location of the North of Glory Lane Off-Site Alternative in relationship to the Proposed Action and other planned and approved projects in the area. Note that the off-site alternative includes the northern portion of the Pilatus site (north of Glory Lane). Table 2-17 shows the approximate acreage of natural communities present at the off-site alternative location.

Summary

The North of Glory Lane Off-Site Alternative consists of 15 parcels comprising approximately 2,587 acres located north of the Cordova Hills site and east of the city of Rancho Cordova in unincorporated Sacramento County. The site is located just west of the eastern Sacramento County USB line and Scott Road and is bounded by Grant Line Road on the west. The site is accessible via Douglas Road to Grant Line Road. Glory Lane provides access to the southern portion of the off-site alternative.



Source: Information compiled by AECOM in 2010

Exhibit 2-29

Location of North of Glory Lane Off-Site Alternative

**Table 2-17
Natural Community Types at the Off-Site Alternative**

Community Type	Estimated Acreage ¹
Vernal Pool Grassland ²	2,379.1
Vernal Pool Complex ³	28.0
Vernal Pool	9.1
Vernal Swales	17.3
Orchard	34.7
Disturbed	32.6
Seasonal Wetland	8.1
Low Density Development	55.4
Cottonwood Woodland	7.7
Streams/Creeks (Seasonal Drainages)	8.70
Pond	5.9
Total	2,586.6

Notes:

¹ Acreages are not exact because the numbers have been rounded to the nearest 10th of an acre.

² No delineation of waters of the U.S. that would enable quantification of an exact acreage of vernal pools in the study area for the off-site alternative location was conducted for this analysis. There are likely additional vernal pools and swales within this grassland area that were not visible on the aerial imagery.

³ Vernal pool complexes are systems of interconnected vernal pools and vernal swales.

Source: Data compiled by AECOM in 2010

The North of Glory Lane Off-Site Alternative location is characterized primarily by vernal pool grassland habitat. All of the vernal pool grassland cover contains scattered vernal pools, or vernal pool complexes (i.e., systems of interconnected vernal pools and swales), interspersed within a grassland matrix. The western portion of the off-site alternative location has the highest concentration of vernal pools and swales visible on the aerial imagery. Because it is not possible to determine the full extent of vernal pools present from aerial photography alone, the information presented herein regarding vernal pools and swales is considered a rough estimate. Seasonal tributaries to Coyote Creek, Carson Creek, and Deer Creek are also present. All of the drainage channels on the site are seasonal and appear to be unvegetated. In the northwest portion of the site there is a disturbed area that was used to store mine tailings (cobble). The cobble piles have been removed from the site, but rows of cottonwood trees are still present in the basins that existed between the piles of cobble. The ground formerly occupied by cobble mine tailings is currently barren and disturbed. One pond, created from impoundment of a Coyote Creek tributary, and one pond created from impoundment of a Carson Creek tributary are also present on the site. There are several rural residential inholdings on the site and some orchards near the northwest boundary.

AECOM biologists conducted CNDDDB and CNPS electronic database searches for the North of Glory Lane Off-Site Alternative and vicinity. Results of the database searches were then used to compare the potential for special-status species to occur at the off-site alternative site location with the potential for them to occur in the Cordova Hills site. All of the same special-status plant species that are known from or have potential to occur in the Cordova Hills site (see Section 3.4 “Biological Resources” of this EIS) also have potential to occur on the North of Glory Lane Off-Site Alternative location because habitat for these species is present at both locations.

The North of Glory Lane Off-Site Alternative location contains vernal pool grassland and could potentially support the same vernal pool invertebrates as the Cordova Hills site (see Section 3.4, “Biological Resources,” of this EIS). Because the analysis of the North of Glory Lane Off-Site Alternative location is based on interpretation of aerial photographs, it is unknown whether elderberry shrubs are present that could support valley elderberry longhorn beetle. All of the special-status species associated with grassland and wetland habitats that are known from or have potential to occur in the Cordova Hills site also could occur at the North of Glory Lane Off-Site Alternative location because the same grassland and wetland habitat types are present. There also are isolated and small stands of oak trees and patches of cottonwood woodland that provide potential nest sites for raptors on the North of Glory Lane Off-Site Alternative site, and burrowing owls could nest in the grassland habitat.












Effects

Development of the North of Glory Lane Off-Site Alternative location would be expected to result in significant adverse effects on common and sensitive natural communities and special-status species. Species and communities affected would be similar to those affected in the Cordova Hills site; however, the acreages affected by community would differ. A total of approximately 85 acres of potential waters of the U.S. were mapped on the North of Glory Lane Off-Site Alternative location based on aerial photograph interpretation. Exhibit 2-30 illustrates the location and extent of potential waters of the U.S. on the North of Glory Lane Off-Site Alternative location. Because vernal pools and swales and other waters of the U.S. are dispersed throughout the North of Glory Lane Off-Site Alternative location, it would not be possible to avoid effects on all these aquatic resources and still meet the project purpose and need of a large-scale development similar to the Proposed Action. Therefore, it is estimated that development of a substantially similar size at the North of Glory Lane Off-Site Alternative location would result in direct fill of at least 75 percent of the wetlands and other waters of the U.S. present, and indirect effects to the remaining wetlands. Therefore, waters of the U.S. likely to be adversely affected as a result of developing the North of Glory Lane Off-Site Alternative location could include approximately 64 acres. Other habitats that would be removed at the North of Glory Lane Off-Site Alternative location could include cottonwood woodland, and vernal pool grassland habitat that likely includes additional vernal pools and swales that were not visible on the aerial imagery. In contrast, the total direct wetland effects to waters of the U.S. associated with the Proposed Action would be 40.15 acres, which is approximately 45 percent of all wetlands and waters on the Cordova Hills site.


In addition, development at the North of Glory Lane Off-Site Alternative, which is of substantially similar size as compared to the Proposed Action, would be expected to result in other environmental effects (e.g., traffic, air quality, noise, greenhouse gases) similar to those of the Proposed Action. The region is experiencing substantial growth in traffic, and it is in nonattainment of air quality standards. Consequently, any major development in Sacramento County would be expected to generate significant traffic, air quality, and greenhouse gas effects, and any development that adds substantial levels of traffic to regional roadways would contribute to a substantial increase in noise levels. Although the Cordova Hills site contains sensitive biological resources (including vernal pools), the off-site alternative also contains protected wetlands and other waters of the U.S. Approximately 39.63 acres of wetlands and other waters would be filled under the Proposed Action, while approximately 55 acres would likely be filled at the North of Glory Lane Off-Site Alternative. Thus, similar effects on plant and animal resources, and greater effects on wetlands, would occur from development on the North of Glory Lane Off-Site Alternative location.


Given that the only off-site land development alternative available for NEPA project objectives would have substantially greater effects to wetlands (including vernal pools) as compared to the Proposed Action, an off-site alternative is not evaluated further in this EIS.

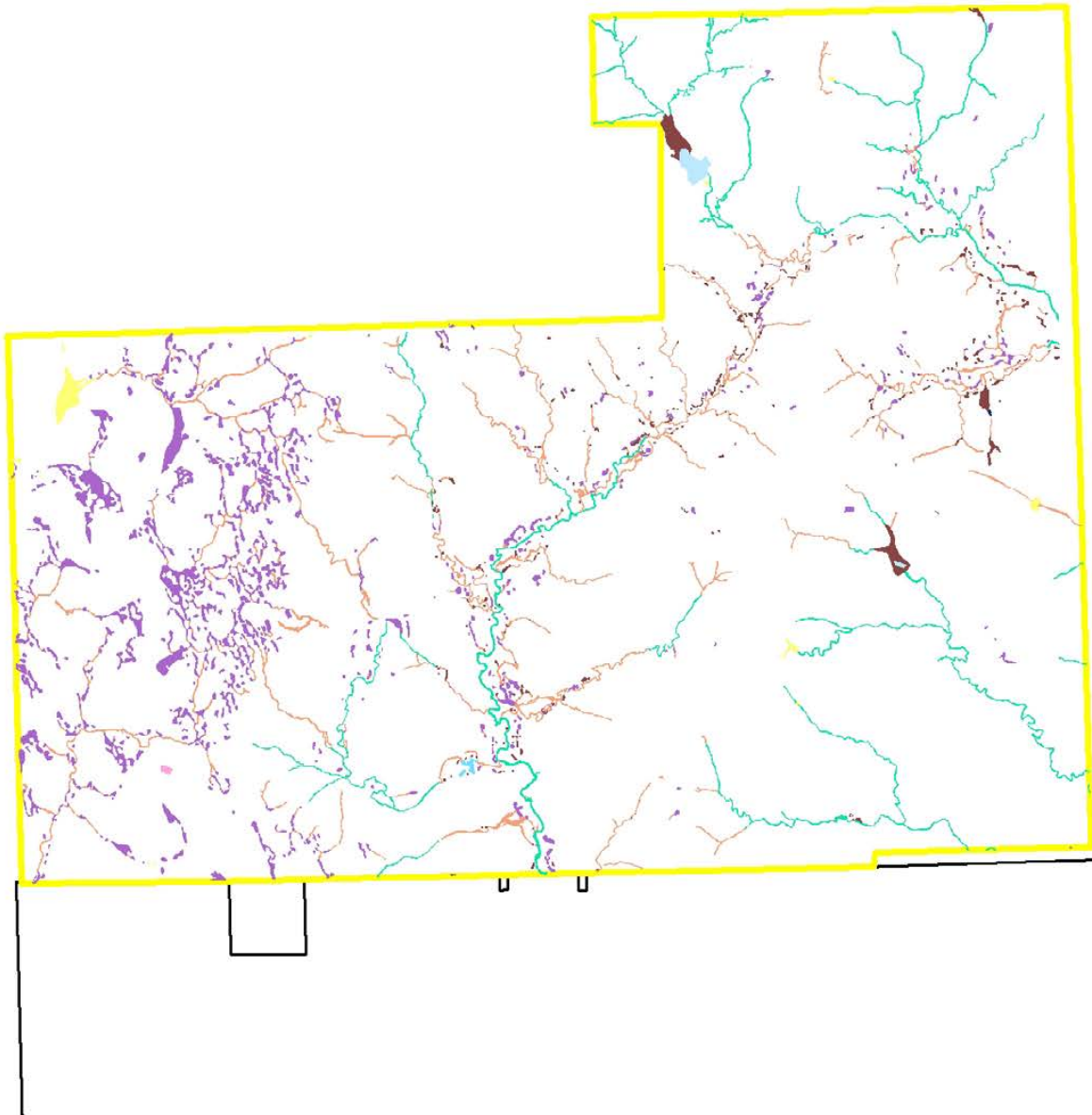
LEGEND

 Project Site	 Seep	
 Offsite Boundary	 Freshwater Emergent Marsh	
Wetlands		
 Vernal Pool	Other Waters	
 Seasonal Wetland	 Intermittent Drainage	
 Seasonal Impoundment	 Open Water	
 Seasonal Wetland Swale	 Stock Pond	

Basemap: None
X 60273605 039 11/14

0 1,125 2,250
 FEET

 NORTH



Source: USACE 2014

Exhibit 2-30

**Potential Waters of the United States on the North of Glory Lane
Off-Site Alternative Location**

3 AFFECTED ENVIRONMENT, ENVIRONMENTAL CONSEQUENCES, AND MITIGATION MEASURES

3.0 APPROACH TO THE ENVIRONMENTAL ANALYSIS

3.0.1 INTRODUCTION AND SCOPE

The Council on Environmental Quality (CEQ) regulations for implementing the National Environmental Policy Act (NEPA) (the “NEPA regulations”) specify that a Federal agency preparing an environmental impact statement (EIS) must consider the effects of the Proposed Action and alternatives under consideration on the environment; these include effects on ecological, aesthetic, and historical and cultural resources, and economic, social, and health effects. An EIS must also discuss possible conflicts with the objectives of Federal, state, regional, and local adopted land use plans, policies, or controls for the area concerned; energy requirements and conservation potential; urban quality; the relationship between short-term uses of the environment and long-term productivity; and irreversible or irremediable commitments of resources. An EIS must identify relevant, reasonable mitigation measures that are not already included in the Proposed Action or alternatives under consideration that could avoid, minimize, rectify, reduce, eliminate, or compensate for the adverse environmental effects of each alternative evaluated (40 Code of Federal Regulations [CFR] 1502.14, 1502.16, 1508.8).

This draft document is known as a draft EIS. The following addresses the affected environment and environmental consequences and mitigation measures for each environmental issue area, and explains the organization and general assumptions used in the analysis. Specific assumptions and methodology and significance criteria (thresholds of significance) used in the analysis and determination of significance of effects are contained in each individual technical section.

USACE regulations at 33 CFR 325, Appendix B(7)(b), require that USACE establish the scope of the EIS to address effects to the specific activity requiring a Department of the Army permit and to those portions of the entire project over which USACE has sufficient control and responsibility to warrant Federal review. Because of the location and configuration of waters of the U.S., USACE has determined that it has sufficient Federal control and responsibility over the entire Cordova Hills site.

3.0.2 SECTION CONTENTS AND DEFINITION OF TERMS

This chapter is organized by issue area. Because NEPA does not provide specific effects that must be considered, USACE has determined that the issue areas discussed, which generally correspond to topics in the CEQA Environmental Checklist (State CEQA Guidelines Appendix G, as amended), are appropriate for use in this EIS. The issue areas used address USACE public interest review factors, as required in 33 CFR 320.4, and the effects on the physical, chemical, and biological characteristics of the aquatic ecosystem, as required by the U.S. Environmental Protection Agency (EPA) Section 404(b)(1) Guidelines. In addition, this chapter includes a section on “Environmental Justice,” which is required in the NEPA analysis pursuant to Presidential Executive Order 12898, and a section related to “Socioeconomics.” As described below, each section follows the same format.

AFFECTED ENVIRONMENT

The “Affected Environment” subsection provides an overview of the baseline physical environmental conditions (i.e., the environmental baseline) on the project study sites (the Cordova Hills and Pilatus sites), and surrounding areas as appropriate, in accordance with NEPA regulations (40 CFR 1502.10). NEPA requires a description of the Affected Environment, which is the environment of the area(s) to be affected or created by the Proposed Action and alternatives under consideration.

REGULATORY FRAMEWORK/APPLICABLE LAWS, REGULATIONS, PLANS, AND POLICIES

The “Regulatory Framework/Applicable Laws, Regulations, Plans, and Policies” subsection identifies the adopted plans, policies, laws, regulations, and ordinances that are relevant to each topical section and describes required authorizations, permits, and other approvals necessary to implement the project. As noted above, the EIS needs to address possible conflicts between the Proposed Action or alternatives under consideration and the objectives of Federal, state, regional, or local formally adopted land use plans, policies, or controls for the area.

Conflicts with any Federal, state, regional, or local formally adopted land use plans, policies, or controls for the area are considered appropriate topics under NEPA and must be addressed in the EIS (40 CFR 1502.16[c]). Although the EIS discusses inconsistencies with adopted applicable plans and policies for several jurisdictions, the final authority for interpreting policy statements and determining the project’s consistency with adopted policies rests with the governing body of the jurisdiction in question. Where inconsistencies do occur, they are addressed as topical effects within each applicable issue area in Chapter 3.

Federal applicable laws and regulations are provided because they are required under NEPA. State applicable laws and regulations are provided for informational purposes and to assist with NEPA review. USACE has considered applicable state, regional, and local plans and ordinances as a part of the environmental review process for this EIS, where applicable.

ENVIRONMENTAL CONSEQUENCES AND MITIGATION MEASURES

The “Environmental Consequences and Mitigation Measures” subsection identifies the effects of the project on the existing human and natural environment, in accordance with NEPA regulations (40 CFR 1502.16). The following discussions are included in this subsection.

- ▶ **Analysis Methodology** describes the methods, process, procedures, and/or assumptions used to formulate and conduct the effects analysis.
- ▶ **Thresholds of Significance** provide criteria established by the lead agency to define at what level an effect would be considered significant. The determinations of the significance of effects for this analysis are based on professional standards regularly used in environmental review documents in the region. These thresholds encompass the factors taken into account under NEPA to determine the significance of an action in terms of its context and the intensity of its effects. USACE has determined that it is appropriate to use Appendix G of the State CEQA Guidelines; factual or scientific information and data; views of the public in the affected area; the policy/regulatory environment of affected jurisdictions; and regulatory standards of Federal, state, regional, and local agencies, to inform the decision on the significance of the alternatives on the environment in those cases where NEPA regulations do not provide guidance on thresholds of significance.

- ▶ **Effects Analysis** provides an assessment of the potential effects of the Proposed Action and alternatives under consideration on the affected environment. This assessment also specifies why effects are found to be significant and unavoidable, significant or potentially significant, or less than significant, or why there is no environmental effect. Some of the potential effects that may result from implementation of the the alternatives may be temporary and short-term effects resulting from construction-related activities. However, effects related to modification and loss of habitats, including fill of waters of the U.S.; and disturbance of cultural resources would be permanent.
- ▶ **Project effects** are organized into three categories: direct, indirect, and cumulative effects, which are defined in the NEPA regulations at 40 1508.7 and 1508.8. Direct effects are those that would be caused by the action (i.e., wetland fill) and would occur at the same time and place. Because USACE has statutory authority for the Proposed Action is the discharge of fill material into waters of the U.S., for the purpose of this EIS, direct effects are those limited to initial grading activities in waters of the U.S. Indirect effects are those effects that are caused by the action but would occur later in time or further removed in distance, and are still reasonably foreseeable. For the purpose of this EIS, indirect effects include continued grading activities, construction of buildings and infrastructure, changes in land use patterns, population density, or growth rate, and related effects on the physical environment. Cumulative effects are those effects on the environment which result from the incremental effect of the alternatives when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes the actions.

The effects are listed numerically and sequentially throughout each section. For example, effects in Section 3.3 are identified as 3.3-1, 3.3-2, and so on and are identified by the alternative that is applicable to the effect. For example, “NA” refers to the No Action Alternative, “PA” refers to the Proposed Action Alternative, “EDP” refers to the Expanded Drainage Preservation Alternative, “EP” refers to the Expanded Preservation Alternative, “P” refers to the Pilatus Alternative, and “RC” refers to the Regional Conservation Alternative. An effect title and summary statement precedes the discussion of each effect and provides a summary of the effect. The discussion that follows the effect statement includes the evidence on which a conclusion is based regarding the level of effect. Effect conclusions are made using the significance criteria described above and include consideration of the “context” of the action and the “intensity” (severity) of its effects in accordance with NEPA guidance (40 CFR 1508.27).

The level of effect of the alternatives under consideration is determined by comparing estimated effects with baseline conditions. Under NEPA, the No Action Alternative (expected future conditions without the project) is the baseline against which the effects of the other alternatives are compared. Although, in some instances, a NEPA “no action” scenario can involve significant anticipated changes to existing conditions based on actions taken by nonfederal parties, here the NEPA no action scenario is the continuation of existing conditions.

Because the EIR has already been certified, all EIR Mitigation Measures, the Rezone and Tentative Large Lot Parcel Map Conditions of Approval, and the obligations found in the Development Agreement are considered a part of the Proposed Action. Thus, these measures and requirements are considered to already be incorporated into this alternative and are already considered when analyzing the significance of effects under the Proposed Action. For the other four action alternatives, the analysis assumes that the same measures and requirements would be incorporated.

- ▶ **Mitigation measures** to avoid, minimize, rectify, reduce, or compensate for significant and potentially significant effects of the project, in accordance with NEPA regulations (40 CFR Part 1508, Section 20), where feasible, are recommended for each significant effect. Each mitigation measure is identified numerically to correspond with the number of the effect being reduced by the measure. For example, Effect 3.3-1 would be mitigated by Mitigation Measure 3.3-1. Where no feasible mitigation is available to reduce effects to a less-than-significant level, the effects are identified as remaining “significant and unavoidable” and the statement “no mitigation measures are available” is provided with an explanation. (In some cases, all feasible and available mitigation measures are not sufficient to reduce an effect to a “less-than-significant” level. When this occurs, the effects are described as remaining “significant and unavoidable.”)

USACE, as Federal lead agency over the EIS, has no authority over the enforcement over the mitigation measures proposed in this EIS that are not under the purview of USACE. Many of the mitigation measures presented throughout this EIS have been committed to by the project applicant and have been required as conditions of approval as part of the project’s previous project approval and CEQA clearance, which are identified in this EIS, and will be included in a mitigation monitoring and reporting plan that will be prepared by the project applicant that will be included as part of the USACE record of decision (ROD) and implemented as required under CEQA and enforced by Sacramento County, as the lead agency under CEQA. However, for other mitigation measures in cases where USACE does not have enforcement authority, the EIS will state that USACE lacks this authority, identify the agency that would have authority over the measure, and evaluate the likelihood that the measure would be implemented.

- ▶ The **Residual Significant Effects** subsection identifies any significant effects that would still be significant even after implementation of the mitigation measures.
- ▶ The **Cumulative Effects** subsection discusses effects of the project that would result from the incremental effect of the action when compounded with other past, present, and reasonably foreseeable future actions. More information related to cumulative effects is described below in Section 3.0.4, “Cumulative Context.”

3.0.3 TERMINOLOGY USED TO DESCRIBE EFFECTS

EFFECT LEVELS

The EIS for this project uses the following terminology, which is similar to CEQA terminology to maintain consistency with the project’s prior CEQA certified EIR to denote the significance of environmental effects of the project:

- ▶ **No effect** indicates that the construction, operation, and maintenance of the project would not have any direct or indirect effects on the environment. It means no change from existing conditions. This effect level does not need mitigation.
- ▶ A **less-than-significant effect** is one that would not result in a substantial or potentially substantial adverse change in the physical environment. Where appropriate, feasible mitigation measures are identified for even those effects that are less-than-significant, in order to further reduce the effect.

- ▶ A **significant effect** can vary by project, based on the change in the existing physical condition. A “significant” effect is broadly described in the NEPA regulations at 33 CFR 1508.27, and requires consideration of both context (e.g. society as a whole, the affected region, the locality) and intensity (e.g. beneficial and adverse effects; degree of affects on public health, safety, historic properties, threatened and/or endangered species, unique characteristics of the area, and whether the action threatens to violate other laws or requirements). Because the CEQA definition of a significant impact is more descriptive than the NEPA definition, USACE determined it is appropriate for clarity to use the CEQA definition. A significant impact is defined by CEQA Section 21068 as one that would cause “a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project.” Mitigation measures or alternatives to the proposed project are provided, where feasible, to reduce the magnitude of significant effects.
- ▶ A **potentially significant effect** is one that, if it were to occur, would be considered a significant effect as described above; however, the occurrence of the effect cannot be immediately determined with certainty. A potentially significant effect is treated as if it were a significant effect.
- ▶ A **significant and unavoidable effect** is one that would result in a substantial or potentially substantial adverse effect on the environment, and that could not be reduced to a less-than-significant level even with any available feasible mitigation.

EFFECT MECHANISMS

Mechanisms that could cause effects are discussed for each issue area. General categories of effect mechanisms are construction of the project and activities related to future operations, as described in Chapter 2, “Description of the Proposed Action and Alternatives.”

If the project is approved, site work could begin as early as 2015. The project is expected to be completed by 2035. Project effects fall into the following categories:

- ▶ A **temporary effect** would occur only during construction activities. The environmental analysis addresses potentially significant effects from the direct effects of construction at the Cordova Hills and Pilatus sites, including but not limited to: direct effects associated with site development and required on- and off-site infrastructure and roadway improvements, and indirect construction effects associated with the proposed construction staging areas, fill activities, and construction traffic.
- ▶ A **short-term effect** would last from the time construction ceases within that area, to within 3 years following construction.
- ▶ A **long-term effect** would last longer than 3 years following completion of construction. In some cases, a long-term effect could be considered a permanent effect.
- ▶ A **direct effect** is an effect that would be caused by an action and would occur at the same time and place as the action.
- ▶ An **indirect effect** is an effect that would be caused by an action but would occur later in time, or at another location, yet is reasonably foreseeable in the future.

Not less than 30 days following release of the final EIS, USACE will issue a ROD that will reflect USACE's final decision, the rationale behind the decision, and a commitment to monitoring and mitigation. According to Section 1505.2 of the NEPA regulations adopted by the CEQ, the ROD must do all of the following:

- (a) State what the decision is.
- (b) Identify all alternatives considered by the agency in reaching its decision, specifying the alternative or alternatives which were considered to be environmentally preferable. An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions. An agency shall identify and discuss all such factors including any essential considerations of national policy which were balanced by the agency in making its decision and state how those considerations entered into its decision.
- (c) State whether all practicable means to avoid or minimize environmental harm from the alternative selected have been adopted, and if not, why they were not. A monitoring and enforcement program shall be adopted and summarized where applicable for any mitigation.

The following terms are also used in the effect analysis:

- ▶ **Construction** applies to activities associated with ground disturbance, construction of new structures and supporting infrastructure and roadways, and the demolition of existing structures and buildings.
- ▶ **No mitigation measures are required** is stated in the discussion of mitigation if no effect would occur. **No feasible mitigation measures are available** is stated in the discussion of mitigation if the effect is considered significant and unavoidable, and there is no feasible mitigation available to reduce the magnitude of the effect to a less-than-significant level, or for less-than-significant effects where further measures to reduce effects are not feasible.

3.0.4 CUMULATIVE CONTEXT

INTRODUCTION TO THE CUMULATIVE ANALYSIS

CEQ regulations implementing provisions of NEPA define cumulative effects as “the impact on the environment which results from the incremental effect of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions” (40 CFR 1508.7). Cumulative effects can result from individually minor, but collectively significant, actions over time (40 CFR 1508.8). They are caused by the incremental increase in total environmental effects when the evaluated project is added to other past, present, and reasonably foreseeable future actions. Cumulative effects can thus arise from causes that are totally unrelated to the project being evaluated, and the analysis of cumulative effects looks at the life cycle of the effects, not the project at issue.

This EIS provides an analysis of overall cumulative effects of the Cordova Hills Master Plan project considered along with other past, present, and reasonably foreseeable future projects under NEPA implementing regulations (40 CFR 1508.7). The purpose of this analysis is twofold: first, to determine whether the overall long-term effects of all such projects would be cumulatively significant and second, to determine whether the project itself would cause a “cumulatively considerable” (and thus significant) *incremental* contribution to any such cumulatively

significant effects. In other words, the required analysis first creates a broad context in which to assess the project's incremental contribution to anticipated cumulative effects, viewed on a geographic scale well beyond the Cordova Hills site itself. The analysis then determines whether the project's incremental contribution to any significant cumulative effects from all projects is itself significant (i.e., "cumulatively considerable" in CEQA parlance).

ACTIONS CONTRIBUTING TO POTENTIAL CUMULATIVE EFFECTS

USACE has determined that actions considered in the cumulative effects analysis consist of:

- ▶ **Past Actions:** Those actions that have received authorization by USACE for effects to waters of the U.S. and have been constructed, and those actions that did not require a USACE permit, but have been constructed.
- ▶ **Present Actions:** Those actions that have received authorization by USACE for effects to waters of the U.S. and are currently being constructed, and those actions that did not require authorization from the USACE, but are currently being constructed.
- ▶ **Reasonably Foreseeable Future Actions:** Those actions that are currently being evaluated by USACE, but have not been authorized, those actions that were previously being evaluated by USACE but have been withdrawn, where USACE has information indicating that those actions would become active in the reasonably foreseeable future, those actions in which USACE has conducted preapplication meetings, where USACE has indication that applications would be submitted in the reasonably foreseeable future, those actions that USACE is not currently evaluating and USACE has not conducted a preapplication meeting, but the action is currently being evaluated by state or local entities, and those actions that do not require authorization from USACE, but are currently being evaluated by state or local agencies.

To develop the list of past, present, and reasonably foreseeable actions to be evaluated in the EIS, USACE determined it was appropriate to use information obtained from the County's EIR that was previously prepared for the Cordova Hills project, as well as NEPA documents previously prepared by USACE, including the Draft EIR/EIS for the Folsom South of U.S. Highway 50 Specific Plan Project (SPK-2007-02159), the Draft EIR/EIS for the SunCreek Specific Plan Project, and the Draft and Final EIS for the Sunridge Specific Plan Area (SPK-2009-00511).

GEOGRAPHIC CONTEXT FOR CUMULATIVE EFFECTS

Sacramento County as a whole, including the city of Rancho Cordova, are facing numerous regional issues pertaining to air quality degradation, traffic congestion, biological habitat loss, water quality degradation, and other urban-related environmental changes, which are discussed in greater detail below.

Sacramento County

Sacramento County encompasses approximately 775 square miles in the middle of the 400-mile-long Central Valley, which is California's prime agricultural region. Sacramento County is bordered by Contra Costa and San Joaquin Counties on the south, Amador and El Dorado Counties on the east, Placer and Sutter Counties on the north, and Yolo and Solano Counties on the west. Sacramento County extends from the low Sacramento-San Joaquin Delta lands between the Sacramento and San Joaquin Rivers north to about 10 miles beyond the State Capitol and east to the foothills of the Sierra Nevada. The southernmost portion of Sacramento County has access

to the San Francisco Bay via the Sacramento River. Sacramento County lies at the geographic center of the region and spans both agricultural land uses as well as the most urbanized areas of the region. The geographic boundaries of Sacramento County include seven incorporated cities: Sacramento, Folsom, Rancho Cordova, Citrus Heights, Elk Grove, Galt, and Isleton.

The highest densities of employment and residential uses are located in the urban core of the city of Sacramento. Two of the three regional employment centers are located in Sacramento County, one in downtown Sacramento and the more recent along U.S. Highway 50 (U.S. 50) in the cities of Rancho Cordova and Folsom. Land uses north of the American River are primarily suburban residential with concentrations of commercial and employment uses along major transportation routes. The southern end of the region (e.g., south Sacramento, the unincorporated Vineyard community, the cities of Elk Grove and Galt) is predominantly residential, with the latter three areas at fairly low-suburban to rural densities. The Cosumnes River floodplain and existing agricultural operations separate the cities of Elk Grove and Galt. The southeast county (outside of existing cities and the county Urban Services Boundary [USB]) is in agricultural use with pockets of rural residential communities.

Growth in Sacramento County is occurring and is projected to occur primarily in the city of Elk Grove, in and around the city of Rancho Cordova, and in the community of Natomas, which are the only remaining areas of the County within the USB where land is available.

New residential development is expected to result from buildout of vacant and underutilized parcels; planned communities, including Elverta, East Antelope, Vineyard Springs, North Vineyard Station, and Florin Vineyard Gap; mixed-uses in commercial corridors; and the West of Watt, Easton, Jackson Highway Corridor, and Grant Line East New Growth Areas. Approximately 113,000 housing units could be developed from buildout of these areas (County of Sacramento 2009a).

According to the Sacramento Area Council of Government's (SACOG's) Sacramento Region Blueprint (Blueprint), the unincorporated portion of Sacramento County will grow by nearly 100,000 new jobs and 100,000 new housing units by 2030, indicating that this trend is likely to continue (County of Sacramento 2009a). Accommodating the projected employment and the new residents will not only require more housing, but will also necessitate additional jobs, stores, human services, transportation system capacity, public facilities, and municipal and countywide services. The county population has grown from 1,041,219 in 1990 to 1,418,788 in 2010 (U.S. Census Bureau 2013a), and the population of the county as of January 1, 2013, was estimated to be 1,445,806 (California Department of Finance [DOF] 2013).

City of Rancho Cordova

The city of Rancho Cordova encompasses approximately 20,000 acres in eastern Sacramento County. The Planning Area for the city of Rancho Cordova consists of the existing incorporated city and a larger study area (approximately 58,190 acres) and was selected based on the city limits and surrounding areas that are anticipated to be incorporated into the city in the future (City of Rancho Cordova 2006:3.0-1). The city limits and its Planning Area are generally bordered by the American River on the north, Prairie City Road and the boundary of the 100-year floodplain for the Cosumnes River on the east, Jackson Road (State Route [SR] 16) on the south, and Watt Avenue and the city of Sacramento on the west (City of Rancho Cordova 2006).

The city is characterized by a wide range of existing land uses, including residential developments, commercial/retail/office uses, industrial uses, and institutional uses. The majority of the commercial, office, and retail uses are located along the Sunrise Boulevard and Folsom Boulevard corridors. Industrial, manufacturing, and distribution facilities are located throughout the city, primarily along Sunrise Boulevard, Jackson Road/SR 16, Bradshaw Road, and Folsom Boulevard. The Aerojet General Corporation operations are located south of U.S. 50 and east of Sunrise Boulevard. Teichert and Granite have active mining operations north of SR 16 between Bradshaw Road and Excelsior Road and Teichert also has operations south of U.S. 50 along Grant Line Road. The most southern portion of the city (i.e., south of SR 16) is characterized with rural residential, agricultural operations, and industrial land uses. (City of Rancho Cordova 2006:4.1-4.)

SACOG Blueprint Preferred Scenario anticipates an additional 112,000 households and 144,000 jobs in Rancho Cordova between 2000 and 2050. The Blueprint assumes Rancho Cordova would have a population of over 332,000 people by 2050 and a fairly even mixture of jobs and housing and this growth would occur through development on underutilized lands along and near Folsom Boulevard and lands inside the current USB. Housing is expected to be primarily single-family detached homes plus multifamily units (attached rowhouses, townhomes, condominiums, and apartments) to ensure housing for the growing population and work force (SACOG and Valley Vision 2004a). The city population has grown from 48,731 in 1990 to 64,805 in 2010 (U.S. Census Bureau 2013b), and the population of the City as of January 1, 2013, was estimated to be 66,927 (DOF 2013).

GEOGRAPHIC SCOPE

The geographic area that could be affected by the project varies depending on the type of environmental resource or issue area being considered. When the effects of the project are considered in combination with other past, present, and reasonably foreseeable future actions to identify cumulative effects, the other actions considered may also vary depending on the type of environmental effects being assessed. The general geographic area associated with different environmental effects of the project defines the boundaries of the area used for compiling the list of actions considered in the cumulative effects analysis. Table 3.0-1 presents the general geographic areas and time frames associated with the different resources addressed in this EIS cumulative analysis.

LIST OF RELATED ACTIONS

The list of past, present, and probable future actions used for this cumulative analysis consists primarily of major development projects in eastern Sacramento County, the city of Rancho Cordova, and Folsom south of U.S. 50, but is not limited thereby (as described in Table 3.0-1 above). The projects listed in Table 3.0-2 and depicted in Exhibit 3.0-1 are not intended to be an all-inclusive list of projects in the region, but rather an identification of larger projects approved or planned in eastern Sacramento County and the city of Rancho Cordova that may affect the same resources as the Cordova Hills project.

REGIONAL PLANNING ENVIRONMENT

The regional cumulative analysis area covers the incorporated and unincorporated areas of Sacramento County, the city of Rancho Cordova, and Folsom South of U.S. 50. This analysis includes information from the Sacramento County General Plan (County of Sacramento 2011), the City of Rancho Cordova General Plan (2006), and the SACOG Sacramento Region Blueprint and Preferred Blueprint Scenario (SACOG and Valley Vision 2004a). A summary of the cumulative planning environment in Sacramento County and the City of Rancho Cordova that is used for the regional cumulative effect analysis is provided below.

**Table 3.0-1
Geographic Scope and Timeframe of Cumulative Effects**

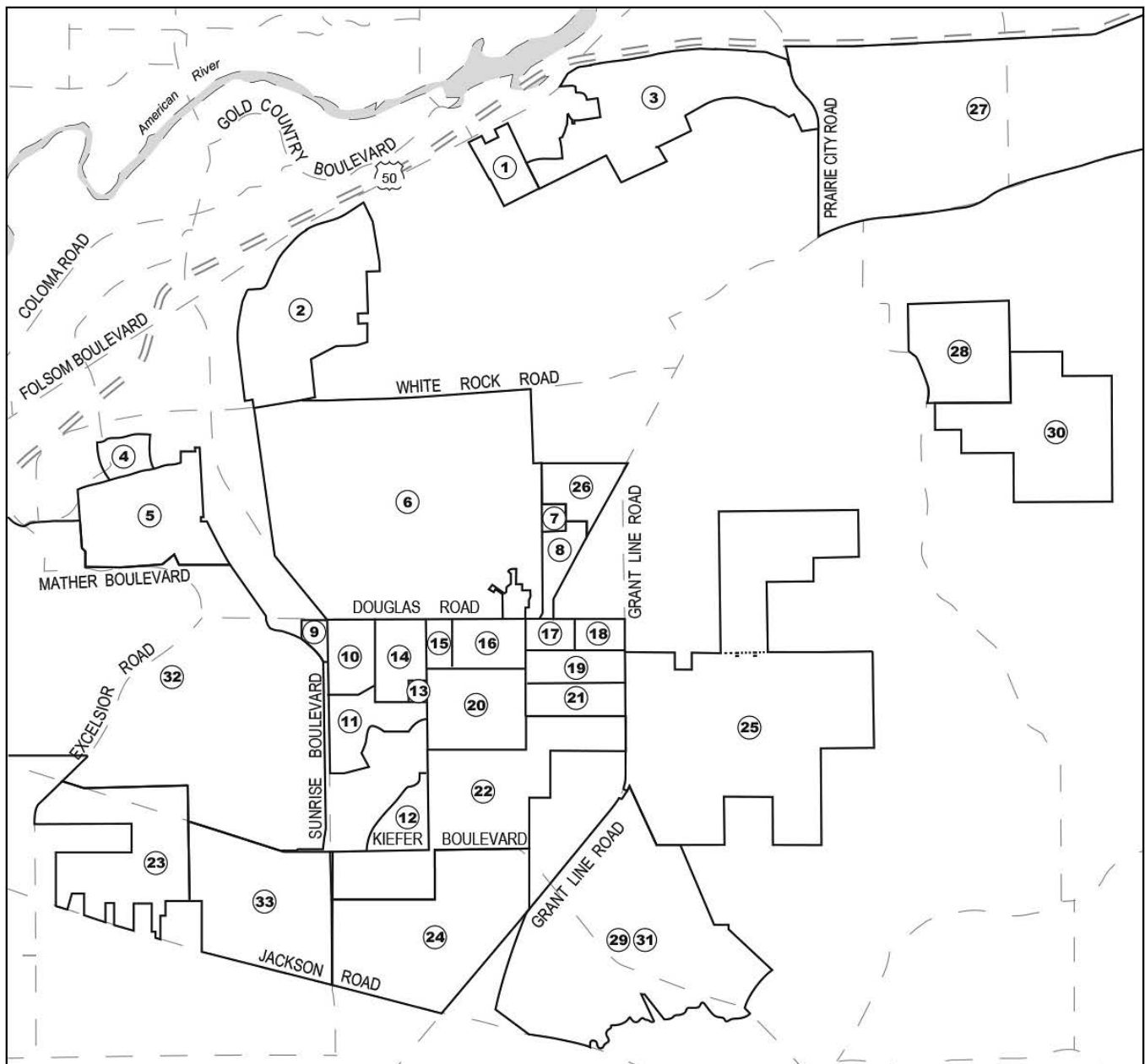
Resource Issue	Geographic Area	Timeframe
Aesthetics	Eastern Sacramento County South of U.S. 50, including the city of Rancho Cordova	Full buildout of the Sacramento County General Plan from 2011 and the City of Rancho Cordova General Plan from 2006 over the next 20-30 years
Agricultural Resources	Eastern Sacramento County South of U.S. 50	Full buildout of the Sacramento County General Plan from 2011 and the City of Rancho Cordova General Plan from 2006 over the next 20-30 years
Air Quality	Sacramento Federal Ozone Nonattainment Area (includes Sacramento and Yolo Counties, the western portion of El Dorado County, and portions of Placer and Solano Counties)	Federal and state regulations and policies generally result in incremental improvements or degradation of regional air quality over a long time period, consistent with full buildout of currently approved County and City General Plans in 20 to 30 years
Biological Resources	The Mather Core Area under the Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon, watersheds in which the Cordova Hills and Pilatus sites are located.	Losses of vernal pools in the Central Valley began at the onset of expanded European settlement during and after the 1849 gold rush in California. Therefore, the starting point of the analysis is the mid-1800s through full buildout of the Sacramento County General Plan over the next 20-30 years
Climate Change	Global, regional, and local (Cordova Hills and Pilatus sites and vicinity)	Federal and state regulations and policies generally result in incremental improvements or degradation of global climate change over a long time period, consistent with full buildout of currently approved County and City General Plans in 20 to 30 years
Cultural Resources	Cordova Hills and Pilatus sites and Sacramento Region	Losses of cultural resources in the Central Valley began at the onset of expanded European settlement during and after the 1849 gold rush in California. Therefore, the starting point of the analysis is the mid-1800s through Full buildout of the City of Rancho Cordova General Plan from 2006 over the next 20-30 years
Environmental Justice	Rancho Cordova Census County Division and Rancho Murrieta Census Designated Place	Full buildout of the Sacramento County General Plan from 2011 and the City of Rancho Cordova General Plan from 2006 over the next 20-30 years
Geology, Soils, and Mineral Resources	Cordova Hills and Pilatus sites and immediate vicinity	Full buildout of the Sacramento County General Plan from 2011 and the City of Rancho Cordova General Plan from 2006 over the next 20-30 years
Hazards and Hazardous Materials	Cordova Hills Pilatus sites and nearby construction projects	Full buildout of the Sacramento County General Plan from 2011 and the City of Rancho Cordova General Plan from 2006 over the next 20-30 years
Hydrology and Water Quality	Laguna Creek, Deer Creek, and Carson Creek tributaries	Full buildout of the Sacramento County General Plan from 2011 and the City of Rancho Cordova General Plan from 2006 over the next 20-30 years
Land Use and Agricultural Resources	Cordova Hills and Pilatus site and immediate vicinity	Full buildout of the Sacramento County General Plan from 2011 and the City of Rancho Cordova General Plan from 2006 over the next 20-30 years
Noise	Cordova Hills and Pilatus site and immediate vicinity	Full buildout of the Sacramento County General Plan from 2011 and the City of Rancho Cordova General Plan from 2006 over the next 20-30 years

**Table 3.0-1
Geographic Scope and Timeframe of Cumulative Effects**

Resource Issue	Geographic Area	Timeframe
Parks and Recreation	Folsom Lake, Lake Natoma, the Prairie City State Vehicular Recreation Area, and the American River Parkway, along with local parks throughout Sacramento County	Full buildout of the Sacramento County General Plan from 2011 and the City of Rancho Cordova General Plan from 2006 over the next 20-30 years
Public Services	Sacramento Metropolitan Fire Department, Sacramento County Sheriff's Department, and Elk Grove Unified School District	Full buildout of the Sacramento County General Plan from 2011 and the City of Rancho Cordova General Plan from 2006 over the next 20-30 years
Socioeconomics	Sacramento County and the city of Rancho Cordova	Full buildout of the Sacramento County General Plan from 2011 and the City of Rancho Cordova General Plan from 2006 over the next 20-30 years
Traffic and Transportation	Regional and local facilities	Full buildout of the Sacramento County General Plan from 2011 and the City of Rancho Cordova General Plan from 2006 over the next 20-30 years
Utilities and Service Systems	Sacramento Regional County Sanitation District, Sacramento Area Sewer District, Sacramento Municipal Utility District, PG&E, and AT&T	Full buildout of the Sacramento County General Plan from 2011 and the City of Rancho Cordova General Plan from 2006 over the next 20-30 years
Water Supply	Sacramento County Water Agency Zone 40 2030 Study Area	Full buildout of the Sacramento County General Plan from 2011 and the City of Rancho Cordova General Plan from 2006 over the next 20-30 years
Note: PG&E = Pacific Gas & Electric Company Source: Data compiled by AECOM in 2013		

Table 3.0-2 Related Residential/Commercial Actions in Eastern Sacramento County and the City of Rancho Cordova								
Map Key	Development (USACE ID Number)	Type of Development	Total Waters of the U.S. (Approximate)	Affected Acres of Waters of the U.S. (Approximate)	Residential Acreage	Commercial Acreage	Units	Current Status
1, 2	Easton Place at Easton and Glenborough at Easton (SPK-2004-00515)	Residential, Commercial	23.16	5.37	592	213	4,883	Approved
3	Capital Village	Residential	None	None	524	N/A	3,390	Approved
4	Westborough at Easton	Residential, Commercial	2.49	2.49	529.9	177.8	3949	Under Construction
5	Villages at Zinfandel (SPK-2001-00114)	Residential, Commercial	2.03	1.5	527	18	1,833	Under Construction
6	Rio del Oro (SPK-1999-00590)	Residential, Commercial, Industrial, Recreation, Schools, Open Space	73.65	27.90	1,920	521	11,601	Approved
7, 8	North Douglas I and II (SPK-1994-00218)	Low Density Residential, Open Space	5.36	5.36	162.4	0	819	Approved
9	Mather East (SPK-2001-00441)	Commercial, Multi-Family Open Space	3.07	0.39	11.9	29.1	129	Approved
10, 12	Anatolia I, II, and III (SPK-1901-10021)	Residential, Commercial, Recreational, Schools	85.07	41.05	371.5	14.5	1,714	Under Construction
13	Anatolia IV (SPK-1994-00210)	Residential	1.36	1.36	25	0	203	Approved
14	Montelena (SPK-2001-00448)	Residential, Wetland Preserve, Recreational, Fire Station	16.66	9.84	158.3	0	806	Under Construction
15	Sunridge Village Lot J (SPK-2001-00230)	Residential/Open Space	2.99	2.99	64.8	0	369	Approved
16	Sunridge Park	Low Density Residential	1.99	1.81	203.4	32.3	953	Approved
17, 18, 19, 21	Douglas 103 (SPK-1997-0006), Douglas 98 (SPK-2002-00568), ARI 208 (Grantline 208) (SPK-1994-00365), and Arista Del Sol (SPK-2004-00458)	Residential, Commercial, Office, and Natural Preserve	37.91	19.77	363.7	24	2,504	Approved
20	The Ranch at Sunridge	Residential, Village Center, Parks, Wetland Preserve	21.42	15.65	303.5	N/A	2,681	Pending – Under CEQA Review
22	SunCreek (SPK-2005-00888)	Residential, Village Center, Parks, Wetland Preserve			555.8	82.3	4,697	Pending – Under NEPA Review

Table 3.0-2 Related Residential/Commercial Actions in Eastern Sacramento County and the City of Rancho Cordova								
Map Key	Development (USACE ID Number)	Type of Development	Total Waters of the U.S. (Approximate)	Affected Acres of Waters of the U.S. (Approximate)	Residential Acreage	Commercial Acreage	Units	Current Status
23	Excelsior Estates (SPK-2004-00791)	Residential	39.81	28.77	480	57	4,400	NOI Prepared
24	Arboretum (SPK-2007-00133)	Residential, Parks, Schools, Commercial	116.86	31.75	616	44.5	5,002	NOI Prepared
26	Heritage Falls	Residential, schools, commercial	6.85	6.85	173	N/A	960	Future
27	Folsom South of U.S. 50 (SPK-2007-02159)	Residential, Commercial, Open Space	84.94	40.75	1,477	363	10,210	Approved
28	Teichert Quarry (SPK-2003-00050)	Mining	7.41	3.63				Pending
30	Stoneridge Quarry	Mining	42.896	10.419				Pending
29	Sacramento GreenCycle	Green Waste Recycling						Approved
31	Kiefer Landfill Special Planning Area ¹	Landfill, Habitat Preserve, Industrial			N/A	N/A	N/A	NOP Issued
32	Mather Specific Plan (SPK-2002-00561)	Residential	138	30		850	3,700	Application has not yet been initiated, but EIS has been prepared.
33	NewBridge Specific Plan (East Sacramento Ranch, SPK- 2003-669)	Residential, Office, Commercial, Mixed Use, Rendering Plant	22.23	4.48	369	49	3,635	Proposed
<p>Note: N/A = not applicable or data not available, U.S. 50 = U.S. Highway 50</p> <p>¹ The Kiefer Special Planning Area would include land use designations of General Agriculture, Public & Quasi Public, and a Waste Stream Industry District.</p> <p>Sources: City of Rancho Cordova 2010; County of Sacramento 2010a; County of Sacramento 2010b; data compiled by AECOM in 2014</p>								



Legend

- | | | | |
|---------------------------|---------------------------|---|---|
| 1. Easton Place at Easton | 11. Anatolia II | 21. Arista Del Sol | 29. Sacramento GreenCycle |
| 2. Westborough at Easton | 12. Anatolia III | 22. SunCreek | 30. Stoneridge Quarry |
| 3. Glenborough at Easton | 13. Anatolia IV | 23. Excelsior Estates | 31. Kiefer Landfill Special Planning Area |
| 4. Capital Village | 14. Montelena | 24. Arboretum | 32. Mather Specific Plan |
| 5. Villages of Zinfandel | 15. SunRidge Lot J | 25. Cordova Hills (w/Pilatus Alternative) | 33. Newbridge Specific Plan |
| 6. Rio del Oro | 16. SunRidge Park | | |
| 7. North Douglas II | 17. Douglas 103 | 26. Heritage Falls | |
| 8. North Douglas I | 18. Douglas 98 | 27. Folsom South of US Highway 50 | |
| 9. Mather East | 19. Grantline 208 | 28. Teichert Quarry | |
| 10. Anatolia I | 20. The Ranch at Sunridge | | |

60273605 047 SAC GRX

Sources: City of Rancho Cordova 2010; County of Sacramento 2010a, 2010b, 2010c; data adapted by AECOM in 2012

Exhibit 3.0-1

Map of Other Foreseeable Projects

Sacramento County General Plan

The *Sacramento County General Plan of 2005–2030* was adopted by the County Board of Supervisors on November 9, 2011. The Sacramento County General Plan update has a planning horizon of 2030, which is consistent with the planning horizons of SACOG’s Sacramento Region Blueprint. The Sacramento County General Plan contains objectives and policies that are intended to guide the County toward a more compact urban character by concentrating growth within existing urbanized areas and revitalizing aging commercial corridors and strategically located new growth areas, thereby using land resources as efficiently as possible, and includes strategies to reduce greenhouse gas emissions consistent with state law.

Portions of the Sacramento County General Plan contain policies for urban development including urban communities and the infrastructure necessary to serve them. Other sections of the Sacramento County General Plan describe strategies to recognize and preserve areas of open space and natural resources. As a whole, the General Plan reflects a balance between the amount and location of land uses in urban areas and those to remain in a rural or natural setting.

Community plans reflect the goals and policies of individual communities and guide land use and development of specific communities on a more detailed basis than the general plan. Sacramento County has adopted the following community plans: Antelope, Arden-Arcade, Carmichael, Cordova, Delta, Fair Oaks, North Highlands/Foothill Farms, Orangevale, Rio Linda/Elverta, Southeast, South Sacramento, and Vineyard. Specific plans are detailed policy plans that identify allowable land uses and infrastructure needs for a specific geographic area and are most often used to comprehensively plan for development of new growth areas. Sacramento County has adopted the following specific plans: East Antelope, Elverta, Mather, and North Vineyard Station, Easton, and Vineyard Springs (Sacramento County 2010d).

In addition to community and specific plans, the Sacramento County General Plan identifies Commercial Corridor Plans that focus on planning for future improvements within specified commercial and transportation corridors on a more detailed basis than the general plan; Special Planning Areas that impose a “special” set of development standards for select areas that have unique qualities; and Neighborhood Preservation Areas, which are special zoning regulations that are adopted to preserve the unique qualities and characteristics of a neighborhood.

The Sacramento County General Plan designates two boundaries that guide policies for growth within the County. The USB is the boundary of the urban area in the unincorporated County. It is a permanent boundary that will not be modified except under extraordinary circumstances and will be used as a planning tool for urban infrastructure providers for developing very long-range master plans that would accompany future urbanization (County of Sacramento 2009a).

The Urban Policy Area (UPA) defines the area expected to receive urban levels of public infrastructure and services within the 20-year planning period of the Sacramento County General Plan. The UPA provides the geographic basis for infrastructure master plans, particularly for public water and sewage, which require large capital investments and relatively long lead times for the installation of capital improvements (County of Sacramento 2009a).

City of Rancho Cordova General Plan

The City of Rancho Cordova General Plan serves as a compass to guide planners, the general public, and decision makers on the desired pattern of development in Rancho Cordova. It describes both existing and future land use activity, the latter of which was designed to achieve the city's long-range goals for physical development. The General Plan identifies the distribution, location, and intensity of all land use types throughout the city.

Sacramento Area Council of Governments Sacramento Region Blueprint

The SACOG Sacramento Region Blueprint depicts a way for the region to grow through the year 2050 as the current population of 2 million increases to more than 3.8 million, the number of jobs increases from 921,000 to 1.9 million, and the amount of housing increases from 713,000 to 1.5 million units (inclusive of the development described above). In December 2004 the SACOG Board of Directors adopted the Preferred Blueprint Scenario, a vision for growth that promotes compact, mixed-use development and more transit choices as an alternative to low-density development. The Preferred Blueprint Scenario predicts that undertaking a realistic long-term planning process will result in long-term environmental benefits and avoidance of effects; these benefits are intended to minimize the extent of the inevitable physical expansion of the overall regional urban area. As a result, natural resources that might be lost under a traditional approach would be protected because less land would be required for urban uses and less agricultural land would be converted. In addition, the Preferred Blueprint Scenario predicts less time per person devoted to travel, fewer car trips, and fewer miles traveled to work and local businesses. The reduction in traffic compared with what would occur under traditional patterns would lead to long-term reductions in air quality emissions in the region by reducing the amounts of vehicular carbon monoxide (CO) and particulate matter that would otherwise be emitted under traditional, lower density development patterns (SACOG and Valley Vision 2004b).

Although it is only advisory, the Blueprint is the most authoritative regional policy guidance in the Sacramento region for long-term regional land use and transportation planning. As stated in the City General Plan, land uses in Rancho Cordova generally reflect the types and intensity of land uses shown in the Preferred Blueprint Scenario, which envisions relatively higher overall residential densities than currently in place. This land use scenario does not establish "buildout targets" but anticipates the addition of approximately 54,000–60,000 new households and 48,000 new jobs in the current Rancho Cordova city limits (based on assumptions used in the Blueprint process), with possible additional growth in the planning area.

ANALYSIS OF CUMULATIVE EFFECTS

The cumulative effects anticipated to result from implementation of the Cordova Hills Master Plan project, together with the other foreseeable projects and regional development, are evaluated in this EIS within each of the 17 environmental issue areas (i.e., Sections 3.1 through 3.17) of Chapter 3. Cumulative effect discussions are provided after the analysis of project-specific effects for each resource section.

The cumulative effects of implementing any of the five action alternatives under consideration would be substantially similar; therefore, this cumulative analysis uses the term "project" to refer to all of the action alternatives. In those cases where there would be a substantive difference in the cumulative effects among the alternatives, such differences are specifically called out in the text. There would be no cumulative effects from adoption of the No Action Alternative, because no development would occur.

3.1 AESTHETICS

3.1.1 INTRODUCTION

This section addresses aesthetics and visual resources that could be affected by implementation of each of the alternatives under consideration, including scenic vistas, scenic resources, visual character, light and glare, and skyglow. Feasible mitigation measures are recommended, where appropriate, to reduce adverse effects.

Visual resources or aesthetic effects are generally defined in terms of a project's physical characteristics and potential visibility, and the extent to which presence of the Proposed Action or the alternatives would change the perceived visual character and quality of the physical environment in which it would be located. Exhibit 3.1-1 provides photographs of representative views of the Cordova Hills site and surrounding area taken during site visits on October 6, 2011 and January 9, 2013, and Exhibit 3.1-2 shows the locations where the photographs were taken.

3.1.2 AFFECTED ENVIRONMENT

VISUAL ASSESSMENT AND VISUAL QUALITY CRITERIA

The aesthetic quality of an area is determined through the variety and contrasts of the area's visual features, the character of those features, and the scope and scale of the scene. The aesthetic quality of an area depends on the relationships between its features and their importance in the overall view. Evaluating scenic resources requires a method that characterizes visual features, assesses their quality in relation to the visual character of the surrounding area, and identifies their importance to the individuals viewing them. This process is derived from established procedures for visual assessment developed by Federal agencies, and is commonly used for a variety of project types.

Both natural and created features in a landscape contribute to its visual quality. Landscape characteristics influencing visual quality include geologic, hydrologic, botanical, wildlife, recreation, and urban features. Several sets of criteria have been developed for defining and evaluating visual quality. The criteria developed by the Federal Highway Administration in 1981, which are used in this analysis, include the concepts of vividness, intactness, and unity. According to these criteria, none of these is itself equivalent to visual quality; all three must be considered high to indicate high quality. These terms are defined as follows:

- ▶ “Vividness” is the visual power or memorability of landscape components as they combine in striking and distinctive visual patterns.
- ▶ “Intactness” is the visual integrity of the natural and human-built landscape and its freedom from encroaching elements.
- ▶ “Unity” is the visual coherence and compositional harmony of the landscape considered as a whole.

The analysis of visual resources for the Proposed Action and alternatives uses a qualitative approach for characterizing and evaluating the visual resources of the areas that could be affected. The quality of views of areas that could be affected by the Proposed Action or the alternatives is evaluated based on the relative degree of vividness, intactness, and unity apparent in views. Viewer sensitivity, also considered in relation to these criteria, is a function of several factors, including the following:



Viewpoint 1: View along the western border of the Cordova Hills site towards Grant Line Road.



Viewpoint 2: View of Kiefer Landfill from the southwest corner of the Cordova Hills site.



Viewpoint 3: View east onto the Cordova Hills site from Grant Line Road.



Viewpoint 4: View east across Carson Creek from the eastern boundary of the Cordova Hills site.

Exhibit 3.1-1b

Representative Photographs of the Cordova Hills Site



Viewpoint 5: View northeast across Carson Creek from the eastern property boundary.



Viewpoint 6: View north from near the eastern Cordova Hills site boundary.



Viewpoint 7: View north onto Pilatus site from east of the major drainage.



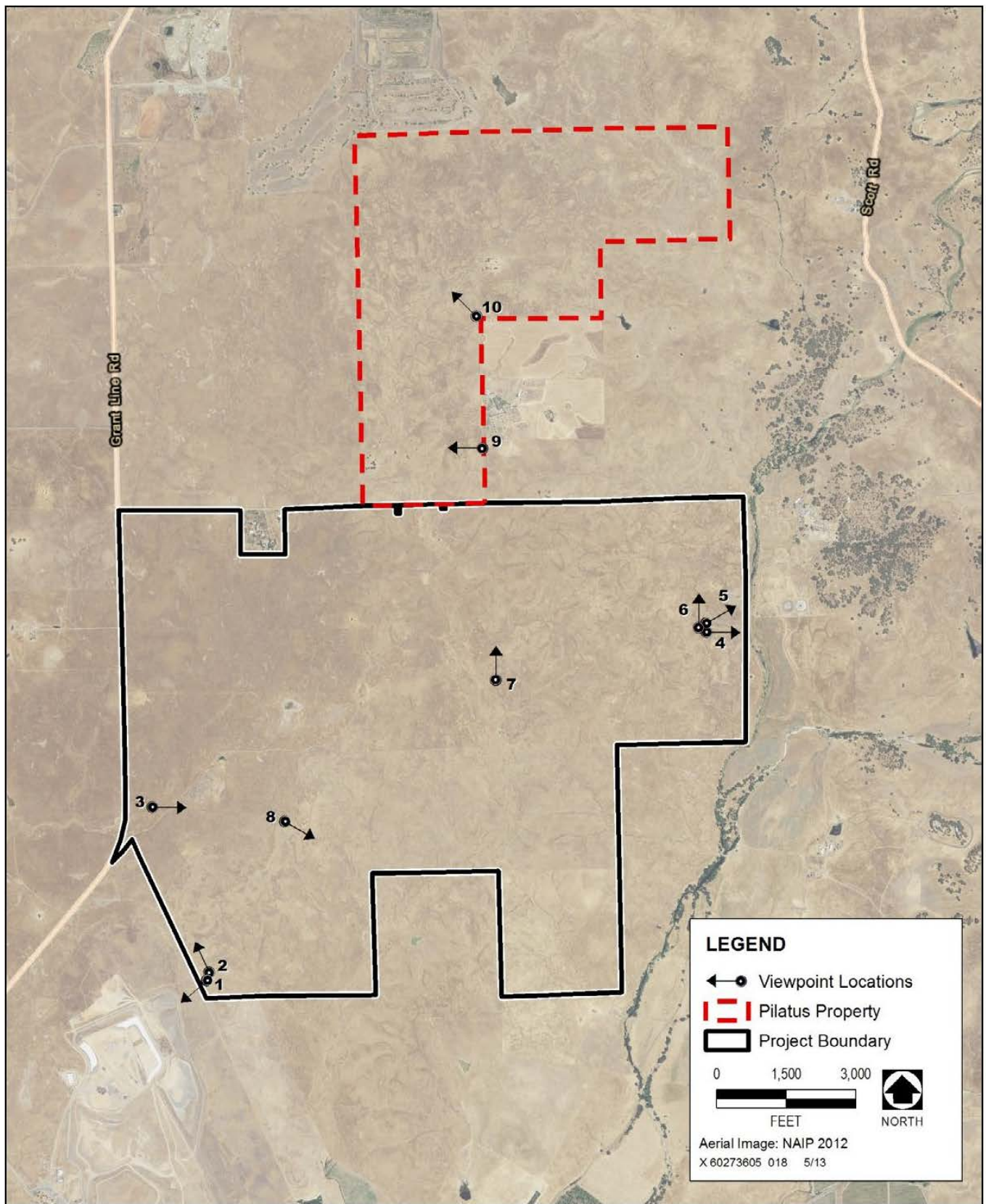
Viewpoint 8: View eastward along the ridgeline on southwestern portion of Cordova Hills site.



Viewpoint 9: View to the west across the Pilatus site.



Viewpoint 10: View to the northwest across the Pilatus site.



Source: AECOM 2013

Exhibit 3.1-2

Viewpoint Locations

- ▶ visibility of the landscape,
- ▶ proximity of viewers to the visual resources,
- ▶ frequency and duration of views,
- ▶ number of viewers,
- ▶ types of individuals and groups of viewers, and
- ▶ viewers' expectations as influenced by their activity.

The viewer's distance from landscape elements plays an important role in the determination of an area's visual quality. Landscape elements are considered higher or lower in visual importance based on their proximity to the viewer. Generally, the closer a resource is to the viewer, the more dominant, and therefore visually important, it is to the viewer. The U.S. Forest Service (USFS) methodology, which separates landscapes into foreground, middleground, and background views, has been used in this analysis. Although these three classifications should be considered on a case-by-case basis, in general, the foreground is characterized by clear details (within 0.25 to 0.5 mile from the viewer); the middleground is characterized by loss of clear texture within a landscape creating a uniform appearance (foreground to 3–5 miles in the distance); and the background extends from the middleground to the limit of human sight (USFS 1974).

REGIONAL SETTING

The various components of the Proposed Action and alternatives would be developed just outside the city limits of Rancho Cordova, on the eastern edge of the Sacramento Valley. The Cordova Hills site is bounded by Grant Line Road to the west, and Glory Lane to the north. The Pilatus site abuts the Cordova Hills site on the north and is bounded by vacant land to the west with Grant Line Road beyond, a horse farm and vacant land on the east, and aggregate mining and vacant land to the north. The Cordova Hills and Pilatus sites are currently used for cattle grazing, and do not contain any structures or other developments. Nearby land uses include undeveloped land to the west, the former Sacramento County Boys Ranch juvenile facility to the east, Kiefer Landfill to the southwest, and generally undeveloped land to the north, east, and south. Various developments are planned for nearby lands. Proposed projects to the west of the Cordova Hills and Pilatus sites include Anatolia III, the Ranch at Sunridge, SunCreek, Arista Del Sol, and Arboretum. The Kiefer Landfill Special Planning Area is located southwest of the Cordova Hills and Pilatus sites, and is planned to be used as a habitat preserve in areas surrounding the landfill. For more information related to surrounding development, see "Introduction," in Section 3, "Affected Environment, Environmental Consequences, and Mitigation Measures."

VISUAL CHARACTER OF THE CORDOVA HILLS AND PILATUS SITES AND IMMEDIATE VICINITY

The Cordova Hills and Pilatus sites are vacant land currently used for cattle grazing. There are no structures on the Cordova Hills or the Pilatus sites. There is a single-family residence adjacent to the northern boundary of the Cordova Hills site along Glory Lane; this residence does not abut the Pilatus site. From the perspective of travelers on Grant Line Road, the Cordova Hills site appears to have the flat topography typical of eastern Sacramento County. This flat area is actually a plateau, east of which the site elevations drop sharply into the first of three large intermittent drainages present on site. The bulk of the property, including the Pilatus site, is located to the east of the plateau and has variable topography with many small rises and lower valleys. The eastern edge of the Cordova Hills site is at a significantly higher elevation than the off-site lands to the east, providing expansive off-site views of rolling terrain and scattered oaks, as well as views of the more-distant Sierra Nevada mountains.

The Cordova Hills site is dominated by grassland and wetland areas. The area to the north of the Cordova Hills site, including the Pilatus site, is similar in character to the Cordova Hills site. The area south of the Cordova Hills site is visually dominated by the presence of Kiefer Landfill. Land to the west of the Cordova Hills site is flat open fields, with some residential and commercial development within the city of Rancho Cordova, currently about 1 mile to the west. Prominent visual features of the Cordova Hills and Pilatus sites are limited to a few scattered trees, wire fencing, and utility towers. Dirt access roads and barbed wire property fencing are also present. In the background, on clear days, the Sierra Nevada mountain range is visible to the east and Mount Diablo is visible to the southwest from both the Cordova Hills and Pilatus sites.

VISUAL ASSESSMENT OF THE CORDOVA HILLS AND PILATUS SITES

- ▶ **Vividness:** The Cordova Hills and Pilatus sites are characterized by bluffs and rolling hills covered with annual grasses and a few scattered trees. There are relatively few encroachments on-site, consisting of barbed-wire fencing and utility lines. These items do not constitute a substantial distraction to the landscape as a whole. Views to the north, east, and south are generally undeveloped, but affected by a residence adjacent the site to the north, the former Sacramento County Boys Ranch to the east, and Kiefer Landfill to the southwest. Certain vantage points in this area offer a rare opportunity to view undisturbed open space with a clear view of the Sacramento Valley to the south, and the undeveloped foothills of the Sierra Nevada and mountains to the east.
- ▶ **Intactness:** As described above, few encroachments exist on-site. The majority of this area provides views of undeveloped grasslands, wetland complexes, and intermittent streams, which most people consider to be aesthetically pleasing. Because the Cordova Hills and Pilatus sites are generally undisturbed, they are considered to have a highly intact landscape.
- ▶ **Unity:** The Cordova Hills and Pilatus sites are exemplary of California's Central Valley rangeland, including gently rolling hills, which contrasts with development in the area. Although there are a few encroachments within the Cordova Hills and Pilatus sites, they are few in number and do not detract from the overall sense of unity.

Viewer Sensitivity

As described above, viewer sensitivity is related to the values and opinions of a particular group and can be generally characterized by the viewer activity, awareness, and local significance of a site. Viewers of the Cordova Hills and Pilatus sites include travelers along Grant Line Road. In general, motorists in the area are driving past the sites on Grant Line Road, a well-traveled route and a link between the cities of Elk Grove and Folsom. The Cordova Hills and Pilatus sites provide a view of a generally undisturbed rural landscape, which has become an increasingly rare site in the areas surrounding the sites. Thus, viewer sensitivity is considered to be high.

3.1.3 REGULATORY FRAMEWORK/APPLICABLE LAWS, REGULATIONS, PLANS, AND POLICIES

State laws and regulations are provided for informational purposes and to assist with NEPA review. USACE has considered applicable state, regional, and local plans and ordinances as a part of the environmental review process for this EIS.

Sacramento County certified an EIR and approved the Proposed Action in January 2013. State, regional, and local plans, policies, laws, and ordinances were considered in the EIR and adopted mitigation measures from the EIR have been incorporated into the Proposed Action.

FEDERAL PLANS, POLICIES, REGULATIONS, AND LAWS

Section 404(b)(1) Guidelines

The Section 404(b)(1) *Guidelines for Specification of Disposal Sites for Dredged or Fill Material*, Section 230.53 Aesthetics, require an evaluation of the potential loss of aesthetic values as a result of the proposed discharge of dredged or fill material.

STATE PLANS, POLICIES, REGULATIONS, AND LAWS

California Department of Transportation

The California Department of Transportation (Caltrans) manages the California Scenic Highway Program. The goal of the program is to preserve and protect scenic highway corridors from changes that would affect the aesthetic value of the land adjacent to designated highways. However, there are no state-designated scenic highways in the vicinity of the Cordova Hills or Pilatus sites (Caltrans 2013).

3.1.4 ANALYSIS METHODOLOGY

This visual effect analysis is based on field observations conducted by AECOM on October 6, 2011, and January 9, 2013, and a review of maps and aerial photographs. Analysis of the effects of the Proposed Action or alternatives was based on evaluation of the changes to the existing visual resources that would result from implementation of the Proposed Action or one of the alternatives. In making a determination of the extent and implications of the visual changes, consideration was given to:

- ▶ specific changes in the visual composition, character, and valued qualities of the affected environment;
- ▶ the visual context of the affected environment;
- ▶ the extent to which the affected environment contained places or features that have been designated in plans and policies for protection or special consideration; and
- ▶ the numbers of viewers, their activities, and the extent to which these activities are related to the aesthetic qualities affected by the changes.

It should be noted that an assessment of visual quality is a subjective matter, and reasonable people can disagree as to whether alteration in the visual character of the Cordova Hills and Pilatus sites would be adverse or beneficial. For this analysis, a conservative approach was taken, and the potential for substantial change to the visual character of the Cordova Hills or Pilatus sites is generally considered an adverse effect.

Because the Final EIR has already been certified, all Final EIR Mitigation Measures, the Rezone and Tentative Large Lot Parcel Map Conditions of Approval, and the obligations found in the Development Agreement (collectively referred to as the project entitlements) are considered a part of the Proposed Action. Thus, these measures and requirements are considered when analyzing the significance of effects under the Proposed Action.

Because the project entitlements were imposed on the Proposed Action by the County as part of its approval process, it is reasonable to assume that if one of the action alternatives were adopted, the County would impose similar conditions during the entitlement of the alternative.

THRESHOLDS OF SIGNIFICANCE

The determinations of the significance of effects for this analysis are based on professional standards regularly used in environmental review documents in the region. These thresholds encompass the factors taken into account under NEPA to determine the significance of an action in terms of its context and the intensity of its effects. These are also informed by the environmental checklist in Appendix G of the State CEQA Guidelines. The alternatives under consideration were determined to result in a significant effect related to aesthetic resources if they would do any of the following:

- ▶ have a substantial adverse effect on a scenic vista;
- ▶ substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway;
- ▶ substantially degrade the existing visual character or quality of the site and its surroundings; or
- ▶ create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

Scenic Resources within a State Highway—There are no roadways designated as scenic in, or within view of, the Cordova Hills or Pilatus sites. Thus, issues related to substantial damage to scenic resources within a state scenic highway are not evaluated further in this EIS.

3.1.5 ENVIRONMENTAL CONSEQUENCES AND MITIGATION MEASURES

EFFECTS ANALYSIS

Effects that would occur under each alternative development scenario are identified as follows: NA (No Action), PA (Proposed Action), EDP (Expanded Drainage Preservation), EP (Expanded Preservation), P (Pilatus), and RC (Regional Conservation). The effects for each alternative are compared relative to the PA at the end of each effect conclusion (i.e., similar, greater, lesser).

EFFECT 3.1-1	<i>Substantial Adverse Effect on a Scenic Vista. Implementation of the Proposed Action or one of the alternatives would result in the degradation of the visual quality of a scenic vista.</i>
-----------------	--

NA

Under the No Action Alternative, no development related to the Proposed Action or alternatives would occur. Thus, there would be **no indirect** or **direct** effects on views of the Cordova Hills or Pilatus sites. *[Lesser]*

Mitigation Measure: No mitigation measures are required.

PA

A scenic vista is generally considered an expansive view of a unique or remarkable landscape, which is observable from a location accessible to the public. The open grasslands of the Cordova Hills site and adjacent undeveloped lands provide a pleasing rural view that is enhanced, on clear days that occur primarily in the winter and spring, with scenic views of the snow-covered peaks of the Sierra Nevada mountain range to the east. The grasslands and vernal pools on the Cordova Hills site are a unique landscape, which in the spring provide views of green expanses, with vernal pools ringed by colorful wildflowers. This landscape, which is indigenous to the east side of the Central Valley, is becoming rare in close proximity to urbanized areas that are expanding onto these areas.

Implementation of the Proposed Action would convert the Cordova Hills site into an urban area, generally consisting of housing units and commercial development. Views from adjacent and nearby roadways, including Grant Line Road and Douglas Road toward the site would be permanently altered, substantially degrading the existing viewshed. Views for rural residents to the north of the Cordova Hills site would be similarly altered and degraded. Kiefer Road and Latrobe Road are more distant from the Cordova Hills site, and implementation of the Proposed Action would change background views from these roadways. Views of the Cordova Hills site from Scott Road are obstructed by trees and would not be substantially affected.

With implementation of the Proposed Action, the Cordova Hills site would have similar visual quality to nearby developed land, and would no longer be considered a unique or scenic vista. Because the alterations would have a substantial adverse effect on a scenic vista, this **indirect** effect is **significant**. **No direct** effects would occur.

Mitigation Measure: No feasible mitigation measures are available.

EDP, EP, RC

As with the Proposed Action, implementation of the Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives would convert the Cordova Hills site into an urban area, generally consisting of housing units and commercial development. Views from adjacent and nearby roadways, including Grant Line Road and Douglas Road toward the site would be permanently altered, substantially degrading the existing viewshed. Views for rural residents to the north of the Cordova Hills site would be similarly altered and degraded. Kiefer Road and Latrobe Road are more distant from the Cordova Hills site, and implementation of the Expanded Drainage Preservation, Expanded Preservation, or Resource Conservation Alternative would change background views from these roadways. However, because less development would occur under the Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives, the degradation of the viewshed would occur to a lesser degree as compared to the Proposed Action. This **indirect** effect is **significant**. **No direct** effects would occur. [*Lesser*]

Mitigation Measure: No feasible mitigation measures are available.

P

Implementation of the Pilatus Alternative would convert the Pilatus site and an adjacent area to the north into an urban area, generally consisting of housing units and commercial development. Similar to the other four action alternatives, views from adjacent roadways and nearby residents toward the Pilatus site would be permanently altered, substantially degrading the existing viewshed. In addition, the Pilatus Alternative would bring

development closer to Scott Road in an area where the topography rises from the roadway towards the Pilatus site, and developed uses would be visible as a rough edge on the horizon from Scott Road. With implementation of this alternative, the Pilatus site would have a similar visual quality to nearby developed land, and would no longer be considered a unique or scenic vista. Because these alterations would have a substantial adverse effect on a scenic vista, this **indirect** effect is **significant**. **No direct** effects would occur. *[Greater]*

Mitigation Measure: No feasible mitigation measures are available.

There are no feasible mitigation measures available that could reduce effects associated with the substantial adverse effect on a scenic vista (degradation of and obstruction of a vast expanse of open area) from implementation of the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives to a less-than-significant level. Therefore, this adverse effect would remain **significant and unavoidable**.

EFFECT 3.1-2	Substantial Degradation of Existing Visual Character or Quality of the Site and its Surroundings. <i>Implementation of the Proposed Action or alternatives would substantially degrade the visual character of the Cordova Hills and Pilatus sites to developed urban uses.</i>
-----------------	--

NA

Under the No Action Alternative, no development would occur. Thus, there would be **no indirect** or **direct** effects on visual character on the Cordova Hills and Pilatus sites. *[Lesser]*

Mitigation Measure: No mitigation measures are required.

PA

Modification of the visual character from an open rural landscape to an urbanized landscape, which includes multi-storied residential and commercial structures and roadways, paths, and other paved surfaces, could degrade the existing visual character or quality of the site and its surroundings. Implementation of the Proposed Action would alter the visual character of the Cordova Hills site from an open rural landscape to an urbanized landscape. The Proposed Action includes characteristics that would substantially alter the existing visual quality of the site. This development would permanently alter the foreground and middleground views from within the Cordova Hills site and from viewers outside the Cordova Hills site looking in. Distant views of the Sierra Nevada foothills and mountain range would no longer be visible from locations along Grant Line Road, because they would be blocked by structures. The visual character of the site would be substantially altered; the existing expanse of open area would be obstructed by development.

Reasonable people may differ as to the aesthetic value of undeveloped grasslands, and whether development of urban uses in the Cordova Hills site would degrade the existing visual character or quality of the site and its surroundings. However, given the large scale of this urban development and the rural nature of its setting, a conservative approach has been taken for this analysis, and the substantial change in visual character that would occur with implementation of the alternatives is considered to degrade the visual character at the Cordova Hills site. This would be an **indirect, significant** effect. **No direct** effects would occur.

Mitigation Measure: No feasible mitigation measures are available.

As with the Proposed Action, implementation of the Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives would alter the visual character of the Cordova Hills site from an open rural landscape to an urbanized landscape. These three alternatives would include characteristics that would substantially alter the existing visual quality of the site. This development would permanently alter the foreground and middleground views from within the Cordova Hills site and from viewers outside the Cordova Hills and Pilatus sites looking in. Distant views of the Sierra Nevada foothills and mountain range would no longer be visible from locations along Grant Line Road, because they would be blocked by structures. The visual character of the site would be substantially altered; the existing expanse of open area would be obstructed by development.

However, because less development would occur under the Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives, the degradation of visual character would occur to a lesser degree as compared to the Proposed Action. This **indirect** effect is **significant**. **No direct** effects would occur. *[Lesser]*

Mitigation Measure: No feasible mitigation measures are available.

P

As with the Proposed Action, implementation of the Pilatus Alternative would alter the visual character of the Pilatus site from an open rural landscape to an urbanized landscape. This alternative would include characteristics that would substantially alter the existing visual quality of the sites. This development would permanently alter the foreground and middleground views from within the Cordova Hills and Pilatus sites and from viewers outside the Cordova Hills and Pilatus sites looking in. Distant views of the Sierra Nevada foothills and mountain range would no longer be visible from locations along Grant Line Road, because they would be blocked by structures. The visual character of the sites would be substantially altered; the existing expanse of open area would be obstructed by development.

Because a greater amount of development would occur over a larger area under the Pilatus Alternative, the degradation of visual character would occur to a greater degree as compared to the Proposed Action. This **indirect** effect is **significant**. **No direct** effects would occur. *[Greater]*

Mitigation Measure: No feasible mitigation measures are available.

There are no feasible mitigation measures available that could reduce effects associated with the substantial adverse effect on visual character (change of a vast expanse of open area from rural to urban) from implementation of the Proposed Action, Expanded Drainage Preservation Alternative, Expanded Preservation, Pilatus, and Regional Conservation Alternatives to a less-than-significant level. Therefore, this effect would remain **significant and unavoidable**.

EFFECT 3.1-3 Temporary, Short-Term Degradation of Visual Character for Developed Land Uses During Construction. *Implementation of the Proposed Action or alternatives would involve the temporary and short-term use of staging areas for construction equipment and materials, which would be visible to adjacent land uses that have already been developed.*

NA

Under the No Action Alternative, no development would occur. Thus, there would be **no indirect** or **direct** effects on views on the Cordova Hills site or on the Pilatus site. *[Lesser]*

Mitigation Measure: No mitigation measures are required.

PA

The presence and movement of heavy construction equipment and staging areas could temporarily degrade the existing visual character and/or quality of the Cordova Hills site for existing developed land uses. Buildout of the Proposed Action is anticipated to occur over a 20- to 30-year period, with construction anticipated to begin in 2015 and end in 2044. During this time, adjacent development, including sensitive land uses such as residential housing, schools, and parks, would be occupied while construction is occurring in a different phase.

Construction activities would require the use of various types of equipment, such as scrapers, graders, dozers, and trucks as well as signs, cones, and trash receptacles. Construction would involve the temporary use of fenced staging areas for construction equipment and materials. Although these staging areas would be located in disturbed areas, construction equipment and materials would be visible to residents, employees at existing businesses, and at parks and school sites over a 20- to 30-year duration.

Thus, construction activities would temporarily degrade the existing visual character of the Cordova Hills site in the vicinity of developed areas. This temporary and short-term effect is **direct** and **significant**. **No indirect** effects would occur.

Mitigation Measure: No feasible mitigation measures are available.

EP, EDP, RC

As with the Proposed Action, construction of the Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives would occur over a 20- to 30-year period. During this time, adjacent development, including sensitive land uses such as residential housing, schools, and parks, would be occupied while construction is occurring in a different phase. Construction activities and materials would be visible to residents, employees at existing businesses, and at parks and school sites over a 20- to 30-year duration. However, because less development would occur under the Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives, the degradation of visual character during construction would occur to a lesser degree as compared to the Proposed Action. This temporary and short-term **direct** effect is **significant**. **No indirect** effects would occur. *[Lesser]*

Mitigation Measure: No feasible mitigation measures are available.

P

As with the Proposed Action, construction of the Pilatus Alternative would occur over a 20- to 30-year period. During this time, adjacent development, including sensitive land uses such as residential housing, schools, and parks, would be occupied while construction is occurring in a different phase. Construction activities and materials would be visible to residents, employees at existing businesses, and at parks and school sites over a 20- to 30-year duration. However, because more development would occur under the Pilatus Alternative, the degradation of visual character during construction would occur to a greater degree as compared to the Proposed Action. This temporary and short-term **direct** effect is **significant**. **No indirect** effects would occur. *[Greater]*

Mitigation Measure: No feasible mitigation measures are available.

There are no feasible mitigation measures available that could reduce effects associated with the effects of construction of the Proposed Action or alternatives on already-developed portions of the Cordova Hills and Pilatus sites to a less-than-significant level from implementation of the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives. Therefore, this temporary and short-term adverse effect would remain **significant and unavoidable**.

EFFECT 3.1-4	Creation of a New Source of Substantial Light or Glare that would Adversely Affect Day or Nighttime Views in the Area. <i>Implementation of the Proposed Action or alternatives would require lighting of new development, which would cause new and increased sources of light and glare.</i>
-----------------	--

NA

Because no development would occur, there would be no effects resulting in new sources of light or glare that would adversely affect day and nighttime views in the area. Therefore, there would be **no indirect or direct** effects. *[Lesser]*

Mitigation Measure: No mitigation measures are required.

PA

Modification of the visual character from an open rural landscape to an urbanized landscape, which includes multi Light associated with urban development can result in spillover lighting and glare effects. Spillover lighting is artificial lighting that spills over onto adjacent properties and could cause an annoyance to neighboring residents by disturbing sleep patterns. Glare is intense light that shines directly, or is reflected off a surface, into a person's eyes. Use of building materials such as reflective glass and polished surfaces can cause glare. During daylight hours, the amount of glare depends on the intensity and direction of sunlight. Glare is particularly acute at sunrise and sunset because of the low angle of the sun in the sky. In addition, nighttime lighting or the presence of reflective surfaces on buildings in the commercial, office, and industrial areas (e.g., reflective window glazing) may result in light and glare shining onto motorists on adjacent roadways.

The Cordova Hills site is in a rural area that currently has minimal lighting, and is designated in the 2008 Building Efficiency standards as an LZ2 zone (low levels of ambient nighttime light). The nearby Kiefer Landfill includes nighttime lighting sources, but light from these sources is diffused by distance prior to reaching the Cordova Hills site. The LZ2 zone carries more stringent lighting restrictions than a more urban environment. For instance, Table

147-B of the 2008 Building Efficiency standards indicates that building entrances in an LZ2 zone are limited to 75 watts, while in an LZ4 (urbanized) zone the allowance is 120 watts. The Cordova Hills Master Plan includes narrative requirements for exterior lighting, beginning in Section 4.15.5.

Implementation of the Proposed Action would result in standard urban lighting systems with average light output, such as porch lights, parking lot lights, and similar. The exceptions are the proposed sports fields at the University/College Campus Center and the Sports Park. Both areas would include facilities for organized sporting events such as baseball, soccer, and football, with stadium lighting for after-sunset games. Stadium lighting has a much higher light output than other lighting sources, and is generated from a greater height than the average lighting source. Because of this greater output and height, the lights affect a larger area, and are directly visible even from large distances. Moreover, lighting for athletic fields is exempt from the lighting limitations of the 2008 Building Efficiency Standards. Both stadium lighting areas are located adjacent to commercial uses, university buildings, or open space. The nearest existing residential areas are more than a mile away from the proposed athletic fields. The nearest residential areas developed as part of the Proposed Action would be approximately 2,000 feet from the athletic fields. These distances would avoid nighttime sleep disruption potentially caused by this light source.

Though there are existing restrictions that would help minimize the adverse effects of new lighting sources on existing nighttime conditions, implementation of the Proposed Action would still result in a substantial new source of light. This new light would not result in substantial nighttime sleep disruption for existing residential areas, because those areas are more than 1 mile from the Cordova Hills site.

As part of the CEQA EIR certification and project approval process, the project applicant committed to implementing various mitigation measures for the Proposed Action. The mitigation measures that are applicable to this effect that were incorporated into the Proposed Action by the EIR mitigation measures, conditions of approval, and development agreement (project entitlements) are listed below:

- ▶ The SPA shall be amended to require all lighting applications subject to the 2008 Building Efficiency Standards Section 147 to use fixtures approved by the International Dark Sky Association. (*Final EIR Mitigation Measure AE-1*).

The project applicant would reduce light and glare effects by using fixtures which would reduce spillover lighting. However, even with implementation of Final EIR Mitigation Measure AE-1, implementation of the Proposed Action would substantially increase light and glare in the Cordova Hills site and adjacent areas. No other feasible mitigation measures that would fully reduce these effects are available. Thus, this **indirect** effect would remain **significant and unavoidable**. No direct effects would occur.

EDP, EP, RC

The Cordova Hills site is in a rural area that currently has minimal lighting, and is designated in the 2008 Building Efficiency standards as an LZ2 zone (low levels of ambient nighttime light). The nearby Kiefer Landfill includes nighttime lighting sources, but light from these sources is diffused by distance prior to reaching the Cordova Hills site. The Cordova Hills Master Plan includes narrative requirements for exterior lighting, beginning in Section 4.15.5.

Implementation of the Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives would result in nighttime stadium lighting at the proposed sports fields at the University/College Campus Center and the Sports Park. Stadium lighting has a much higher light output than other lighting sources, and is generated from a greater height than the average lighting source. Because of this greater output and height, the lights affect a larger area, and are directly visible even from large distances. Moreover, lighting for athletic fields is exempt from the lighting limitations of the 2008 Building Efficiency Standards. Both stadium lighting areas are located adjacent to commercial uses, university buildings, or open space. The nearest existing residential areas are more than a mile away from the proposed athletic fields under all three of these alternatives and therefore nighttime sleep disruption from these light sources would not occur.

Although implementation of the Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives would result in a lesser level of new lighting as compared to the Proposed Action, substantial new sources of lighting would still be generated. This **indirect** effect is **significant**. **No direct** effects would occur. [*Lesser*]

As part of the CEQA EIR certification and project approval process, various mitigation measures were incorporated into the project entitlements. Because these mitigation measures were incorporated into the Proposed Action, it is reasonable to assume that they would also be incorporated into the four action alternatives, if any of those alternatives were adopted. The conditions of approval that are applicable to this effect that were incorporated into the Proposed Action by the project entitlements are listed below:

- ▶ The SPA shall be amended to require all lighting applications subject to the 2008 Building Efficiency Standards Section 147 to use fixtures approved by the International Dark Sky Association. (*Final EIR Mitigation Measure AE-1*).

The project applicant would reduce light and glare effects by using fixtures which would reduce spillover lighting. However, even with implementation of Final EIR Mitigation Measure AE-1, implementation of the Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives would substantially increase light and glare in the Cordova Hills site and adjacent areas. No other feasible mitigation measures that would fully reduce these effects are available. Thus, this effect would remain **significant and unavoidable**.

P

The Pilatus site is in a rural area that currently has minimal lighting, and is designated in the 2008 Building Efficiency standards as an LZ2 zone (low levels of ambient nighttime light). The nearby Kiefer Landfill includes nighttime lighting sources, but light from these sources is diffused by distance prior to reaching the site. The Cordova Hills Master Plan includes narrative requirements for exterior project lighting, beginning in Section 4.15.5.

Implementation of the Pilatus Alternative would result in nighttime stadium lighting at the proposed sports fields at the University/College Campus Center and the Sports Park. Stadium lighting has a much higher light output than other lighting sources, and is generated from a greater height than the average lighting source. Because of this greater output and height, the lights affect a larger area, and are directly visible even from large distances. Moreover, lighting for athletic fields is exempt from the lighting limitations of the 2008 Building Efficiency Standards. Both stadium lighting areas are located adjacent to commercial uses, university buildings, or open

space. The nearest existing residential areas are more than a mile away from the proposed athletic fields under all three of these alternatives and therefore nighttime sleep disruption from these light sources would not occur.

Because more development would occur over a larger area, implementation of the Pilatus Alternative would result in a greater level of new lighting as compared to the Proposed Action, and substantial new sources of lighting would be generated. This **indirect** effect is **significant**. **No direct** effects would occur. *[Greater]*

As part of the CEQA EIR certification and project approval process, various mitigation measures were incorporated into the project entitlements. Because these mitigation measures were incorporated into the Proposed Action, it is reasonable to assume that they would also be incorporated into the four action alternatives, if any of those alternatives were adopted. The conditions of approval that are applicable to this effect that were incorporated into the Proposed Action by the project entitlements are listed below:

- ▶ The SPA shall be amended to require all lighting applications subject to the 2008 Building Efficiency Standards Section 147 to use fixtures approved by the International Dark Sky Association. *(Final EIR Mitigation Measure AE-1)*.

The project applicant would reduce light and glare effects by using fixtures which would reduce spillover lighting. However, even with implementation of Final EIR Mitigation Measure AE-1, implementation of the Pilatus Alternative would substantially increase light and glare in the Cordova Hills site and adjacent areas. No other feasible mitigation measures that would fully reduce these effects are available. Thus, this effect would remain **significant and unavoidable**.

EFFECT *New Skyglow Effects. Implementation of the Proposed Action or alternatives would involve lighting of*
3.1-5 *new development that would result in the generation of new and increased skyglow effects, obscuring*
 views of stars, constellations, and other features of the night sky.

NA

Skyglow is artificial lighting from urbanized uses that alters the rural landscape and, in sufficient quantity, lights up the nighttime sky, thus reducing the visibility of astronomical features. Because no development would occur, there would be no new skyglow effect on the Cordova Hills and Pilatus sites. Therefore, there would be **no indirect or direct** effects. *[Lesser]*

Mitigation Measure: No mitigation measures are required.

PA

The Cordova Hills site consists primarily of undeveloped agricultural grazing land. Existing lighting sources are all off-site associated with a few scattered rural residences, and lighting on utility towers to provide airspace security. The existing land uses at the Cordova Hills site are not a substantial source of nighttime lighting. Therefore, these areas generate no substantial sources of skyglow into the night sky.

Implementation of the Proposed Action would result in standard urban lighting systems with average light output, such as porch lights, parking lot lights, and similar. Implementation of the Proposed Action would also include stadium lighting on sports fields at the University/College Campus Center and the Sports Park. These new light

sources would obscure views of the stars, constellations, and other features of the night sky. There could also be some disruption for wildlife which use the habitats surrounding the Cordova Hills site because sky glow would increase ambient lighting conditions in the area, and direct light spill would affect areas directly adjacent to the Cordova Hills site. Many wildlife species in the Cordova Hills site and vicinity could adapt to these conditions, as they have to other urbanizing areas. There are no special-status species in the vicinity of the Cordova Hills site known to be particularly susceptible to disruption resulting from nighttime lighting.

As part of the CEQA EIR certification and project approval process, the project applicant committed to implementing various mitigation measures for the Proposed Action. The mitigation measures applicable to this effect that were incorporated into the entitlements, and therefore are considered part of the Proposed Action, are listed below:

- ▶ The SPA shall be amended to require all lighting applications subject to the 2008 Building Efficiency Standards Section 147 to use fixtures approved by the International Dark Sky Association. (*Final EIR Mitigation Measure AE-1*).

The project applicant would reduce skyglow effects by using fixtures that would reduce and shield nighttime lighting. However, even with implementation of Final EIR Mitigation Measure AE-1, implementation of the Proposed Action would still introduce a substantial quantity of nighttime light over a large area of a rural landscape that is essentially dark under existing conditions. No other feasible mitigation measures that would fully reduce these effects are available. Therefore, this **indirect** effect would remain **significant and unavoidable**. **No direct** effects would occur.

EDP, EP, RC

As with the Proposed Action, implementation of the Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives would result in standard urban lighting systems with average light output, such as porch lights, parking lot lights, and similar. However, they would also include stadium lighting on sports fields at the University/College Campus Center and the Sports Park. These new light sources would obscure views of the stars, constellations, and other features of the night sky. There could also be some disruption for wildlife which use the habitats surrounding the Cordova Hills site because sky glow would increase ambient lighting conditions in the area, and direct light spill would affect areas directly adjacent to the Cordova Hills site (although there are no special-status species in the vicinity of the Cordova Hills site known to be particularly susceptible to disruption resulting from nighttime lighting).

Because less development would occur under the Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives, the new skyglow effects would occur to a lesser degree as compared to the Proposed Action. However, **indirect** effect is **significant**. **No direct** effects would occur. [*Lesser*]

As part of the CEQA EIR certification and project approval process, various mitigation measures were incorporated into the project entitlements. Because these mitigation measures were incorporated into the Proposed Action, it is reasonable to assume that they would also be incorporated into the four action alternatives, if any of those alternatives were adopted. The conditions of approval that are applicable to this effect that were incorporated into the Proposed Action by the project entitlements are listed below:

- ▶ The SPA shall be amended to require all lighting applications subject to the 2008 Building Efficiency Standards Section 147 to use fixtures approved by the International Dark Sky Association. (*Final EIR Mitigation Measure AE-1*).

The project applicant would reduce skyglow effects by using fixtures that would reduce and shield nighttime lighting. However, even with implementation of Final EIR Mitigation Measure AE-1, implementation of the Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives would substantially increase nighttime skyglow effects. No other feasible mitigation measures that would fully reduce these effects are available. Thus, this effect would remain **significant and unavoidable**.

P

As with the Proposed Action, implementation of the Pilatus Alternative would result in standard urban lighting systems with average light output, such as porch lights, parking lot lights, and similar. However, they would also include stadium lighting on sports fields at the University/College Campus Center and the Sports Park. These new light sources would obscure views of the stars, constellations, and other features of the night sky. There could also be some disruption for wildlife which use the habitats surrounding the Cordova Hills site because sky glow would increase ambient lighting conditions in the area, and direct light spill would affect areas directly adjacent to the Cordova Hills site (although there are no special-status species in the vicinity of the Cordova Hills site known to be particularly susceptible to disruption resulting from nighttime lighting).

Because more development would occur over a larger area under the Pilatus Alternative, the new skyglow effects would occur to a greater degree as compared to the Proposed Action. This **indirect** effect is **significant**. **No direct** effects would occur. [*Greater*]

As part of the CEQA EIR certification and project approval process, various mitigation measures were incorporated into the project entitlements. Because these mitigation measures were incorporated into the Proposed Action, it is reasonable to assume that they would also be incorporated into the four action alternatives, if any of those alternatives were adopted. The conditions of approval that are applicable to this effect that were incorporated into the Proposed Action by the project entitlements are listed below:

- ▶ The SPA shall be amended to require all lighting applications subject to the 2008 Building Efficiency Standards Section 147 to use fixtures approved by the International Dark Sky Association. (*Final EIR Mitigation Measure AE-1*).

The project applicant would reduce skyglow effects by using fixtures that would reduce and shield nighttime lighting. However, even with implementation of Final EIR Mitigation Measure AE-1, implementation of the Pilatus Alternative would substantially increase nighttime skyglow effects. No other feasible mitigation measures that would fully reduce these effects are available. Thus, this effect would remain **significant and unavoidable**.

3.1.6 RESIDUAL SIGNIFICANT EFFECTS

Effects related to substantial alteration of a scenic vista, degradation of visual character, and skyglow would be significant and unavoidable because no additional feasible mitigation measures are available to reduce these effects to a less-than-significant level.

3.1.7 CUMULATIVE EFFECTS

The geographic scope for cumulative visual effects consists of eastern Sacramento County south of U.S. Highway 50, including the city of Rancho Cordova. Development is increasingly changing the visual character along roadway corridors in eastern Sacramento County, from grazing/rural lands and vast areas of open space to urban uses, thus altering and limiting the views available to motorists along roadways and residents living in the area. This trend will continue as future projects are implemented in the region and in eastern Sacramento County, consistent with growth planned in the County's General Plan, the City of Rancho Cordova's General Plan, and community plans and specific plans, including the Anatolia III, Arboretum, Arista Del Sol, SunCreek, and the Ranch at Sunridge.

ALTERATION OF SCENIC VISTAS AND DEGRADATION OF VISUAL CHARACTER

Substantial changes in visual conditions would continue as agricultural lands and open space are replaced by urban development. These projects are planned for build-out over a period of several decades and would result in substantial adverse effects to the existing visual character of eastern Sacramento County, both during construction activities and on a permanent basis. As described above, the Cordova Hills site is part of a scenic vista because it is characterized as undeveloped lands with far-reaching views, which would no longer exist once the land in the vicinity of the Cordova Hills and Pilatus sites are developed. Thus, implementation of the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives would result in a cumulatively considerable contribution to significant cumulative effects on the scenic vista and degradation of the visual character of eastern Sacramento County, during construction and operation of the Proposed Action or alternatives. There are no feasible mitigation measures that would reduce these cumulatively significant effects.

LIGHT, GLARE, AND SKYGLOW EFFECTS

Increased urban development would also lead to increased daytime and nighttime light and glare and subsequent skyglow in the region and more limited views of the night sky. This is especially the case in eastern Sacramento County, where a large-scale change from open space to urban uses is planned in southern Rancho Cordova and in Folsom South of U.S. 50. The cumulative effect of these changes on aesthetic resources from past and planned future projects, as well as the contribution from the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives, is considered a significant effect. Although these cumulative effects can be minimized to a degree through implementation of Final EIR Mitigation Measure AE-1, the significant cumulative effect cannot be reduced to a less-than-significant level. Therefore, the cumulative changes of increased daytime glare and nighttime light and subsequent skyglow are considered indirect, adverse, and significant and unavoidable effects. In addition, the contribution to these effects by the Proposed Action or alternatives would be cumulatively considerable. No feasible mitigation measures that would reduce these cumulatively significant effects.

3.2 AGRICULTURAL RESOURCES AND LAND USE

3.2.1 INTRODUCTION

This analysis presents a description of the existing environment related to agricultural resources and land use, discusses pertinent regulations, and provides an analysis of potential effects. Feasible mitigation measures are recommended, where appropriate, to reduce adverse effects.

3.2.2 AFFECTED ENVIRONMENT

FARMLAND MAPPING

The Farmland Mapping and Monitoring Program (FMMP) was established by the State of California in 1982 to continue the Important Farmland mapping efforts begun in 1975 by the Soil Conservation Service (SCS) (now Natural Resources Conservation Service [NRCS]). The intent of the SCS was to produce agricultural-resource maps based on soil quality and land use across the nation. The California Department of Conservation (DOC) sponsors the FMMP and is also responsible for establishing agricultural easements in accordance with California Public Resources Code (PRC) Sections 10250–10255.

As part of the nationwide effort to map agricultural land uses, NRCS uses 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 as well as the actual land use. Maps of Important Farmland are derived from the NRCS soil survey maps using the LIM criteria and are available by county. The maps prepared by NRCS classify land into one of eight categories, which are defined as follows (DOC 2012):

- ▶ **Prime Farmland**—Land that has the best combination of features for the production of agricultural crops.
- ▶ **Farmland of Statewide Importance**—Land other than Prime Farmland that has a good combination of physical and chemical features for the production of agricultural crops.
- ▶ **Unique Farmland**—Land of lesser quality soils used for the production of the state's leading agricultural cash crops.
- ▶ **Farmland of Local Importance**—Land that is of importance to the local agricultural economy.
- ▶ **Grazing Land**—Land with existing vegetation that is suitable for grazing.
- ▶ **Urban and Built-up Lands**—Land occupied by structures with a density of at least one dwelling unit per 1.5 acres, or approximately 6 structures to a 10-acre parcel. This land is used for residential, industrial, commercial, institutional, public utility structures, and other developed purposes.
- ▶ **Land Committed to Nonagricultural Use**—Vacant areas; existing lands that have a permanent commitment to development but have an existing land use of agricultural or grazing lands.
- ▶ **Other Lands**—Land that does not meet the criteria of the remaining categories.

The Cordova Hills site is comprised of approximately 2,669 acres of predominantly grassland used for cattle grazing. Approximately 2,660.4 acres of the Cordova Hills site are mapped as Grazing Land. For a number of years, there was an approximately 8.6-acre eucalyptus grove planted in the southwest quadrant of the Cordova Hills site. The grove was cut down by the property owner several years ago and no longer exists. The land that was formerly planted with the eucalyptus grove is mapped as Unique Farmland because of its prior use of eucalyptus as a crop. However, the eucalyptus trees have been removed and the roots tilled under. Thus, the 8.6 acres designated as Unique Farmland instead currently function as grazing land. There are no intensive agricultural uses on the Cordova Hills site (Exhibit 3.2-1).

The Cordova Hills site was formerly designated by the Sacramento County General Plan as General Agriculture (80 acres) and was zoned by the Sacramento County Zoning Code for AG-80 agricultural uses (Exhibit 3.2-2). However, the zoning and land use designations were changed following certification of the Cordova Hills EIR in 2013. Properties to the north, east, and south of the Cordova Hills site are zoned for agriculture uses (AG-80 and AG-20). The landscape north of the Cordova Hills site is similar to that of the Cordova Hills site—predominantly grassland suitable for grazing. The lands east of the Cordova Hills site lie across Carson Creek, and are also grazed, though the grassland begins to transition into oak woodland. South of the Cordova Hills site is Kiefer Landfill and to the southeast there are areas within the Deer Creek floodplain that are used for row crops.

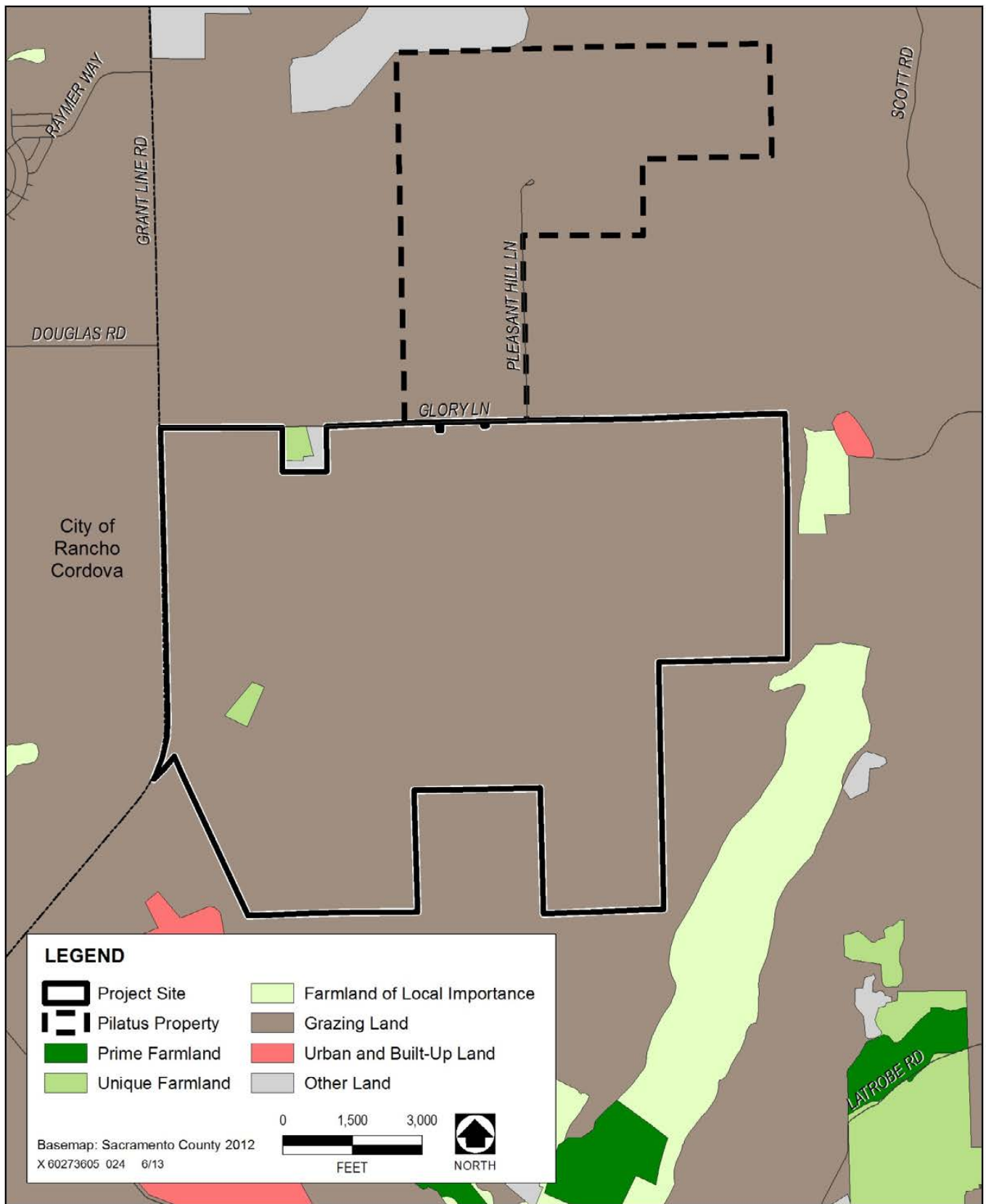
There are approximately 480 acres in the southeastern quadrant of the Cordova Hills site that are under a Williamson Act Contract (see the “Regulatory Framework/Applicable Laws, Regulations, Plans, and Policies” section below) (72-AP-109). The contract is in nonrenewal and is expected to expire in 2016 (Exhibit 3.2-3). As part of the Mitigation, Monitoring, and Reporting Program adopted as part of the EIR, the Sacramento County Board of Supervisors stipulated that agricultural activities (grazing) shall be maintained on that parcel until contract expiration in 2016. This stipulation was memorialized in Mitigation Measure AG-2 of the EIR, which requires that agricultural activities be maintained until contract expiration, at which time the zoning agreement shall take effect.

There are two off-site active contracts adjacent to the Cordova Hills site on the east and south. These contracts encompass approximately 1,100 acres.

The Pilatus site lies directly north of the Cordova Hills site. The Pilatus site consists of approximately 882.5 acres, all of which is designated by the Sacramento County General Plan as General Agriculture (80 Acres) and zoned by Sacramento County for AG-80 agricultural uses. The entire Pilatus site is classified as Grazing Land (DOC 2012). The parcels on the Pilatus site were historically under Williamson Act Contracts (70-AP-003, 74-AP-002, and 76-AP-003) for grazing. Nonrenewal was filed for all three contracts and became effective on December 6, 1991, August 12, 1991, and May 5, 1993, respectively.

EXISTING LAND USES

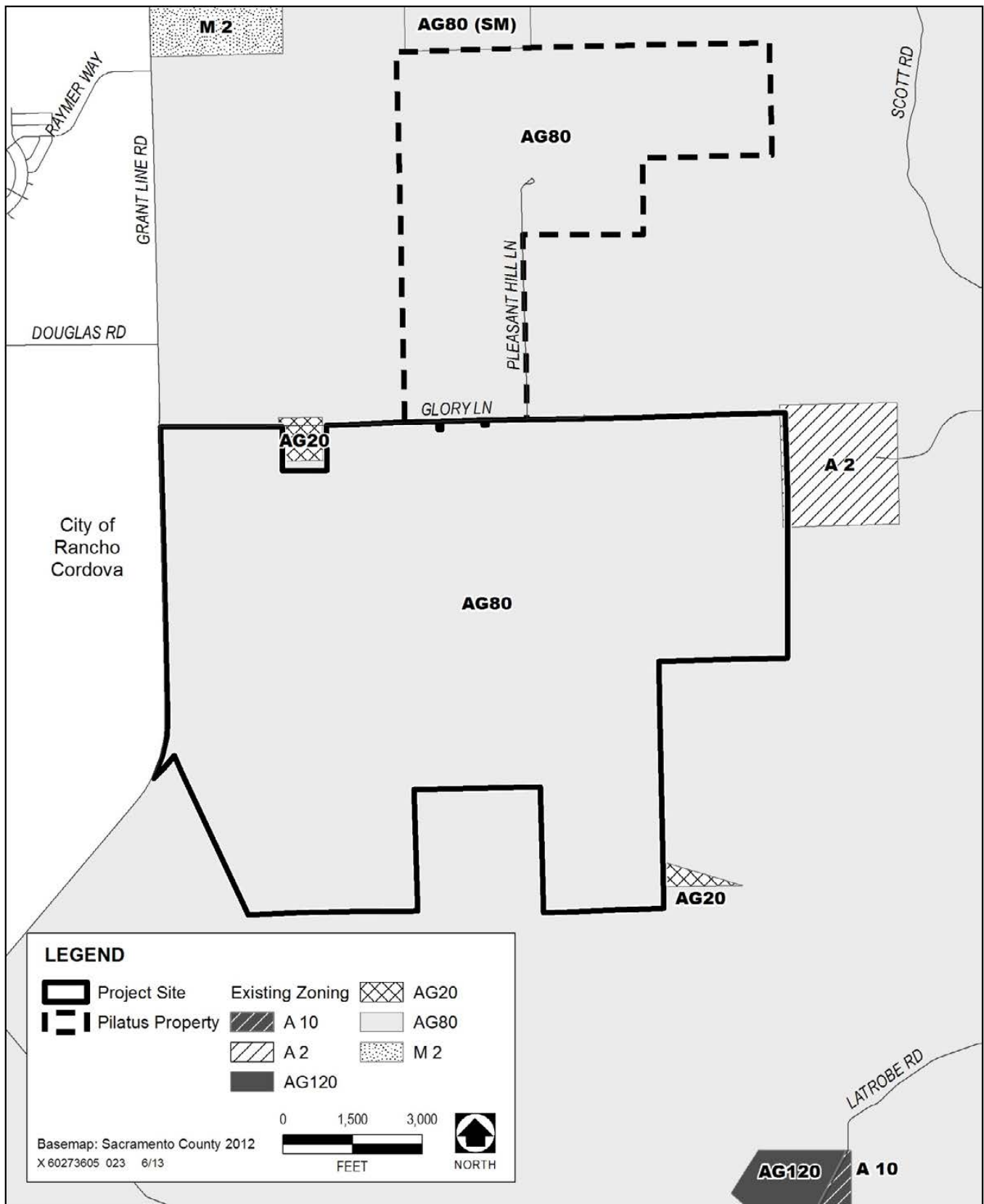
The Cordova Hills and Pilatus sites are located in the Cosumnes Community within Sacramento County (see Exhibit 2-1 in Chapter 2, “Description of the Proposed Action and Alternatives”). The Cordova Hills and Pilatus sites are currently used for cattle grazing, and do not contain any structures or other type of development. There is a single-family residence adjacent to the northern boundary of the Cordova Hills site along Glory Lane. There are no public roadways within the Cordova Hills or Pilatus sites, although dirt farm access roads are present. A 120-kilovolt Pacific Gas & Electric Company (PG&E) transmission line traverses the eastern edge of the Cordova



Source: DOC 2010

Exhibit 3.2-1

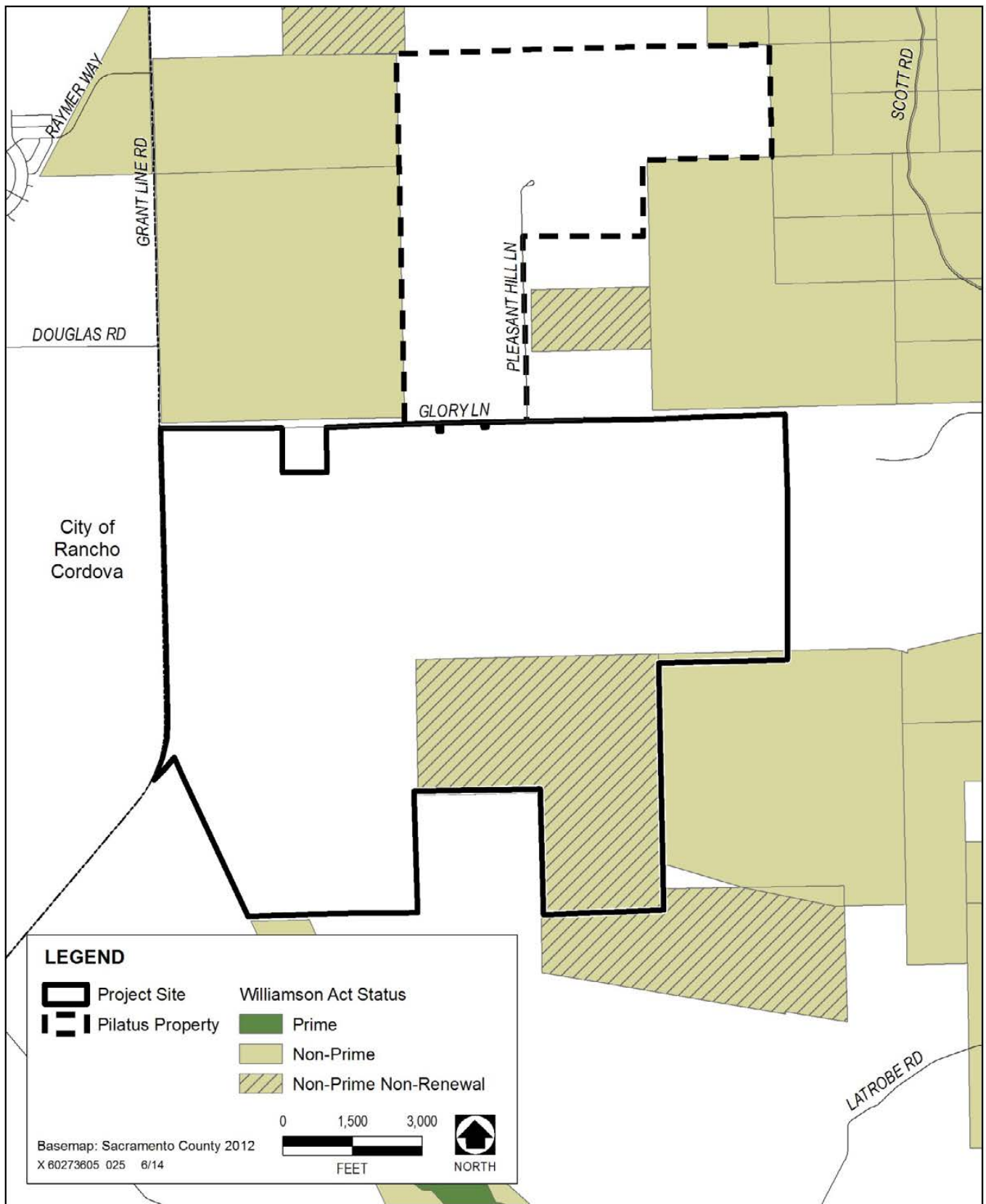
Important Farmland Designations



Source: County of Sacramento 2012

Exhibit 3.2-2

Zoning Designations



Source: DOC 2010

Exhibit 3.2-3

Williamson Act Status

Hills site in a north-south direction adjacent and generally parallel to Carson Creek. The nearest public water and sewer lines are located within Douglas Road, approximately 3/4 mile to the northwest.

ADJACENT AND NEARBY LAND USES

Grant Line Road is a two-lane thoroughfare that lies along the western boundary of the Cordova Hills and Pilatus sites, and Glory Lane is a gravel road that lies along the northern Cordova Hills site boundary. With a few exceptions (described below), the surrounding lands to the north, east, south, and west are agricultural or open space properties with few structures.

The former Sacramento County Boys Ranch property abuts the Cordova Hills site to the east. The main facility is located approximately 0.25 mile east of the Cordova Hills site, on the east side of Carson Creek. However, the facility was closed in 2009 due to County budget constraints and there are currently no plans to reopen it in the foreseeable future.

Kiefer Landfill is located to the south/southwest of the Cordova Hills site. Some of the proposed facilities, such as the sports park, may be developed within the 2,000-foot buffer zone that Sacramento County established around the landfill. Sacramento County requires that property within this buffer zone remain in agricultural, recreational, or other open space uses, unless the County Department of Waste Management and Recycling determines that the proposed use is compatible with landfill operations and the County Board of Supervisors makes the finding that the uses are compatible with the existing or future operations of the landfill.

Aggregate mining activities are ongoing to the north of the Pilatus site. The Teichert Aggregates Grantline Processing Facility is located east of Grant Line Road at Raymer Way (approximately 1 mile northwest of the Cordova Hills site), with mining sites located both east and west of the processing facility. The southern boundary of the Prairie City State Vehicular Recreation Area is located approximately 1 mile north of the Pilatus site.

PROPOSED LAND USES

The Cordova Hills site is zoned Specific Plan Area, and several general plan land use designations are applied on the site as shown in the *Cordova Hills Master Plan* (see Exhibit 2-4 in Chapter 2, “Description of the Proposed Action and Alternatives”). Land use and zoning designations consistent with development of the Proposed Action were adopted by the Sacramento County Board of Supervisors in 2013 following certification of the Cordova Hills EIR. The Pilatus site includes an additional area north of the Cordova Hills site that is designated as General Agriculture in the Sacramento County General Plan, and is zoned AG-80 (i.e., agricultural lands of at least 80 acres). The City of Rancho Cordova General Plan designates the Cordova Hills and Pilatus sites as being within its “East Planning Area,” but the Cordova Hills and Pilatus sites are outside the City’s existing city limits as well as the expected future jurisdiction designated by the city of Rancho Cordova’s sphere of influence (SOI).

The land along the western boundary of the Cordova Hills site, on the west side of Grant Line Road, is within the city of Rancho Cordova and is part of the Sunridge Specific Plan. The approved SunCreek Specific Plan area is located immediately south and west of the Sunridge Specific Plan area. Exhibit 2-2 in Chapter 2, “Description of the Proposed Action and Alternatives” and Exhibit 3.0-1 in Section 3.0, “Affected Environment, Environmental Consequences, and Mitigation Measures” show the location of nearby proposed development areas in relation to the Cordova Hills and Pilatus sites.

The land to the east and south of the Cordova Hills site is designated as General Agriculture in the County General Plan and is zoned AG-80, with the exception of the Boys Ranch parcel, which is zoned A-2 and designated Public/Quasi-Public in the County General Plan. Similarly, the Kiefer Landfill parcel to the southwest is designated as Public/Quasi-Public in the County General Plan.

In 2010, Sacramento County initiated the Kiefer Landfill Special Planning Area project, which would designate a portion of the landfill property with General Agriculture and Public/Quasi-Public land use designations. The General Agriculture designation would be applied to preserve areas. The Public/Quasi-Public designation would be applied to the operable area of the landfill and for new land uses related to the waste stream, potentially including waste recycling, renewable energy projects, and other waste diversion uses. The County adopted the Kiefer Landfill Special Planning Area Ordinance in 2013, and also relocated the preferred alternative site for the Sacramento Greencycle project to the Kiefer Landfill Special Planning Area.

3.2.3 REGULATORY FRAMEWORK/APPLICABLE LAWS, REGULATIONS, PLANS, AND POLICIES

State laws and regulations are provided for informational purposes and to assist with NEPA review. USACE has considered applicable state, regional, and local plans and ordinances as a part of the environmental review process for this EIS.

Sacramento County certified an EIR and approved the Proposed Action in January 2013. State, regional, and local plans, policies, laws, and ordinances were considered in the EIR and adopted mitigation measures have been incorporated into the Proposed Action.

FEDERAL PLANS, POLICIES, REGULATIONS, AND LAWS

There are no Federal plans, policies, regulations, or laws related to agricultural resources or land use that apply to the alternatives under consideration.

STATE PLANS, POLICIES, REGULATIONS, AND LAWS

California Environmental Quality Act

Under the California Environmental Quality Act ([CEQA]; California PRC Sections 21060.1 and 21095 and State CEQA Guidelines Appendix G), the conversion of land designated in the FMMP as Prime Farmland, Farmland of Statewide Importance, and Unique Farmland, may be considered a significant environmental effect.

Williamson Act

The California Land Conservation Act of 1965, commonly known as the Williamson Act, empowers local governments to establish “agricultural preserves” consisting of lands devoted to agricultural uses and other compatible uses. When such preserves are established, the locality may offer owners of agricultural land that is included in the preserves the opportunity to enter into annually renewable contracts that restrict the land to agricultural use for at least 10 years (i.e., the contract continues to run for 10 years following the first date upon which the contract is not renewed). In return, the landowner is guaranteed a relatively stable tax base, founded on the value of the land for agricultural/open space use only and unaffected by its development potential. Local governments receive an annual subvention (subsidy) of forgone property tax revenues from the state via the Open

Space Subvention Act of 1971. Revenue shortfalls during the recession resulted in the reduction of payments beginning in Fiscal Year (FY) 2009, when payments were reduced to a total of \$1,000 statewide. There have been no subvention payments in FY 2010, FY 2011, or FY 2012 (DOC 2013a).

Ending a Williamson Act Contract is undertaken either through a process of nonrenewal or through cancellation. Either the local government, or landowner, can initiate the nonrenewal process. A "notice of nonrenewal" starts the 10-year nonrenewal period. During the nonrenewal process, the annual tax assessment gradually increases. At the end of the 10-year nonrenewal period, the contract is terminated. Cancellation of a Williamson Act contract involves termination of the contract in less than 10 years and must be initiated by the landowner. Cancellation involves an extensive review and approval process, in addition to payment by the landowner of fees of up to 12.5 percent of the property value. The local jurisdiction approving the cancellation must make *either one* of the following findings, supported by substantial evidence:

- ▶ that the cancellation is consistent with the purpose of the California Land Conservation Act (Section 51282[a][1] of the California Government Code), or
- ▶ that the cancellation is in the public interest (Section 51282[a][2] of the California Government Code).

To support the finding that the cancellation of a Williamson Act contract is consistent with the purpose of the California Land Conservation Act, all of the following subfindings must be made:

- ▶ that the cancellation is for land on which a notice of nonrenewal has been served in accordance with Section 51245 of the California Government Code;
- ▶ that cancellation is not likely to result in the removal of adjacent lands from agricultural use;
- ▶ that cancellation is for an alternative use that is consistent with the applicable provisions of the city or county general plan;
- ▶ that cancellation will not result in discontinuous patterns of urban development; and
- ▶ that there is no proximate non-contracted land that is both available and suitable for the use to which it is proposed the contracted land be put, or that development of the contracted land would provide more contiguous patterns of urban development than development of proximate non-contracted land.

To support the finding that the cancellation of a Williamson Act Contract is in the public interest, both of the following subfindings must be made:

- ▶ that other public concerns substantially outweigh the objectives of the Williamson Act; and
- ▶ that there is no proximate non-contracted land that is both available and suitable for the use to which it is proposed the contracted land be put, or that development of the contracted land would provide more contiguous patterns of urban development than development of proximate non-contracted land.

In 2011 in Sacramento County, there were a total of approximately 180,790 acres of farmland subject to Williamson Act Contracts. Of that total, approximately 11,704 acres were in the process of nonrenewal (DOC 2013b).

State Planning and Zoning Laws

California Government Code Section 65300 et seq. establishes the obligation of cities and counties to adopt and implement general plans. The general plan is a comprehensive, long-term, and general document that describes plans for the physical development of a city or county and of any land outside its boundaries that, in the city's or county's judgment, bears relation to its planning. The general plan addresses a broad range of topics, including, at a minimum, land use, circulation, housing, conservation, open space, noise, and safety. In addressing these topics, the general plan identifies the goals, objectives, policies, principles, standards, and plan proposals that support the city's or county's vision for the area. The general plan is a long-range document that typically addresses the physical character of an area over a 20-year period. Finally, although the general plan serves as a blueprint for future development and identifies the overall vision for the planning area, it remains general enough to allow for flexibility in the approach taken to achieve the plan's goals.

The State Zoning Law (California Government Code Section 65800 et seq.) establishes that zoning ordinances, which are laws that define allowable land uses and development standards within a designated zone, are required to be consistent with the general plan and any applicable specific plans. When amendments to the general plan are made, corresponding changes in the zoning ordinance may be required within a reasonable time to ensure that the land uses designated in the general plan would also be allowable by the zoning ordinance (California Government Code Section 65860[c]).

REGIONAL AND LOCAL PLANS, POLICIES, REGULATIONS, AND ORDINANCES

Sacramento Area Council of Governments' Sacramento Region Blueprint

The Sacramento Area Council of Governments (SACOG) is a regional organization that provides a variety of planning functions over its six-county region, which consists of Sacramento, Yolo, Placer, Sutter, Yuba, and El Dorado Counties. SACOG's primary functions are to provide transportation planning and funding for the region and to study and support resolutions of regional issues. In 2002, SACOG initiated what is now known as the Sacramento Region Blueprint (Blueprint) process after computer modeling of the region showed that current growth patterns and transportation investment priorities would result in significant increases in congestion over the next 50 years, as well as substantial consumption of privately held natural and agricultural land. The goal of the process was to determine whether alternatives to current and planned transportation and land use patterns could be established to improve the region's long-term travel patterns and air quality, as well as retain substantially more open space. The Blueprint is the product of a 3-year public-involvement effort and is intended to guide land use and transportation choices over the next 50 years. During this 50-year period the region's population is projected to grow from 2 million to more than 3.8 million, jobs are projected to increase from 921,000 to 1.9 million, and housing units are projected to increase from 713,000 to 1.5 million.

The starting point for the Blueprint process was the "Base Case Scenario," which shows how the region would develop through the year 2050 if growth patterns of the recent past continue. Under the Base Case Scenario, growth would continue outward into largely rural areas and on the fringes of current development. The model predicted that the average resident living in a version of a future typical of the Base Case Scenario in 2050 would probably live in a single-family house on a fairly large lot in a subdivision with similar houses. This resident would commute a longer distance to work than is typical today; trips to work and commercial areas would be lengthy and slow because of significant increases in congestion.

In December 2004, the SACOG Board of Directors adopted the Preferred Blueprint Scenario, a vision for growth that promotes compact, mixed-use development and more transit choices as an alternative to low-density development. It includes a greater range of housing products, reinvestment in already developed areas, protection of natural-resource areas from urbanization, and more transportation choices. Residents living in a future developed area consistent with the Preferred Blueprint Scenario in 2050 would probably live in a home on a smaller lot, in a neighborhood with some larger houses and some attached row houses, apartments, and condominiums. Residents would drive to work, but the trip would be shorter than presently, and the time needed to get there would be about the same as it is now. It is anticipated that residents may sometimes use public transportation (i.e., train or bus). Most of their shopping and entertainment trips would still be via the automobile, but the distances would be shorter. Some of these shopping trips might be via walking or biking down the block a short distance to a village or town center that contains neighborhood stores with housing units built on top of them, and a small park or plaza.

The Sacramento Region Blueprint depicts a way for the region to grow through the year 2050 generally consistent with seven principles of “Smart Growth.” These principles are summarized below and include a comparison of development projected under Base Case Scenario to development projected under the Preferred Blueprint Scenario. (SACOG and Valley Vision 2004.)

- ▶ **Transportation Choices:** Developments should be designed to encourage people to sometimes walk, ride bicycles, ride the bus, ride light rail, take the train, or carpool. Use of Blueprint growth concepts for land use and right-of-way design would encourage use of these modes of travel and the remaining auto trips would be, on average, shorter. In the Base Case, 2 percent of new housing and 5 percent of new jobs would be located within walking distance of 15-minute bus or train service, the number of vehicle miles traveled (VMT) per day per household would be 47.2 miles, and the total time devoted to travel per household per day would be 81 minutes. The Blueprint Scenario reduces the number of trips taken by car by about 10 percent. These trips are shifted to transit, walking, or biking. In the Blueprint Scenario, 38 percent of new homes and 41 percent of new jobs would be located within walking distance of 15-minute bus or train service, the number of VMT per day per household would be 34.9 miles, and the total time devoted to travel per household per day would be 67 minutes. With the Blueprint Scenario, per capita, there would be 14 percent less carbon dioxide and particulates produced by car exhaust compared to the Base Case.
- ▶ **Mixed-Use Developments:** Building homes and shops, entertainment, office, and light industrial uses near each other can encourage active, vital neighborhoods. This mixture of uses can be either in a vertical arrangement (mixed in one building) or horizontal (with a combination of uses in close proximity). These types of projects function as local activity centers where people would tend to walk or bike to destinations. Separated land uses, on the other hand, lead to the need to travel more by auto because of the distance between uses. Under the Base Case scenario, 26 percent of people would live in communities with a good, or balanced, mix of land uses by 2050. In the Blueprint Scenario, 53 percent of people would live in balanced communities.
- ▶ **Compact Development:** Creating environments that are more compactly built and use space in an efficient but aesthetic manner can encourage more walking, biking, and public-transit use, and shorten auto trips. Under the Base Case, by 2050, new development would require the consumption of an additional 661 square miles of land. Under the Blueprint Scenario, 304 square miles of new land would be required for new development.

- ▶ **Housing Choice and Diversity:** Providing a variety of places where people can live—apartments, condominiums, townhouses, and single-family detached homes on varying lot sizes—creates opportunities for the variety of people who need them: families, singles, seniors, and people with special needs. This issue is of special concern for people with very low, low, and moderate incomes. By providing a diversity of housing options, more people would have a choice.
- ▶ **Use of Existing Assets:** In urbanized areas, development on infill or vacant lands, intensification of the use of underutilized parcels, or redevelopment can make better use of existing public infrastructure. This can also include rehabilitation and reuse of historic buildings, denser clustering of buildings in suburban office parks, and joint use of existing public facilities such as schools and parking garages. Under the Base Case Scenario, all new development would be on vacant land. Under the Blueprint Scenario, it is suggested that 13 percent of all new housing and 10 percent of all new jobs would occur through reinvestment.
- ▶ **Quality Design:** The design details of any land use development—such as the relationship to the street, setbacks, placement of garages, sidewalks, landscaping, the aesthetics of building design, and the design of the public rights-of-way—are factors that can influence the attractiveness of living in a compact development and facilitate the ease of walking and biking to work or neighborhood services. Good site and architectural design is an important factor in creating a sense of community and a sense of place. Under the Base Case, 34 percent of people would live in pedestrian-friendly neighborhoods. Under the Blueprint Scenario, in 2050, pedestrian-friendly neighborhoods would rise to 69 percent.
- ▶ **Natural Resources Conservation:** This principle encourages the incorporation of public-use open space (such as parks, town squares, trails, and greenbelts) within development projects, above state requirements; it also encourages wildlife and plant habitat preservation, agricultural preservation, and promotion of environmentally friendly practices such as energy efficient design, water conservation and stormwater management, and planting of shade trees. Under the Base Case, 166 square miles of agricultural land would be converted into urban uses. Under the Blueprint Scenario, 102 square miles of agricultural land would be converted to urban uses. When the Preferred Blueprint Scenario was developed, the authors included a calculated, predetermined “preservation factor” that was intended to account for a certain amount of land that could be set aside in the future to preserve natural resources. However, the Preferred Blueprint Scenario did not attempt to map specific areas that could potentially be set aside as preserves. The only “preserve” areas that were mapped were those already designated as such that were in existence at the time the Preferred Blueprint Scenario was created.

Under smart growth principles, areas that are planned for development are developed at higher densities. Although these higher densities may result in greater on-site impacts on biological, cultural, open space, and agricultural resources, the overall area of disturbance within the region is reduced in the long term as development is concentrated in particular locations. Sacramento County has experienced demographic pressure which has reflected an increasing statewide population and intrastate migration from the San Francisco Bay Area. Smart growth principles therefore suggest that developing the site with a higher density use while avoiding wetland areas and other environmental resources would focus market demand for development into an area near existing and planned development, infrastructure, and services.

The Preferred Blueprint Scenario predicts long-term environmental benefits from undertaking a realistic long-term planning process; these benefits are intended to minimize the extent of the inevitable physical expansion of

the overall regional urban areas. In summary, if the Preferred Blueprint Scenario were followed, it would result in more mixed-use communities; provide a greater number of small-lot, single-family detached homes; develop a greater number of attached homes; reinvest in existing business and residential areas; and create more pedestrian-friendly neighborhoods. The results of implementing these principles would be the protection of natural resources (because less land would be required for urban uses) and less agricultural land conversion. In addition, the Preferred Blueprint Scenario predicts less time devoted to travel, fewer car trips, and fewer miles traveled to work and local businesses compared with development under the Base Case. The reduction in traffic would improve air quality in the region by reducing carbon monoxide and particulate matter produced by car exhaust.

The Blueprint process received broad support from most of its member agencies. The Blueprint is advisory and therefore does not establish land use restrictions for the County. SACOG has no land use authority. Although it is only advisory, the Blueprint is the most authoritative policy guidance in the Sacramento region for long-term regional land use and transportation planning. A number of jurisdictions either are adopting the Blueprint concepts or are considering and encouraging projects consistent with the Blueprint.

3.2.4 ANALYSIS METHODOLOGY

Evaluation of potential agricultural resources was based on a review of planning documents, including the Sacramento County General Plan and the SACOG Blueprint, and maps and information published by DOC, including the DOC Important Farmland Map for Sacramento County and the DOC map of Williamson Act Contracts in Sacramento County.

Evaluation of potential land use effects was based on a review of planning documents pertaining to the Cordova Hills and Pilatus sites and vicinity, primarily the Sacramento County General Plan (2011) and zoning code.

The Cordova Hills and Pilatus sites are located within Sacramento County, and therefore the County has planning jurisdiction over the Cordova Hills and Pilatus sites. Any inconsistencies between the County land use designations and zoning code and the proposed land use designations and zoning under the Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives would be a land use regulation issue rather than a physical environmental consequence of implementing these alternatives, and therefore would not be considered a significant effect under NEPA in and of itself.

The Cordova Hills site is zoned as Special Planning Area under the Sacramento County General Plan. Consistent with the Sacramento County General Plan and the principles of Smart Growth, the proposed Cordova Hills land uses would entail a mix of low-, medium-, and high-density residential units, local and community parks, commercial development, schools (including a university campus), and other public/quasi-public uses. As previously stated, land use and zoning designations consistent with development of the Proposed Action were adopted by the Sacramento County Board of Supervisors in 2013 following adoption of the Cordova Hills EIR.

The Pilatus site is zoned AG-80 and is designated as General Agriculture in the Sacramento County General Plan, and it is located outside of the County's Urban Policy Area (UPA). Therefore, if that alternative were selected for implementation, a rezone and general plan amendment to change the land use designations.

Although it is only advisory, the SACOG Blueprint provides policy guidance in the Sacramento region for long-term regional land use and transportation planning that would potentially result in the protection of additional natural resources (because less land would be required for urban uses), less conversion of agricultural land, and

reduction in traffic that would improve air quality in the region. The Blueprint does not establish land use restrictions on any jurisdiction and SACOG has no land use authority. SACOG makes clear that the land use designations presented in the Blueprint Preferred Scenario are conceptual and reflect general land use locations in a local area. Therefore, this EIS simply considers whether or not the alternatives under consideration would be consistent or inconsistent with the SACOG Blueprint. Any such inconsistencies, in and of themselves, would not represent a physical effect on the environment.

Because the Final EIR has already been certified, all Final EIR Mitigation Measures, the Rezone and Tentative Large Lot Parcel Map Conditions of Approval, and the obligations found in the Development Agreement (collectively referred to as the project entitlements) are considered a part of the Proposed Action. Thus, these measures and requirements are considered when analyzing the significance of effects under the Proposed Action. Because the project entitlements were imposed on the Proposed Action by the County as part of its approval process, it is reasonable to assume that if one of the action alternatives were adopted, the County would impose similar conditions during the entitlement of the alternative.

THRESHOLDS OF SIGNIFICANCE

The determinations of the significance of effects for this analysis are based on professional standards regularly used in environmental review documents in the region. These thresholds encompass the factors taken into account under NEPA to determine the significance of an action in terms of its context and the intensity of its effects. These are also informed by the environmental checklist in Appendix G of the State CEQA Guidelines. The alternatives under consideration were determined to result in a significant adverse effect related to agricultural resources and land use if they would do any of the following:

- ▶ convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the FMMP of the California Resources Agency, to non-agricultural use;
- ▶ result in improper early cancellation of a Williamson Act contract;
- ▶ involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use;
- ▶ conflict with existing zoning for, or cause rezoning of, forest land (as defined in California PRC Section 12220[g]), timberland (as defined in California PRC Section 4526), or timberland zoned Timberland Production (as defined by California Government Code Section 51104[g]) or result in the loss of forest land or conversion of forestland to non-forest use;
- ▶ physically divide an established community; or
- ▶ conflict with any applicable land use plan, policy, or regulation of an agency (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) with jurisdiction over the project adopted for the purpose of avoiding or mitigating an environmental effect.

In addition to the thresholds stated above, under Sacramento County General Plan Policy AG-5, projects resulting in conversion of more than 50 acres inside the Urban Service Boundary (USB) of the following farmland designations must include mitigation: Prime, Statewide Importance, Unique, and Local Importance. Outside of the

USB, mitigation is required for all of the above farmland classifications plus Grazing Land (County of Sacramento 2011:9).

Effects to Forest Land—Neither the Cordova Hills or Pilatus sites contain any forest land (as defined in California PRC Section 12220[g]), timberland (as defined by California PRC Section 4526), or timberland zoned Timberland Production (as defined by California Government Code Section 51104[g]). Thus, there would be no effect, and these issues are not evaluated further in this EIS.

Physical Division of an Established Community—The Cordova Hills and Pilatus sites consist of livestock grazing lands, and there are no residences. The surrounding area is primarily grazing land with scattered rural residences and public facilities, and is not recognized as an established community. Therefore, implementing the Proposed Action or one of the Alternatives would not physically divide an established community, and this issue is not evaluated further in this EIS.

Conflicts with Land Use Policies Adopted for the Purpose of Mitigating an Environmental Effect—Implementation of the Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives would entail similar land uses as the Proposed Action, but the locations of these land uses and roadways would not match the land use designations and circulation diagram in the County’s General Plan, and therefore would require amendment of the General Plan Land Use Diagram and Transportation Plan. Implementation of the Pilatus Alternative would require a rezone and general plan amendment as well as an expansion of the UPA for the northern portion of the Pilatus site. However, because there would be no physical environmental effects associated with these policy actions, these issues are not evaluated further in this EIS. Any inconsistencies between the alternatives under consideration and County General Plan policies that were adopted for the purpose of mitigating an environmental effect are addressed as individual, topic-specific effects within Sections 3.1 through 3.17 of this EIS, where applicable.

3.2.5 ENVIRONMENTAL CONSEQUENCES AND MITIGATION MEASURES

EFFECTS ANALYSIS

Effects that would occur under each alternative development scenario are identified as follows: NA (No Action), PA (Proposed Action), EDP (Expanded Drainage Preservation), EP (Expanded Preservation), P (Pilatus), and RC (Regional Conservation). The effects for each alternative are compared relative to the PA at the end of each effect conclusion (i.e., similar, greater, lesser).

EFFECT 3.2-1	Conversion of Important Farmland to Nonagricultural Use. <i>Implementation of the Proposed Action or the Alternatives would convert Unique Farmland and Grazing land to nonagricultural uses.</i>
-----------------	---

NA

Under the No Action Alternative, no development would occur and there would be no new uses that would convert agricultural land to nonagricultural uses. Therefore, **no indirect** or **direct** effects would occur. [*Lesser*]

Mitigation Measure: No mitigation measures are required.

PA

As discussed above, the Cordova Hills site is primarily mapped as Grazing Land, but approximately 8.6 acres are mapped as Unique Farmland. The agricultural use that formed the basis of the Unique Farmland designation (a planted eucalyptus grove) no longer exists and currently the land mapped as Unique Farmland is essentially indistinguishable from the remainder of the Cordova Hills site and used as grazing. Implementation of the Proposed Action would result in the conversion of approximately 2,669 acres of Grazing Land and 8.6 acres of Unique Farmland to nonagricultural uses.

Under Sacramento County General Plan Policy AG-5, mitigation is required for conversion of Grazing Land outside of the USB, and for Unique Farmland that is inside or outside of the USB. Implementation of the Proposed Action would convert approximately 247 acres of Grazing land outside of the USB and 8.6 acres of Unique Farmland that is inside the USB, for a total of approximately 255.6 acres.

As part of the CEQA EIR certification and project approval process, the project applicant committed to implementing various mitigation measures for the Proposed Action. The mitigation measures that are applicable to agricultural resources that were incorporated into the Proposed Action by the EIR mitigation measures, conditions of approval, and development agreement (project entitlements) are listed below:

- ▶ The applicant shall disclose to all prospective buyers of properties within 500 feet of the northern property boundary that they could be subject to inconvenience or discomfort resulting from accepted farming activities as per provisions of the County Right-To-Farm Ordinance and shall include a Note on all final maps disclosing the Right-To-Farm Ordinance (*Final EIR Mitigation Measure AG-1*).
- ▶ The applicant shall enter into an agreement with an agricultural operator to maintain grazing use, or other more intensive use, on the land which is subject to Williamson Act contract 72-AP-109. Agricultural use shall be maintained until Williamson Act contract expiration. Documentation of this agreement shall be submitted to the Environmental Coordinator prior to approval of the zoning agreement for the Williamson Act contracted property (*Final EIR Mitigation Measure AG-2*).
- ▶ Prior to the approval of improvement plans, building permits, or recordation of the final map, whichever occurs first, the applicant shall offset the loss of 8.6 acres of Unique Farmland and 247 acres of Grazing Land through 1:1 preservation of farmland within a permanent conservation easement. Preservation land must be in-kind or of similar resource value (*Final EIR Mitigation Measure AG-3*).

Under the Proposed Action, the project applicant would offset the loss of Unique Farmland and Grazing Land through the preservation of farmland with a permanent conservation easement. Because Final EIR Mitigation Measures AG-1, AG-2, and AG-3 have been incorporated into the Proposed Action, the **direct** effect of agricultural conversion to nonagricultural uses would **less than significant**. **No indirect** effects would occur. No other mitigation measures were identified to further reduce these effects.

EDP, EP, RC

As discussed above, the Cordova Hills site is primarily mapped Grazing Land, but approximately 8.6 acres are mapped as Unique Farmland. Thus, implementation of the Expanded Drainage Preservation, Expanded

Preservation, and Regional Conservation Alternatives would result in the conversion of approximately 2,669 acres of Grazing Land and 8.6 acres of Unique Farmland to nonagricultural uses.

Under Sacramento County General Plan Policy AG-5, mitigation is required for conversion of Grazing Land that is outside of the USB, and for Unique Farmland that is inside or outside of the USB. Implementation of the Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives would convert approximately 247 acres of Grazing land that is outside of the USB and approximately 8.6 acres of Unique Farmland that is inside the USB, for a total of approximately 255.6 acres. This **direct** effect would be **significant**. **No indirect** effects would occur. *[Similar]*

As part of the CEQA EIR certification and project approval process, various mitigation measures were incorporated into the project entitlements. Because these mitigation measures were incorporated into the Proposed Action, it is reasonable to assume that they would also be incorporated into the four action alternatives, if any of those alternatives were adopted. The mitigation measures that are applicable to this effect that were incorporated into the Proposed Action by the project entitlements are listed below:

- ▶ The applicant shall disclose to all prospective buyers of properties within 500 feet of the northern property boundary that they could be subject to inconvenience or discomfort resulting from accepted farming activities as per provisions of the County Right-To-Farm Ordinance and shall include a Note on all final maps disclosing the Right-To-Farm Ordinance (*Final EIR Mitigation Measure AG-1*).
- ▶ The applicant shall enter into an agreement with an agricultural operator to maintain grazing use, or other more intensive use, on the land which is subject to Williamson Act contract 72-AP-109. Agricultural use shall be maintained until Williamson Act contract expiration. Documentation of this agreement shall be submitted to the Environmental Coordinator prior to approval of the zoning agreement for the Williamson Act contracted property (*Final EIR Mitigation Measure AG-2*).
- ▶ Prior to the approval of improvement plans, building permits, or recordation of the final map, whichever occurs first, the applicant shall offset the loss of 8.6 acres of Unique Farmland and 247 acres of Grazing Land through 1:1 preservation of farmland within a permanent conservation easement. Preservation land must be in-kind or of similar resource value (*Final EIR Mitigation Measure AG-3*).

Implementation of Final EIR Mitigation Measures AG-1, AG-2, and AG-3 would reduce the significant effect from conversion of agricultural land to urban uses under the Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives to a **less-than-significant** level because permanent preservation of in-kind or similar land would ensure that agricultural lands are preserved in the Cordova Hills area. No other mitigation measures were identified to further reduce these effects.

P

The Pilatus site consists of approximately 882.5 acres of Grazing Land that would be converted to nonagricultural uses under implementation of the Pilatus Alternative (DOC 2012). Approximately 32 acres of the Pilatus Alternative site falls outside the USB. The Pilatus Alternative also includes the land that is part of the Proposed Action. As described above, this area includes approximately 247 acres of Grazing Land that is outside of the USB and approximately 8.6 acres of Unique Farmland that is inside the USB that would be converted. Therefore, under the Pilatus Alternative, a total of 8.6 acres of Unique Farmland inside the USB and 279 acres of Grazing

Land outside of the USB would be converted to nonagricultural uses. This **direct** effect would be **significant**. No **indirect** effects would occur. *[Greater]*

As part of the CEQA EIR certification and project approval process, various mitigation measures were incorporated into the project entitlements. Because these mitigation measures were incorporated into the Proposed Action, it is reasonable to assume that they would also be incorporated into the four action alternatives, if any of those alternatives were adopted. The mitigation measures that are applicable to this effect that were incorporated into the Proposed Action by the project entitlements are listed below:

- ▶ The applicant shall disclose to all prospective buyers of properties within 500 feet of the northern property boundary that they could be subject to inconvenience or discomfort resulting from accepted farming activities as per provisions of the County Right-To-Farm Ordinance and shall include a Note on all final maps disclosing the Right-To-Farm Ordinance (*Final EIR Mitigation Measure AG-1*).
- ▶ The applicant shall enter into an agreement with an agricultural operator to maintain grazing use, or other more intensive use, on the land which is subject to Williamson Act contract 72-AP-109. Agricultural use shall be maintained until Williamson Act contract expiration. Documentation of this agreement shall be submitted to the Environmental Coordinator prior to approval of the zoning agreement for the Williamson Act contracted property (*Final EIR Mitigation Measure AG-2*).
- ▶ Prior to the approval of improvement plans, building permits, or recordation of the final map, whichever occurs first, the applicant shall offset the loss of 8.6 acres of Unique Farmland and 247 acres of Grazing Land through 1:1 preservation of farmland within a permanent conservation easement. Preservation land must be in-kind or of similar resource value (*Final EIR Mitigation Measure AG-3*).

In addition to the mitigation measures from the CEQA EIR, the project applicant shall also implement the mitigation measure listed below.

Mitigation Measure 3.2-1: Off-Set the Loss of Grazing Land.

Prior to the approval of improvement plans, building permits, or recordation of the final map, whichever occurs first, the project applicant shall offset the loss of 32 acres of Grazing Land through 1:1 preservation of farmland within a permanent conservation easement. Preservation land must be in-kind or of similar resource value.

Implementation: Project applicant.

Timing: Prior to the approval of improvement plans, building permits, or the final map, whichever occurs first.

Enforcement: Sacramento County.

Implementation of Final EIR Mitigation Measures AG-1, AG-2, and AG-3 and Mitigation Measure 3.2-1 would reduce the significant effect associated with conversion of Unique Farmland and Grazing Land under the Pilatus Alternative to a **less-than-significant** level because permanent preservation of in-kind or similar land would ensure that agricultural lands are preserved in the Cordova Hills area. USACE does not have authority to enforce this mitigation measure; Sacramento County would be the enforcement agency. Because the County has already

approved the Proposed Action and identified mitigation measures and actions for the project, it is uncertain that this mitigation measure would be implemented; however, since a similar mitigation measure (Final EIR Mitigation Measure AG-3) was imposed for the Proposed Action, there is a high likelihood that the County would impose this measure if the Pilatus Alternative were selected. No other mitigation measures were identified to further reduce these effects.

EFFECT **Result in Early Cancellation of a Williamson Act Contract.** *Implementation of the Proposed Action or*
3.2-2 *the Alternatives could result in the improper early cancellation of an existing Williamson Act Contract.*

NA

Under the No Action Alternative, no development would occur and there would be no new uses that would result in the early cancellation of a Williamson Act Contract. Therefore, **no indirect** or **direct** effects would occur. *[Lesser]*

Mitigation Measure: No mitigation measures are required.

PA

As discussed above under “Affected Environment,” there is one existing Williamson Act Contract within the Cordova Hills site. The contract was initiated on February 23, 1972 and encompasses approximately 480 acres on parcel APN 073-0040-024. The landowner initiated the nonrenewal process for this contract in February 2007 (Exhibit 3.2-3). Under the nonrenewal process the contract will expire in 2016, and the land will no longer be subject to Williamson Act Contract restrictions. However, if the parcel under nonrenewal were to be developed with urban uses prior to 2016, this would represent a conflict with the existing Williamson Act Contract.

As part of the CEQA EIR certification and project approval process, the project applicant committed to implementing various mitigation measures for the Proposed Action. The mitigation measures that are applicable to agricultural resources that were incorporated into the Proposed Action by the EIR mitigation measures, conditions of approval, and development agreement (project entitlements) are listed below:

- ▶ The applicant shall enter into an agreement with an agricultural operator to maintain grazing use, or other more intensive use, on the land which is subject to Williamson Act contract 72-AP-109. Agricultural use shall be maintained until Williamson Act contract expiration. Documentation of this agreement shall be submitted to the Environmental Coordinator prior to approval of the zoning agreement for the Williamson Act contracted property (*Final EIR Mitigation Measure AG-2*).

Under the Proposed Action, the project applicant would continue to use the land that is under a Williamson Act Contract for agricultural purposes until the contract expires. Because Final EIR Mitigation Measure AG-2 has been incorporated into the Proposed Action, the **direct** effect of early cancellation of a Williamson Act Contract would be **less than significant**. **No indirect** effects would occur. No other mitigation measures were identified to further reduce these effects.

EDP, EP, RC

There is one existing Williamson Act Contract within the Cordova Hills site. The contract was initiated on February 23, 1972 and encompasses approximately 480 acres on parcel APN 073-0040-024. The landowner

initiated the nonrenewal process for this contract in February 2007 (Exhibit 3.2-3). Under the nonrenewal process the contract will expire in 2016, and the land will no longer be subject to Williamson Act Contract restrictions. However, if the parcel under nonrenewal were to be developed with urban uses prior to 2016, this would represent a conflict with the existing Williamson Act Contract. This **direct** effect is **potentially significant**. **No indirect** effects would occur. *[Similar]*

As part of the CEQA EIR certification and project approval process, various mitigation measures were incorporated into the project entitlements. Because these mitigation measures were incorporated into the Proposed Action, it is reasonable to assume that they would also be incorporated into the four action alternatives, if any of those alternatives were adopted. The mitigation measures that are applicable to this effect that were incorporated into the Proposed Action by the project entitlements are listed below:

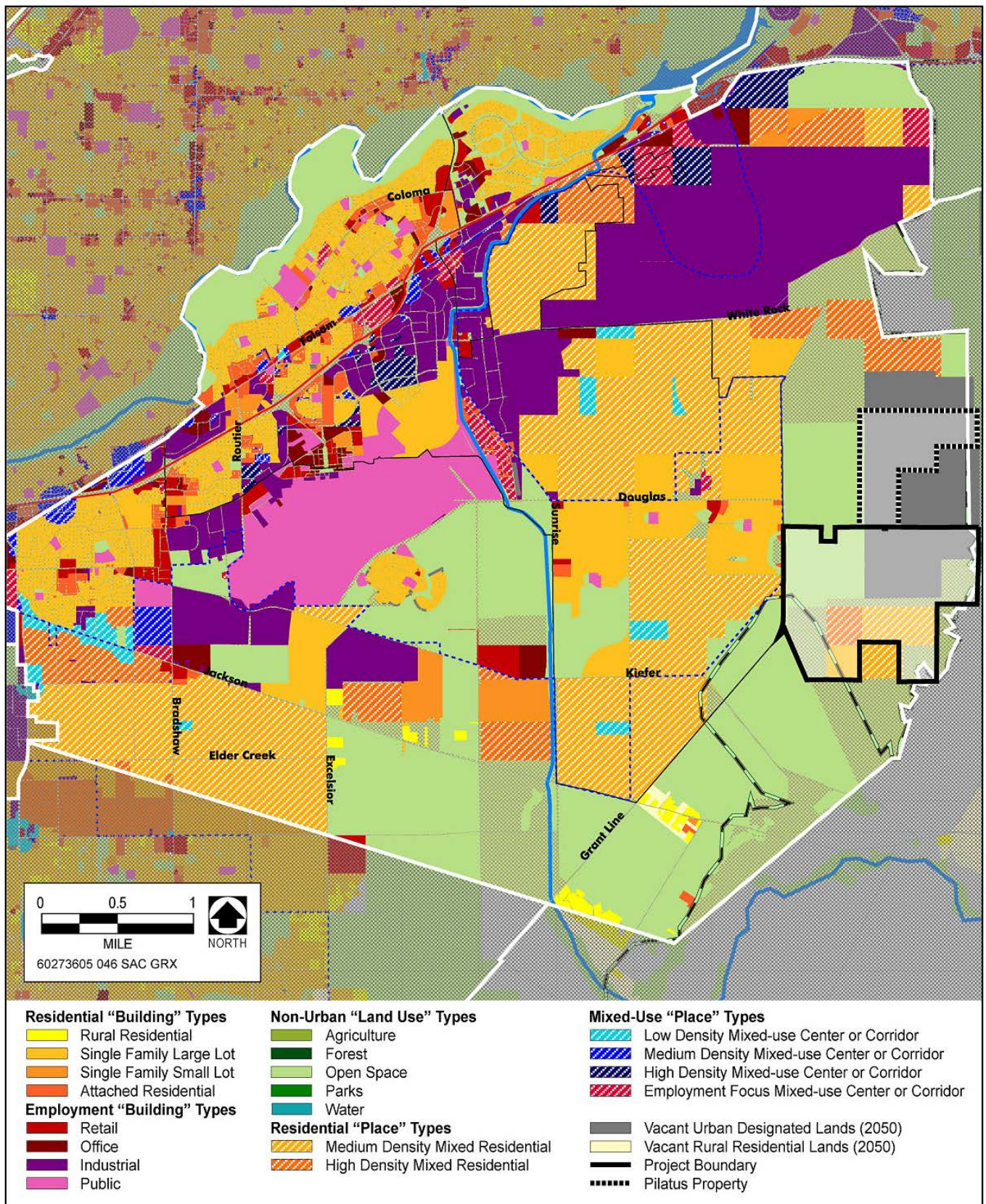
- ▶ The applicant shall enter into an agreement with an agricultural operator to maintain grazing use, or other more intensive use, on the land which is subject to Williamson Act contract 72-AP-109. Agricultural use shall be maintained until Williamson Act contract expiration. Documentation of this agreement shall be submitted to the Environmental Coordinator prior to approval of the zoning agreement for the Williamson Act contracted property (*Final EIR Mitigation Measure AG-2*).

Implementation of Final EIR Mitigation Measure AG-2 would reduce the potentially significant effect from early cancellation of a Williamson Act Contract under the Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives to a **less-than-significant** level because the project applicant would continue to use the land that is under a Williamson Act Contract for agricultural purposes until the contract expires. No other mitigation measures were identified to further reduce these effects.

P

Development of the Pilatus Alternative would include construction of a northern access road which would cut across land under an active Williamson Act Contract (72-AP-37). This contract specifically lists roads and streets as compatible uses for land under this contract. While this appears to be compatible with the road proposed under the Pilatus Alternative, the road could cause 100 acres of grazing land to be isolated from the rest of the grazing land on the Williamson Act parcels. This isolation could cause the land to be unused, which is contrary to the purpose of the Williamson Act Contract. From this perspective, the Pilatus Alternative could adversely affect approximately 100 acres of contracted land. Conservatively assuming the loss of approximately 100 acres, the productivity of the land being grazed would only be reduced by approximately seven animals. Therefore, this potential conflict would be less than significant.

The parcels in the northern portion of the Pilatus site have all completed the nonrenewal process. However, the remainder of the Pilatus Alternative encompasses the Cordova Hills site that is part of the Proposed Action. There is one existing Williamson Act Contract within this area, as described above. The contract encompasses approximately 480 acres on parcel APN 073-0040-024 (Exhibit 3.2-4). The landowner initiated the nonrenewal process for this contract in February 2007. Under the nonrenewal process the contract will expire in 2016, and the land will no longer be subject to Williamson Act Contract restrictions. However, if the parcel under nonrenewal were to be developed with urban uses prior to 2016, this would represent a conflict with the existing Williamson Act Contract. This **direct** effect is **potentially significant**. **No indirect** effects would occur. *[Similar]*



Source: SACOG 2004, adapted by AECOM in 2013

Exhibit 3.2-4

Blueprint Preferred Alternative

As part of the CEQA EIR certification and project approval process, various mitigation measures were incorporated into the project entitlements. Because these mitigation measures were incorporated into the Proposed Action, it is reasonable to assume that they would also be incorporated into the four action alternatives, if any of those alternatives were adopted. The mitigation measures that are applicable to this effect that were incorporated into the Proposed Action by the project entitlements are listed below:

- ▶ The applicant shall enter into an agreement with an agricultural operator to maintain grazing use, or other more intensive use, on the land which is subject to Williamson Act contract 72-AP-109. Agricultural use shall be maintained until Williamson Act contract expiration. Documentation of this agreement shall be submitted to the Environmental Coordinator prior to approval of the zoning agreement for the Williamson Act contracted property (*Final EIR Mitigation Measure AG-2*).

Implementation of Final EIR Mitigation Measure AG-2 would reduce the potentially significant effect from early cancellation of a Williamson Act Contract under the Pilatus Alternative to a **less-than-significant** level because the project applicant would continue to use the land that is under a Williamson Act Contract for agricultural purposes until the contract expires. No other mitigation measures were identified to further reduce these effects.

EFFECT 3.2-3 **Inconsistency with the SACOG Blueprint Principles.** *Implementation of the Proposed Action or the Alternatives would be inconsistent with some of the SACOG Blueprint Principles.*

NA

Under the No Action Alternative, no development project would be implemented, and existing land uses would continue on the Cordova Hills site. The Blueprint concept plan (Exhibit 3.2-4) shows agriculture and some urban place types (including medium- and high-density mixed residential place types) on the Cordova Hills site. The concept plan contains a note indicating that some of the land is designated for urban uses but is expected to be vacant up to the year 2050. The concept plan is not intended for parcel-level interpretation, and should not be construed as depicting specific, preferred development locations. Instead, the concept plan should be interpreted as displaying preferred overall patterns. In this context, the Blueprint indicates that development should be city-centric, focusing growth within the confines of incorporated city boundaries as a logical buildout from existing urban areas. Thus, the fact that no urban uses would be constructed on the Cordova Hills site under the No Action Alternative would be generally consistent with the concept of city-centered, focused growth.

The Blueprint identifies seven principles. Five of these principles, including transportation choices, mixed-use development, compact development, housing choices and quality design provide guidance on the form that future development in the region should take, and are not directly applicable to an alternative which would include no development. The remaining two principles, use of existing assets and natural resource preservation, refer to the city-centric development pattern and preservation of sensitive natural resources areas. The Cordova Hills site is located approximately 4 miles from the nearest existing community and would not use existing assets. The Cordova Hills site also contains vernal pool habitats; please refer to Section 3.4, “Biological Resources” for a discussion of habitat and natural resources on the Cordova Hills site. Therefore, the lack of urban development on the Cordova Hills site under the No Action Alternative would avoid urban land uses far from existing communities, avoid loss of sensitive natural resources, and be consistent with Blueprint principles. Although implementation of the No Action Alternative would be consistent with some of the Blueprint’s principals, this consistency would not in and of itself have an effect on the physical environment. Furthermore, the Blueprint does

not establish land use restrictions on any jurisdiction and SACOG has no land use authority. SACOG makes clear that the land use designations presented in the Blueprint Preferred Scenario are conceptual and reflect general land use locations in a local area. In summary, the No Action Alternative would be **consistent** with the SACOG Sacramento Region Preferred Blueprint Scenario.

PA

The Blueprint concept plan (Exhibit 3.2-4) depicts conceptual buildout in the year 2050. The concept plan shows agriculture and some urban place types (including medium- and high-density mixed residential place types) on the Cordova Hills site. The concept plan contains a note indicating that some of the land is designated for urban uses but is expected to be vacant up to the year 2050. Because this map is not intended for parcel-level interpretation, it should not be construed as depicting specific, preferred development locations but should instead be interpreted as displaying preferred overall patterns. In this context, the Blueprint indicates that development should be city-centric, focusing growth within the confines of incorporated city boundaries as a logical buildout from existing urban areas. Although the concept plan shows some urban development on the Cordova Hills site, the Proposed Action would go beyond the level of development assumed outside of the city areas by the year 2050. The sections below discuss the Proposed Action's conformity with the seven blueprint principles.

Transportation Choices. The Proposed Action would accommodate a mix of transportation modes, including residential collectors and arterials for vehicles, a network designed to accept Neighborhood Electric Vehicles on most interior roadways, a mass transit system operated by the Cordova Hills Community Services District, on-street bicycle lanes and off-street multi-use trails, pedestrian bridges, and pedestrian underpasses. The Proposed Action's street network would deviate from the grid pattern; this deviation is intended to promote decreased reliance upon automobiles for internal travel by making non-automotive routes the most direct line of travel between locations on the Cordova Hills site in many cases. The Proposed Action would provide a variety of transportation choices, and would be generally consistent with this principle to provide a variety of transportation choices.

Mixed-Use Developments. The Proposed Action would accommodate a mix of uses, including a mixed-use town center area and flex commercial neighborhood centers. Housing units on the Cordova Hills site would generally be located within a 1/2-mile walk of retail or entertainment uses, and within a 1/4-mile walk of internal transit routes. The Proposed Action would be generally consistent with this principle to provide mixed-use developments.

Compact Development. The Proposed Action would have a net density of 10 units per acre, or 9 units per acre if the University/College Campus Center is excluded. The Proposed Action would accommodate development that would be approximately twice as dense as the average of 5 units per acre in unincorporated Sacramento County, and would be consistent with this principle to promote compact development.

Housing Choice and Diversity. The Proposed Action would accommodate a variety of housing types, ranging from estate lots of 1 to 4 units per acre, to dense multifamily areas of 30 to 40 dwelling units per acre. Based on Table 3.1 in the Cordova Hills Master Plan, the percentage of housing types is approximately 2 percent High-Density Residential 2 (HDR) (30 – 40 units per acre), 20 percent HDR 1 (20 – 30 units per acre), 11 percent RD 20 (20 units per acre), 39 percent Medium-Density Residential (MDR) (7 – 15 units per acre), 24 percent Low-Density Residential (LDR) (4 – 7 units per acre), 2 percent Estate Residential (ER) (1 – 7 units per acre), and 2 percent GC (General Commercial—units integrated into commercial buildings). From these totals it is

apparent that the Proposed Action includes a reasonable range of housing densities. The development regulations in Chapter 4 of the Cordova Hills Master Plan describe a range of housing types, including single-family residential, townhomes, duplexes, triplexes, multifamily housing, and mixed uses with housing above other uses. The Proposed Action would accommodate a variety of housing choices, and would be generally consistent with this principle to provide housing choices and diversity.

Use of Existing Assets. The Proposed Action would be constructed at a location that is approximately 1 mile from existing homes and adjacent to USACE permitted mixed-use development. The Proposed Action would consist of construction of a new community on currently undeveloped land, would not use existing built assets, and therefore would conflict with this principle to use existing assets.

Quality Design. The Proposed Action would include design guidelines that are intended to create a variety of building façades and treatments to retain a unified theme. Standards would address setbacks, garage locations and treatments, architectural massing, roof forms, streetscape massing, plans and styles, colors and materials, and architectural principles. A variety of compatible architectural styles would be permitted to allow villages and neighborhoods to be distinguished from one another. The Proposed Action would also include a variety of open space types integrated with the residential and commercial areas, designed to make walking and bicycling more attractive. The Proposed Action would include development regulations and design guidelines that would foster quality design, and would therefore be consistent with this principle.

Natural Resources Conservation. The objective of this principle is to preserve the most sensitive and prime natural resources. Wetland resources on the Cordova Hills site are considered to be sensitive resources; please refer to Section 3.4, “Biological Resources” for a discussion of natural resource and habitat on the Cordova Hills site. The Proposed Action would avoid 539 acres of land on the 2,669-acre Cordova Hills site, or approximately 18 percent of the total site area. The largest of these avoided areas contains the largest assemblage of vernal pool features on the Cordova Hills site, and is 298 acres. The boundaries of this 298-acre avoided area were defined through a watershed analysis prepared by the applicant to determine the upland area that would be necessary to maintain adequate functioning of the wetlands in the avoided area. Though the Proposed Action would avoid or preserve some wetlands, the Proposed Action would nonetheless result in the loss of 44 percent of the waters of the U.S. on the Cordova Hills site, including 33 percent of the vernal pool acreage and would not meet the intent of this Blueprint principle.

The Proposed Action would include a variety of transportation choices, an array of housing choices, a mix of uses, a compact community, and quality design. However, the Proposed Action would conflict with the Blueprint principles calling for the preservation of the most sensitive and prime natural resources and the placement of new development in proximity to existing communities. Although implementation of the Proposed Action would result in inconsistency with some of the Blueprint’s principals, this inconsistency would not in and of itself have an affect on the physical environment. Furthermore, the Blueprint does not establish land use restrictions on any jurisdiction and SACOG has no land use authority. SACOG makes clear that the land use designations presented in the Blueprint Preferred Scenario are conceptual and reflect general land use locations in a local area. In summary, the Proposed Action would be **inconsistent** with the SACOG Sacramento Region Preferred Blueprint Scenario.

The Expanded Drainage Preservation, Pilatus, and Regional Conservation Alternatives would all apply similar land uses to the Cordova Hills and Pilatus sites to the Proposed Action. All of these alternatives would place a larger area of land into the Avoided Area land use designation (ranging from approximately 505 acres in the Regional Conservation Alternative to approximately 926 acres in the Expanded Drainage Preservation Alternative) (see Tables 3.4-4 through 3.4-9 in Section 3.4, “Biological Resources” for additional details regarding the types of wetlands and acreages preserved). This increased avoidance area would better meet the natural resources conservation objectives of the Blueprint than the Proposed Action, but would still result in the loss of sensitive natural resources and would therefore conflict with principle related to natural resource conservation. These alternatives would be similar to the Proposed Action with respect to consistency with the other six Blueprint principles (variety of transportation choices, array of housing choices, mix of uses, compact community, and quality design).

The Expanded Drainage Preservation, Pilatus, and Regional Conservation Alternatives would conflict with the principles calling for the preservation of the most sensitive and prime natural resources and the placement of new development in proximity to existing communities. These principles are fundamental to the Blueprint, and inconsistency with these principles would represent a conflict with the Blueprint. Although implementation of the Expanded Drainage Preservation, Pilatus, and Regional Conservation Alternatives would result in inconsistency with some of the Blueprint principals, this inconsistency would not in and of itself have an affect on the physical environment. Furthermore, the Blueprint does not establish land use restrictions on any jurisdiction and SACOG has no land use authority. SACOG makes clear that the land use designations presented in the Blueprint Preferred Scenario are conceptual and reflect general land use locations in a local area. In summary, the Expanded Drainage Preservation, Pilatus, and Regional Conservation Alternatives would be **inconsistent** with the SACOG Sacramento Region Preferred Blueprint Scenario.

EP

The Expanded Preservation Alternative would apply similar land uses to the Cordova Hills site to the Proposed Action, although this alternative would place a larger area of land into the Avoided Area land use designation (i.e., 1,193 acres) (see Tables 3.4-4 through 3.4-9 in Section 3.4, “Biological Resources” for additional details regarding the types of wetlands and acreages preserved). This increased avoidance area would better meet the natural resources conservation objectives of the Blueprint than the Proposed Action, but would still result in the loss of sensitive natural resources. This alternative would not include any land designated for Town Center, and less of the housing developed on the Cordova Hills site would be within walking distance of retail or entertainment, making this alternative inconsistent with the mixed-use development principle. The Expanded Preservation Alternative would be similar to the Proposed Action with respect to consistency with the other five Blueprint principles (variety of transportation choices, array of housing choices, compact community, and quality design).

The Expanded Preservation Alternative would conflict with the principles calling for the preservation of open space, mixing of uses, and supporting new development in proximity to existing communities. Inconsistency with these principles result in a conflict with the Blueprint. Although implementation of the Expanded Preservation Alternative would result in inconsistency with some of the Blueprint principals, this inconsistency would not in and of itself have an affect on the physical environment. Furthermore, the Blueprint does not establish land use

restrictions on any jurisdiction and SACOG has no land use authority. SACOG makes clear that the land use designations presented in the Blueprint Preferred Scenario are conceptual and reflect general land use locations in a local area. In summary, the Expanded Preservation Alternative would be **inconsistent** with the SACOG Sacramento Region Preferred Blueprint Scenario.

3.2.6 RESIDUAL SIGNIFICANT EFFECTS

Implementation of Final EIR Mitigation Measures AG-1, AG-2, and AG-3 along with Mitigation Measure 3.2-1 would reduce all effects related to agricultural resources to a less-than-significant level. Although USACE lacks the authority to direct implementation of Mitigation Measure 3.2-1, Sacramento imposed a similar mitigation measure (Final EIR Mitigation Measure AG-3) for the Proposed Action, and there is a high likelihood that the County would impose Mitigation Measure 3.2-1 if the Pilatus Alternative were selected. Therefore, no residual significant effects would occur.

3.2.7 CUMULATIVE EFFECTS

Because implementing the Proposed Action or Alternatives would have no physical effects on the environment related to land use, there would be no contribution to cumulative land use effects.

Land in the vicinity of the Cordova Hills and Pilatus sites has been converted from agricultural uses to urban development over the last 50 years, or is planned for conversion. Because of the soil types, land in the vicinity is generally most suitable for grazing land, rather than intensive agriculture such as row crops. Approximately 180,790 acres of land in Sacramento County was under Williamson Act Contracts in 2011 (DOC 2013b). Of these lands, approximately 11,704 acres were in the nonrenewal process (DOC 2013b). The nonrenewal process is the most common mechanism for termination of Williamson Act Contract lands and most Williamson Act Contracts are terminated through nonrenewal expiration. In Sacramento County, approximately 4,408 acres of land under of Williamson Act Contracts entered the nonrenewal process during 2009, and the amount of contracted land terminated through nonrenewal expirations was approximately 156 acres during 2009 (DOC 2010:32, 33).

Cancellation of Williamson Act Contracts

Approximately 480 acres of the Cordova Hills site are under an existing Williamson Act Contract. A notice of nonrenewal was filed on this parcel in 2007; as a result, this existing contract will expire in 2016. Implementation of Final EIR Mitigation Measure AG-2 would ensure that agricultural activities would continue on the land under nonrenewal until contract expiration in 2016. A review of DOC database information showing the locations of Williams Act Contracts indicates that land under active Williamson Act Contracts are located north, east, and south of the Cordova Hills and Pilatus sites. Development of new residential and commercial uses under the other foreseeable projects could encourage similar future development in the area, which could lead to early cancellation of land under a Williamson Act Contract. Nearby proposed projects, including the Teichert Quarry (as indicated in the Teichert Quarry Project EIR prepared by the County of Sacramento in 2008), would require cancellation of Williamson Act Contracts. Therefore, the other foreseeable projects would result in a cumulatively significant effect. Because agricultural activities would continue on Williamson Act land that is under nonrenewal on the Cordova Hills and Pilatus sites, the Proposed Action and Alternatives would not result in a cumulatively considerable contribution to this cumulatively significant effect.

Conversion of Farmland to Nonagricultural Uses

The Sacramento County Important Farmland map, published by DOC's Division of Land Resource Protection, designates the Cordova Hills site and Pilatus sites as mostly Grazing Land with a small amount of Unique Farmland (DOC 2012). Implementation of Final EIR Mitigation Measures AG-1, AG-2, and AG-3 along with Mitigation Measure 3.2-1 would reduce impacts on Important Farmland to a less-than-significant level. Important Farmland is located to the north, east, and south of the Cordova Hills and Pilatus sites. Development of new residential and commercial uses could encourage similar future development in the area, which could lead to the conversion of Important Farmland to nonagricultural uses. Therefore, the other foreseeable projects would result in a cumulatively significant effect. Because the project would offset the loss of Important Farmland with in-kind preservation under a conservation easement, the Proposed Action or Alternatives would not result in a cumulatively considerable contribution to this cumulatively significant effect.

3.3 AIR QUALITY

3.3.1 INTRODUCTION

This section summarizes applicable regulations pertaining to air quality, describes the existing local and regional air quality conditions, and analyzes the potential air quality effects of the alternatives under consideration. The methods used to analyze temporary and short-term construction- and operation-related (i.e., local and regional) emissions of criteria air pollutants, toxic air contaminants (TACs), and odors are consistent with local air district recommendations and those from U.S. Environmental Protection Agency (EPA). Air quality modeling data is included in Appendix E. Feasible mitigation measures are recommended, as appropriate, to reduce adverse effects on air quality.

3.3.2 AFFECTED ENVIRONMENT

The Cordova Hills and Pilatus sites are located in eastern Sacramento County, California. Sacramento County is within the Sacramento Valley Air Basin (SVAB), which also includes all of Butte, Colusa, Glenn, Shasta, Sutter, Tehama, Yolo, and Yuba Counties, the western portion of Placer County, and the eastern portion of Solano County. Air quality within the SVAB is regulated by eight local air districts. For Sacramento County, the Sacramento Metropolitan Air Quality Management District (SMAQMD) is the primary local agency responsible for maintaining air quality in the region. Air quality in this area is determined by such natural factors as topography, climate, and meteorology, in addition to the presence of existing air pollution sources and conditions. These factors are discussed below.

TOPOGRAPHY, CLIMATE, AND METEOROLOGY

The SVAB is relatively flat, bordered by mountains to the east, west, and north. Air flows into the SVAB through the Carquinez Strait, the only breach in the western mountain barrier, and moves across the Sacramento–San Joaquin Delta, bringing with it pollutants from the heavily populated San Francisco Bay Area. The climate is characterized by hot, dry summers and cool, rainy winters. Periods of dense and persistent low-level fog that is most prevalent between storms is characteristic of SVAB winter weather. From May to October, the region’s intense heat and sunlight lead to high ozone concentrations. Summer inversions are strong and frequent, but are less troublesome than those that occur in the fall. Autumn inversions, formed by warm air subsiding in a region of high pressure, have accompanying light winds that do not provide adequate dispersion of air pollutants.

Most precipitation in the area results from air masses that move in from the Pacific Ocean during the winter months. These storms usually move from the west or northwest. A large majority (approximately 15.06 inches of the estimated total annual 18.08 inches) of the total estimated annual precipitation falls during the winter rainy season (November–February) where the average winter temperature is a moderate 51 degrees Fahrenheit (°F) (WRCC 2009). During the summer months (June to August), daily temperatures range from lows of 46°F to more than 100°F. The inland location and surrounding mountains shelter the area from much of the ocean breezes that keep the coastal regions moderate in temperature.

Regional wind patterns affect air quality by moving pollutants downwind of sources. Localized meteorological conditions, such as moderate winds, disperse pollutants and reduce pollutant concentrations. An inversion layer develops when a layer of warm air traps cooler air close to the ground. Such temperature inversions hamper dispersion by creating a ceiling over the area and trapping air pollutants near the ground. During summer

mornings and afternoons, these inversions are present over the SVAB. During the summer's longer daylight hours, plentiful sunshine provides the energy needed to fuel photochemical reactions between reactive organic gases (ROGs) and oxides of nitrogen (NO_x), which results in ozone formation.

In the winter, temperature inversions dominate during the night and early morning hours, but frequently dissipate by afternoon. The greatest pollution problems during this time of year are from carbon monoxide (CO) and NO_x. High CO concentrations occur on winter days with strong surface inversions and light winds. CO transport is extremely limited.

EXISTING AIR QUALITY – CRITERIA AIR POLLUTANTS

California and National Ambient Air Quality Standards

The California Air Resources Board (ARB) and EPA currently focus on the following air pollutants as indicators of ambient air quality: ozone, CO, nitrogen dioxide (NO₂), sulfur dioxide (SO₂), particulate matter (PM), and lead. Because these are the most prevalent air pollutants known to be deleterious to human health and extensive health-effects criteria documents are available, they are commonly referred to as “criteria air pollutants.”

EPA has established primary and secondary national ambient air quality standards (NAAQS) for the following criteria air pollutants: ozone, CO, NO₂, SO₂, respirable particulate matter (PM₁₀), fine particulate matter (PM_{2.5}), and lead. The primary standards protect the public health of the most sensitive populations (e.g., children, elderly, and asthmatics) and the secondary standards protect public welfare (e.g., visibility, vegetation damage). In addition, ARB has established California ambient air quality standards (CAAQS) for sulfates, hydrogen sulfide, vinyl chloride, visibility-reducing particulate matter, and the above-mentioned criteria air pollutants. In most cases the CAAQS are more stringent than the NAAQS. Differences in the standards are generally explained by the health-effects studies considered during the standard-setting process and the interpretation of the studies. In addition, the CAAQS incorporate an additional margin of safety to protect sensitive receptors, particularly children and infants (ARB 2009a). The NAAQS and CAAQS as discussed above are listed in Table 3.3-1.

Ozone

Ozone is a photochemical oxidant, a substance whose oxygen combines chemically with another substance in the presence of sunlight, and the primary component of smog. Ozone is not directly emitted into the air but is formed through complex chemical reactions between precursor emissions of ROGs and NO_x in the presence of sunlight. ROGs are volatile organic compounds (VOCs) that are photochemically reactive. ROG emissions result primarily from incomplete combustion and the evaporation of chemical solvents and fuels. NO_x are a group of gaseous compounds of nitrogen and oxygen that results from the combustion of fuels.

A highly reactive molecule, ozone readily combines with many different components of the atmosphere. Consequently, high levels of ozone tend to exist only while high ROG and NO_x levels are present to sustain the ozone formation process. After the precursors have been depleted, ozone levels rapidly decline. Because these reactions occur on a regional scale, ozone is a regional pollutant.

Ozone located in the upper atmosphere (stratosphere) acts in a beneficial manner by shielding the earth from harmful ultraviolet radiation that is emitted by the sun. However, ozone located in the lower atmosphere (troposphere) is a major health and environmental concern. Meteorology and terrain play a major role in ozone formation. Generally, low wind speeds or stagnant air coupled with warm temperatures and clear skies provide

**Table 3.3-1
Ambient Air Quality Standards and Designations**

Pollutant	Averaging Time	California		National Standards ^a		
		Standards ^{b, c}	Attainment Status ^d	Primary ^{c, e}	Secondary ^{c, f}	Attainment Status ^g
Ozone	1-hour	0.09 ppm (180 µg/m ³)	N (Serious)	– ^h	Same as Primary Standard	– ^h
	8-hour	0.070 ppm (137 µg/m ³)	N	0.075 ppm (147 µg/m ³)		N (Severe)
Respirable Particulate Matter (PM ₁₀)	Annual Arithmetic Mean	20 µg/m ³	N	– ^h	Same as Primary Standard	A
	24-hour	50 µg/m ³	N	150 µg/m ³		
Fine Particulate Matter (PM _{2.5})	Annual Arithmetic Mean	12 µg/m ³	N	12.0 µg/m ³	15 µg/m ³	U/A
	24-hour	–	–	35 µg/m ³	Same as Primary Standard	N ⁱ
Carbon Monoxide (CO)	1-hour	20 ppm (23 mg/m ³)	A	35 ppm (40 mg/m ³)	–	A
	8-hour	9.0 ppm (10 mg/m ³)	A	9 ppm (10 mg/m ³)	–	A
Nitrogen Dioxide (NO ₂)	Annual Arithmetic Mean	0.030 ppm (57 µg/m ³)	A ^j	0.053 ppm (100 µg/m ³)	Same as Primary Standard	U/A
	1-hour	0.18 ppm (339 µg/m ³)	A ^j	0.100 ppm (188 µg/m ³)	–	U/A
Sulfur Dioxide (SO ₂)	Annual Arithmetic Mean	–	–	–	–	U
	24-hour	0.04 ppm (105 µg/m ³)	A	–	–	
	3-hour	–	–	–	0.5 ppm (1300 µg/m ³)	
	1-hour	0.25 ppm (655 µg/m ³)	A	0.075 ppm (196 µg/m ³)	–	
Lead ^k	30-day Average	1.5 µg/m ³	A	–	–	–
	Rolling 3-Month Average	–	–	0.15 µg/m ³	Same as Primary Standard	U/A
Sulfates	24-hour	25 µg/m ³	A			
Hydrogen Sulfide	1-hour	0.03 ppm (42 µg/m ³)	U			
Vinyl Chloride ^k	24-hour	0.01 ppm (26 µg/m ³)	–		No National Standards	
Visibility-Reducing Particle Matter	8-hour	Extinction coefficient of 0.23 per kilometer—visibility of 10 miles or more (0.07–30 miles or more for Lake Tahoe) because of particles when the relative humidity is less than 70 percent.	U			

**Table 3.3-1
Ambient Air Quality Standards and Designations**

Pollutant	Averaging Time	California		National Standards ^a		
		Standards ^{b, c}	Attainment Status ^d	Primary ^{c, e}	Secondary ^{c, f}	Attainment Status ^g

Notes:

- ^a National standards (other than ozone, PM, and those based on annual averages or annual arithmetic means) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration in a year, averaged over 3 years, is equal to or less than the standard. The PM₁₀ 24-hour standard is attained when 99 percent of the daily concentrations, averaged over 3 years, are equal to or less than the standard. The PM_{2.5} 24-hour standard is attained when 98 percent of the daily concentrations, averaged over 3 years, are equal to or less than the standard. Contact the U.S. Environmental Protection Agency (EPA) for further clarification and current Federal policies.
- ^b California standards for ozone, CO (except Lake Tahoe), SO₂ (1- and 24-hour), NO₂, PM, and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. California Ambient Air Quality Standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.
- ^c Concentration expressed first in units in which the standard was promulgated (i.e., parts per million [ppm] or micrograms per cubic meter [$\mu\text{g}/\text{m}^3$]). Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
- ^d Unclassified (U): a pollutant is designated unclassified if the data are incomplete and do not support a designation of attainment or nonattainment.
 Attainment (A): a pollutant is designated attainment if the state standard for that pollutant was not violated at any site in the area during a 3-year period.
 Nonattainment (N): a pollutant is designated nonattainment if there was a least one violation of a state standard for that pollutant in the area.
 Nonattainment/Transitional (NT): is a subcategory of the nonattainment designation. An area is designated nonattainment/transitional to signify that the area is close to attaining the standard for that pollutant.
- ^e National Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health.
- ^f National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
- ^g Nonattainment (N): any area that does not meet (or that contributes to ambient air quality in a nearby area that does not meet) the national primary or secondary ambient air quality standard for the pollutant.
 Attainment (A): any area that meets the national primary or secondary ambient air quality standard for the pollutant.
 Unclassifiable (U): any area that cannot be classified on the basis of available information as meeting or not meeting the national primary or secondary ambient air quality standard for the pollutant.
- ^h The 1-hour ozone National Ambient Air Quality Standard (NAAQS) was revoked on June 15, 2005 and the annual PM₁₀ NAAQS was revoked in 2006.
- ⁱ EPA lowered the 24-hour PM_{2.5} standard from 65 $\mu\text{g}/\text{m}^3$ to 35 $\mu\text{g}/\text{m}^3$ in 2006. EPA issued attainment status designations for the 35 $\mu\text{g}/\text{m}^3$ standard on December 22, 2008.
- ^j In 2007, the Air Resources Board lowered the 1-hour NO₂ standard from 0.25 ppm to 0.18 ppm and established a new annual standard of 0.030 ppm.
- ^k The California Air Resources Board has identified lead and vinyl chloride as toxic air contaminants with no threshold of exposure for adverse health effects. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for this pollutant.
- ^l The National standard for lead was revised on October 15, 2008 to a rolling 3-month average of 0.15 $\mu\text{g}/\text{m}^3$. The 1978 lead standard (1.5 $\mu\text{g}/\text{m}^3$ as a quarterly average) remains in effect one year after an area is designated for the 2008 standard, except if the area was previously in nonattainment under the 1978 standard. On December 31, 2010, Los Angeles County was designated as nonattainment for lead under the NAAQS. Therefore, the 3-month rolling average is now the applicable National lead standard. In addition, the 2012 Lead State Implementation Plan must achieve attainment of the new lead standard as expeditiously as practicable, but no later than December 31, 2015.

Sources: ARB 2010a, 2010d; SMAQMD 2013a

the optimum conditions for ozone formation. As a result, summer is generally the peak ozone season. Because of the reaction time involved, peak ozone concentrations often occur far downwind of the precursor emissions. In general, ozone concentrations over or near urban and rural areas reflect an interplay of emissions of ozone precursors, transport, meteorology, and atmospheric chemistry (Godish 2004).

The adverse health effects associated with exposure to ozone pertain primarily to the respiratory system. Scientific evidence indicates that ambient levels of ozone affect not only sensitive receptors, such as asthmatics and children, but healthy adults. Exposure to ambient levels of ozone ranging from 0.10 part per million (ppm) to 0.40 ppm for 1–2 hours has been found to substantially alter lung functions by increasing respiratory rates and pulmonary resistance, decreasing tidal volumes (the amount of air inhaled and exhaled), and impairing respiratory mechanics. Ambient levels of ozone above 0.12 ppm are linked to such symptoms as throat dryness, chest tightness, headache, and nausea. In addition to these adverse health effects, evidence exists relating ozone exposure to an increase in the permeability of respiratory epithelia; such increased permeability leads to an increased response of the respiratory system to challenges and a decrease in the immune system's ability to defend against infection (Godish 2004).

In 1997, EPA promulgated a new 8-hour standard in recognition of effects resulting from daylong exposure. On April 15, 2004, EPA designated areas of the country that exceed the 8-hour standard ozone standard as nonattainment. These designations have triggered new planning requirements for the 8-hour standard.

On-road motor vehicles and other mobile sources are by far the largest contributors to NO_x emissions. According to the 2008 emissions inventory for Sacramento County, approximately 91 percent of NO_x emissions in Sacramento County are generated by on-road motor vehicles (ARB 2009b). More stringent mobile source emission standards and cleaner burning fuels have largely contributed to the decline in NO_x emissions. ROG emissions have been decreasing for the last 30 years because of more stringent motor vehicle standards and new rules for control of ROG from various industrial coating and solvent operations (ARB 2008a). Even so, the ozone problem in the SVAB ranks among the most severe in the state. Peak ozone values in the SVAB have not declined as quickly over the last several years as they have in other urban areas. The peak 8-hour concentration measured in Sacramento County remained fairly constant or increased from 2001 to 2010. In 2001, the peak concentration monitored was 0.108 ppm and in 2010, the peak concentration monitored was 0.112 (ARB 2012a). During this period, peak concentrations hit a low during 2004 of 0.094 ppm and a maximum of 0.123 ppm in 2008 and 2007 (ARB 2012a). Looking at the number of days above the state and national standards, the trend is much more variable, with national standard going from 50 days in 2001 to 20 days in 2010, while the state standard went from 62 days in 2001 to 27 days in 2010. Though in 2010 the number of days exceeding the state and Federal standard are less, the number of state exceedance days increased from 2001 levels in years 2002 (66), 2003 (70), 2006 (68), and 2008 (66), while Federal exceedance days increased from 2001 levels in years 2003 (51) and 2008 (51) (ARB 2012a).

Nitrogen Dioxide

NO₂ is a brownish, highly reactive gas that is present in all urban environments. The major human made sources of NO₂ are combustion devices, such as boilers, gas turbines, and mobile and stationary reciprocating internal combustion engines. Combustion devices emit primarily nitric oxide (NO), which reacts through oxidation in the atmosphere to form NO₂ (EPA 2009a). The combined emissions of NO and NO₂ are referred to as NO_x and reported as equivalent NO₂. Because NO₂ is formed and depleted by reactions associated with photochemical

smog (ozone), the NO₂ concentration in a particular geographical area may not be representative of the local NO_x emission sources.

Inhalation is the most common route of exposure to NO₂. Because NO₂ has relatively low solubility in water, the principal site of toxicity is in the lower respiratory tract. The severity of the adverse health effects depends primarily on the concentration inhaled rather than the duration of exposure. An individual may experience a variety of acute symptoms, such as coughing, difficulty with breathing, vomiting, headache, and eye irritation, during or shortly after exposure. After a period of approximately 4–12 hours, an exposed individual may experience chemical pneumonitis or pulmonary edema with breathing abnormalities, cough, cyanosis, chest pain, and rapid heartbeat. Severe, symptomatic NO₂ intoxication after acute exposure has occasionally been linked with prolonged respiratory impairment with such symptoms as chronic bronchitis and decreased lung function (EPA 2009a).

From 2001 to 2010, the maximum NO_x concentration monitored within the SVAB has decreased from 0.172 ppm to 0.095 ppm (ARB 2012b). The average basinwide annual average also decreased from 0.013 ppm in 2001 to 0.008 ppm in 2010. In this time, the state NO_x standard has not been exceeded. Though this is a positive trend for regional air quality, it should be noted that NO_x is an ozone precursor, for which the region continues to have exceedances of the state and Federal (ozone) standards.

Carbon Monoxide

CO is a colorless, odorless, and poisonous gas produced by incomplete burning of carbon in fuels, primarily from mobile (transportation) sources. In fact, 56 percent of the nationwide CO emissions are from on-road mobile sources and 22 percent from non-road engines and vehicles such as construction equipment and boats. Other sources of CO emissions include industrial processes (such as metals processing and chemical manufacturing), residential wood burning, and natural sources such as forest fires.

CO enters the bloodstream through the lungs by combining with hemoglobin, which normally supplies oxygen to the cells. However, CO combines with hemoglobin much more readily than oxygen does, resulting in a drastic reduction in the amount of oxygen available to the cells. Adverse health effects associated with exposure to CO concentrations include such symptoms as dizziness, headaches, and fatigue. CO exposure is especially harmful to individuals who suffer from cardiovascular and respiratory diseases (EPA 2009a).

The highest CO concentrations are generally associated with cold, stagnant weather conditions that occur during winter. In contrast to problems caused by ozone, which tends to be a regional pollutant, CO problems tend to be localized. The region has not had an exceedance or monitored concentrations greater than 62 percent (5.58 ppm) of the 8-hour standard in the last 10 years (ARB 2012c).

Sulfur Dioxide

SO₂ is produced by such stationary sources as coal and oil combustion, steel mills, refineries, and pulp and paper mills. The major adverse health effects associated with SO₂ exposure pertain to the upper respiratory tract. SO₂ is a respiratory irritant; constriction of the bronchioles occurs with inhalation of SO₂ at 5 ppm or more. On contact with the moist mucous membranes, SO₂ produces sulfurous acid, which is a direct irritant. Concentration rather than duration of exposure is an important determinant of respiratory effects. Exposure to high SO₂ concentrations may result in edema of the lungs or glottis and respiratory paralysis.

Particulate Matter

Respirable particulate matter with an aerodynamic diameter of 10 micrometers or less is referred to as PM₁₀. PM₁₀ consists of particulate matter emitted directly into the air, such as fugitive dust, soot, and smoke from mobile and stationary sources; construction operations; fires and natural windblown dust; and particulate matter formed in the atmosphere by condensation and/or transformation of SO₂ and ROG (EPA 2009a). Fine particulate matter (PM_{2.5}) is a subgroup of PM₁₀, consisting of smaller particles that have an aerodynamic diameter of 2.5 micrometers or less (ARB 2008).

The adverse health effects associated with PM₁₀ depend on the specific composition of the particulate matter. For example, health effects may be associated with metals, polycyclic aromatic hydrocarbons (PAH), and other toxic substances adsorbed onto fine particulate matter (referred to as the “piggybacking effect”) or with fine dust particles of silica or asbestos. Generally, effects may result from both short-term and long-term exposure to elevated concentrations of PM₁₀ and may include breathing and respiratory symptoms, aggravation of existing respiratory and cardiovascular diseases, alterations to the immune system, carcinogenesis, and premature death (EPA 2008a). PM_{2.5} poses an increased health risk because the particles can deposit deep in the lungs and may contain substances that are particularly harmful to human health. Direct emissions of PM₁₀ and PM_{2.5} increased in the SVAB 1975 and 2005 and are projected to continue increasing through 2020 (ARB 2008).

The maximum 24-hour concentrations monitored within the SVAB in the last 10 years (i.e., from 2001 to 2010) have decreased from 122.6 ppm to 87.4 ppm for national methods and 112.0 ppm to 87.4 ppm for state methods (ARB 2012d). In addition, annual averages for both national and state measurement methods have decreased from approximately 30 ppm in 2001 to approximately 21 ppm in 2010 (ARB 2012d). The number of days exceeding the state standard has decreased from 49.9 days in 2001 to 12.2 days in 2010, but showed a spike in exceedance days in 2008 (68.7) and 2004 (79.5) (ARB 2012d).

Lead

Lead is a metal found naturally in the environment as well as in manufactured products. The major sources of lead emissions have historically been mobile and industrial sources. As a result of the phase-out of leaded gasoline (discussed in detail below), metal processing is currently the primary source of lead emissions. The highest levels of lead in air are generally found near lead smelters. Other stationary sources are waste incinerators, utilities, and lead-acid battery manufacturers.

Twenty years ago, mobile sources were the main contributor to ambient lead concentrations in the air. In the early 1970s, EPA set national regulations to gradually reduce the lead content in gasoline. In 1975, unleaded gasoline was introduced for motor vehicles equipped with catalytic converters. EPA banned the use of leaded gasoline in highway vehicles in December 1995 (EPA 2009a).

As a result of EPA’s regulatory efforts to remove lead from gasoline, emissions of lead from the transportation sector have declined dramatically (by 95 percent between 1980 and 1999), and levels of lead in the air decreased by 94 percent between 1980 and 1999. Of all lead emissions, transportation sources, primarily airplanes, contribute only 13 percent. A recent National Health and Nutrition Examination Survey reported a 78 percent decrease in the levels of lead in human blood between 1976 and 1991. This dramatic decline can be attributed to the move from leaded to unleaded gasoline (as well as the removal of lead from soldered cans) (EPA 2009a).

The decrease in lead emissions and ambient lead concentrations over the past 25 years is California's most dramatic success story with regard to air quality management. The rapid decrease in lead concentrations can be attributed primarily to phasing out the lead in gasoline. This phase-out began during the 1970s, and subsequent ARB regulations have virtually eliminated all lead from gasoline now sold in California. All areas of the state are currently designated as attainment for the state lead standard (EPA does not designate areas for the national lead standard). Although the ambient lead standards are no longer violated, lead emissions from stationary sources still pose "hot spot" problems in some areas. As a result, ARB identified lead as a toxic air contaminant.

Local Criteria Air Pollutant Emissions Inventory

The Cordova Hills and Pilatus sites are located in eastern Sacramento County. ARB has developed emissions inventories of stationary, areawide, and mobile sources for criteria air pollutant emissions within each county in California. The Sacramento County's year 2008 emissions inventory is shown in Table 3.3-2. As shown in Table 3.3-2, mobile sources account for approximately 58 percent, 87 percent, 91 percent, and 59 percent of the County's ROG, CO, NO_x, and SO_x, respectively. Areawide sources account for approximately 89 percent and 73 percent of the County's PM₁₀ and PM_{2.5} emissions, respectively.

Table 3.3-2 Summary of 2008 Estimated Emissions Inventory for Criteria Air Pollutants and Precursors (Sacramento County)						
Source Type/Category	Estimated Annual Average Emissions (tons per day)					
	ROG	CO	NO _x	SO _x	PM ₁₀	PM _{2.5}
Stationary Sources						
Fuel Combustion	0.35	3.73	3.62	0.07	0.42	0.41
Waste Disposal	0.34	0.05	0.05	0.00	0.01	0.01
Cleaning and Surface Coating	3.99	–	–	–	–	–
Petroleum Production and Marketing	2.49	0.01	0.00	–	–	–
Industrial Processes	0.91	0.27	0.23	0.07	1.07	0.47
Subtotal (Stationary Sources)	8.07	4.06	3.90	0.14	1.50	0.90
Areawide Sources						
Solvent Evaporation	13.23	–	–	–	0.01	0.01
Miscellaneous Processes	4.04	40.26	3.10	0.12	39.37	10.12
Subtotal (Areawide Sources)	17.27	40.26	3.10	0.12	39.38	10.12
Mobile Sources						
On-Road Motor Vehicles	22.69	209.32	44.06	0.18	2.04	1.45
Other Mobile Sources	12.94	86.01	24.91	0.19	1.51	1.34
Subtotal (Mobile Sources)	35.63	295.33	68.98	0.37	3.55	2.79
Total for Sacramento County	60.97	339.65	75.97	0.63	44.43	13.81
Notes: CO = carbon monoxide; NO _x = oxides of nitrogen; PM ₁₀ = respirable particulate matter; PM _{2.5} = fine particulate matter; ROG = reactive organic gases; SO _x = oxides of sulfur Totals in table may not add due to rounding. Source: ARB 2011						

California and National Area Designations

Criteria air pollutant concentrations are measured at several monitoring stations in the SVAB. However, the Cordova Hills and Pilatus sites are located in the eastern portion of Sacramento County. The monitoring station at Sloughhouse is the most representative air quality monitoring station for the Cordova Hills and Pilatus sites. The Sloughhouse monitoring station located at 7520 Sloughhouse Road is located approximately 2 miles south of the Cordova Hills and Pilatus sites. The Sloughhouse monitoring station monitors for ozone. For the remaining pollutants, air monitoring data was obtained from the next closest air monitoring station within the SVAB, which is the Del Paso Manor monitoring station located at 2701 Avalon Drive in Sacramento, California. In general, the ambient air quality measurements from these monitoring stations are representative of the air quality in the vicinity of the sites. Table 3.3-3 summarizes the air quality data from the most recent 3 years for these two monitoring stations.

Table 3.3-3 Summary of Annual Ambient Air Quality Data (2010–2012)^a			
	2010	2011	2012
Ozone (7520 Sloughhouse Road, Sloughhouse, 2 miles south)			
Maximum concentration (1-hour/8-hour average, ppm)	0.121/0.104	0.123/0.094	0.125/0.107
Number of days state 1-hour standard exceeded	3	9	10
Number of days 8-hour standard exceeded (state/national)	13/8	27/19	25/18
Nitrogen Dioxide (NO₂)^b			
Maximum concentration (1-hour, ppb)	52.0	47.0	51.0
Annual average concentration (ppb)	8	9	9
Number of days state 1-hour standard exceeded	0	0	0
Carbon Monoxide (CO)^b			
Maximum concentration (1-hour/8-hour average, ppm)	1.9/1.60	2.6/2.27	2.3/1.51
Number of days state 8-hour standard exceeded	0	0	0
Number of days national 8-hour standard exceeded	0	0	0
Fine Particulate Matter (PM_{2.5})^b			
Maximum concentration (µg/m ³) ^c	41.6	62.2	45.7
Number of days national standard exceeded (measured) ^d	0	3	0
Number of days national standard exceeded (estimated) ^d	0.0	9.5	0.0
Respirable Particulate Matter (PM₁₀)^b			
Maximum concentration (µg/m ³) ^c	44.0	66.0	43.0
Number of days state standard exceeded (measured/estimated) ^d	0/0.0	2/12.2	0/0.0
Number of days national standard exceeded (measured/estimated) ^d	0/0.0	0/0.0	0/0.0
Notes: µg/m ³ = micrograms per cubic meter; ppb = parts per billion; ppm = parts per million			
^a Data was obtained from the Sloughhouse monitoring station located at 7520 Sloughhouse Road in Sloughhouse, California unless noted otherwise.			
^b Data was obtained from the Del Paso Manor monitoring station located at 2701 Avalon Drive in Sacramento, California, which is approximately 10 miles northwest of the Cordova Hills and Pilatus sites.			
^c Maximum concentrations shown are based on California monitoring methods.			
^d Measured days are those days that an actual measurement was greater than the level of the state daily standard or the national daily standard. Measurements are typically collected every 6 days. Calculated days are the estimated number of days that a measurement would have been greater than the level of the standard had measurements been collected every day. The number of days above the standard is not necessarily the number of violations of the standard for the year.			
Sources: ARB 2013, EPA 2013			

Both ARB and EPA use this type of monitoring data to designate the attainment status with respect to the CAAQS and NAAQS, respectively, for criteria air pollutants. The purpose of these designations is to identify those areas with air quality problems and thereby initiate planning efforts for improvement. The three basic designation categories are “nonattainment,” “attainment,” and “unclassified.” A pollutant is designated “nonattainment” if there was at least one violation of a state standard for that pollutant in the area, or “attainment” if the state standard for that pollutant was not violated at any site in the area during a 3-year period. The category of “unclassified” is used in an area that cannot be classified on the basis of available information as meeting or not meeting standards. In addition, the California designations include a subcategory of the nonattainment designation, called nonattainment-transitional. The nonattainment-transitional designation is given to nonattainment areas that are progressing and nearing attainment. The attainment status of the SVAB is shown in Table 3.3-4.

Pollutant	Designation/Classification	
	California	National
Ozone (1-Hour)	Nonattainment (Serious) ^a	-
Ozone (8-Hour)	Nonattainment	Nonattainment (Severe) ^b
Carbon Monoxide (CO)	Attainment	Attainment
Nitrogen Dioxide (NO ₂)	Attainment	Unclassified/Attainment
Sulfur Dioxide (SO ₂)	Attainment	Attainment ^c
Respirable Particulate Matter (PM ₁₀)	Nonattainment	Attainment
Fine Particulate Matter (PM _{2.5})	Nonattainment	Unclassified/Attainment ^c
Lead ^d	Attainment	Unclassified/Attainment
Sulfates	Attainment	No National Standards
Hydrogen Sulfide	Unclassified	
Vinyl Chloride	-	
Visibility Reducing Particles	Unclassified	
Notes:		
^a Per California Health and Safety Code Section 40921.5(c), the classification is based on 1989-1991 data, and therefore does not change.		
^b Designation and classification is based on the 2008 ozone standard.		
^c The Sacramento Valley Air Basin is classified as unclassified/attainment for the current annual PM _{2.5} ; however, EPA is scheduled to make final designations on December 14, 2014. The region is classified as nonattainment for the Federal 24-hour standard.		
^d Attainment status is pending.		
Source: SMAQMD 2013a		

EXISTING AIR QUALITY – TOXIC AIR CONTAMINANTS

A TAC, or, in Federal terms, a hazardous air pollutant (HAP), is defined as an air pollutant that may cause or contribute to an increase in mortality or in serious illness, or that may pose a hazard to human health. TACs are usually present in minute quantities in the ambient air; however, their high toxicity or health risk may pose a

threat to public health even at low concentrations. In general, for those TACs that may cause cancer, there is no concentration that does not present some risk. In other words, there is no threshold level below which adverse health effects may not be expected to occur. This contrasts with the criteria air pollutants for which acceptable levels of exposure can be determined and for which the ambient standards have been established (Table 3.3-1).

According to the *California Almanac of Emissions and Air Quality 2009 Edition* (ARB 2009c), the majority of the estimated health risk from TACs can be attributed to relatively few compounds, the most important being PM from diesel-fueled engines (diesel PM). Diesel PM differs from other TACs in that it is not a single substance, but rather a complex mixture of hundreds of substances. Although diesel PM is emitted by diesel-fueled internal combustion engines, the composition of the emissions varies depending on engine type, operating conditions, fuel composition, and lubricating oil, and whether an emission control system is present. Unlike the other TACs, no ambient monitoring data are available for diesel PM because no routine measurement method currently exists. However, ARB has made preliminary concentration estimates based on a PM exposure method. This method uses the ARB emissions inventory's PM₁₀ database, ambient PM₁₀ monitoring data, and the results from several studies on chemical speciation to estimate concentrations of diesel PM. In addition to diesel PM, benzene, 1, 3-butadiene, acetaldehyde, carbon tetrachloride, hexavalent chromium, *para*-dichlorobenzene, formaldehyde, methylene chloride, and perchloroethylene are the TACs for which data are available that pose the greatest existing ambient risk in California.

Diesel PM poses the greatest health risk in the SVAB among these 10 TACs mentioned (ARB 2009c). Based on receptor modeling techniques, ARB estimated its health risk to be 360 excess cancer cases per million people in the SVAB in year 2000 (ARB 2009c). Since 1990, the health risk associated with diesel PM has been reduced by 52 percent (ARB 2009c). Overall, levels of most TACs, except for *para*-dichlorobenzene (10 percent increase), acetaldehyde (1 percent), and formaldehyde (4 percent), have gone down since 1990 (ARB 2009c).

EXISTING AIR QUALITY –ODORS

Typically odors are regarded as an annoyance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache).

With respect to odors, the human nose is the sole-sensing device. The ability to detect odors varies considerably among the population and overall is quite subjective. Some individuals have the ability to smell minute quantities of specific substances; others may not have the same sensitivity but may have sensitivities to odors of other substances. In addition, people may have different reactions to the same odor; in fact, an odor that is offensive to one person (e.g., from a fast-food restaurant) may be perfectly acceptable to another. It is also important to note that an unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. This is because of the phenomenon known as odor fatigue, in which a person can become desensitized to almost any odor and recognition only occurs with an alteration in the intensity.

Quality and intensity are two properties present in any odor. The quality of an odor indicates the nature of the smell experience. For instance, if a person describes an odor as flowery or sweet, then the person is describing the quality of the odor. Intensity refers to the strength of the odor. For example, a person may use the word "strong" to describe the intensity of an odor. Odor intensity depends on the odorant concentration in the air. When an odorous sample is progressively diluted, the odorant concentration decreases. As this occurs, the odor intensity weakens and eventually becomes so low that the detection or recognition of the odor is quite difficult. At some

point during dilution, the concentration of the odorant reaches a detection threshold. An odorant concentration below the detection threshold means that the concentration in the air is not detectable by the average human.

3.3.3 REGULATORY FRAMEWORK/APPLICABLE LAWS, REGULATIONS, PLANS, AND POLICIES

In accordance with USACE regulations at 33 CFR 320.4(j)(2), the primary responsibility for determining zoning and land use matters rests with state, local, and tribal governments. The USACE will accept those determinations unless there are significant issues of overriding national importance. State laws and regulations are provided for informational purposes and to assist with NEPA review. USACE has considered applicable state, regional, and local plans and ordinances as a part of the environmental review process for this EIS, such as those under the jurisdiction of SMAQMD, as NEPA Cooperating Agency for this EIS.

Sacramento County certified an EIR and approved the Proposed Action in January 2013. State, regional, and local plans, policies, laws, and ordinances were considered in the EIR and adopted mitigation measures have been incorporated into the Proposed Action.

FEDERAL PLANS, POLICIES, REGULATIONS, AND LAWS

Criteria Air Pollutants

At the Federal level, EPA has been charged with implementing national air quality programs. EPA's air quality mandates are drawn primarily from the Federal CAA, which was enacted in 1970. The most recent major amendments made by Congress were in 1990.

The CAA required EPA to establish primary and secondary NAAQS (Table 3.3-1). The CAA also required each state to prepare an air quality control plan referred to as a State Implementation Plan (SIP). The Federal Clean Air Act Amendments of 1990 (CAAA) added requirements for states with nonattainment areas to revise their SIPs to incorporate additional control measures to reduce air pollution. The SIP is modified periodically to reflect the latest emissions inventories, planning documents, and rules and regulations of the air basins as reported by their jurisdictional agencies. EPA has responsibility for reviewing all state SIPs to determine conformation to the mandates of the CAAA and determine whether implementation will achieve air quality goals. If EPA determines a SIP to be inadequate, a Federal Implementation Plan (FIP) that imposes additional control measures may be prepared for the nonattainment area. Failure to submit an approvable SIP or to implement the plan within the mandated time frame may result in application of sanctions to transportation funding and stationary air pollution sources in the air basin.

In addition, general conformity requirements were adopted by Congress as part of the CAAA and were implemented by EPA regulations in 1993. General conformity requires that all Federal actions conform to the SIP as approved or promulgated by EPA. The purpose of the general conformity program is to ensure that actions taken by the Federal government do not undermine state or local efforts to achieve and maintain NAAQS. Before a Federal action is taken, it must be evaluated for conformity with the SIP. All reasonably foreseeable emissions, both direct and indirect, predicted to result from the action are taken into consideration and must be identified as to location and quantity. However, General Conformity only applies to the emissions that result directly from the Federal action or decision. In the case of the Proposed Action or alternatives, the USACE would authorize earth fill of waterways and thus construction-related emissions associated with those fill activities would be considered

direct emissions. Indirect emissions for which the USACE does not have oversight (i.e., long-term operational emissions occurring in future years) are not subject to General Conformity. If it is found that the action would create emissions above *de minimis* threshold levels specified in EPA regulations, the action cannot proceed unless mitigation measures are specified that would bring the action into conformance.

General conformity applies in both Federal nonattainment and maintenance areas. Within these areas, it applies to any Federal action not specifically exempted by the CAA or EPA regulations. Emissions from construction activities are also included. General conformity does not apply to projects or actions that are covered by the transportation conformity rule. If a Federal action falls under the general conformity rule, the Federal agency responsible for the action is responsible for making the conformity determination. In some instances, a state will make the conformity determination under delegation from a Federal agency. Private developers are not responsible for making a conformity determination, but can be directly affected by a determination. General conformity with respect to the Proposed Action or the Alternatives will be determined within the record of decision.

Toxic Air Contaminants

EPA has programs for identifying and regulating HAPs. Title III of the CAAA directed EPA to promulgate national emissions standards for HAPs (NESHAP). The NESHAP for major sources of HAPs may differ from those for area sources. Major sources are defined as stationary sources with potential to emit more than 10 tpy of any HAP or more than 25 tpy of any combination of HAPs; all other sources are considered area sources.

The CAAA called on EPA to promulgate emissions standards in two phases. In the first phase (1992–2000), EPA developed technology-based emissions standards designed to reduce emissions as much as feasible. These standards are generally referred to as requiring maximum available control technology (MACT). For area sources, the standards may be different, based on generally available control technology. In the second phase, EPA promulgated health risk–based emissions standards were deemed necessary to address risks remaining after implementation of the technology-based NESHAP standards.

The CAAA also required EPA to promulgate vehicle or fuel standards containing reasonable requirements that control toxic emissions of, at a minimum, benzene and formaldehyde. Performance criteria were established to limit mobile-source emissions of benzene, formaldehyde, and 1,3-butadiene. In addition, Section 219 of the CAAA required the use of reformulated gasoline in selected areas with the most severe ozone nonattainment conditions to further reduce mobile-source emissions.

Odors

There are no Federal plans, policies, regulations, or laws related to odors that would be relevant to the alternatives under consideration.

STATE PLANS, POLICIES, REGULATIONS, AND LAWS

Criteria Air Pollutants

ARB is the agency responsible for coordination and oversight of state and local air pollution control programs in California and for implementing the California Clean Air Act (CCAA). The CCAA, which was adopted in 1988, required ARB to establish CAAQS (Table 3.3-1). The CCAA requires that all local air districts in the state

endeavor to achieve and maintain the CAAQS by the earliest practical date. The act specifies that local air districts should focus particular attention on reducing the emissions from transportation and areawide emission sources, and provides districts with the authority to regulate indirect sources.

Other ARB responsibilities include overseeing compliance with California and Federal laws by local air districts, approving local air quality plans, submitting SIPs to EPA, monitoring air quality, determining and updating area designations and maps, and setting emissions standards for new mobile sources, consumer products, small utility engines, off-road vehicles, and fuels.

ARB and local air pollution control districts are currently developing plans for meeting new national air quality standards for ozone and PM_{2.5}. California's adopted 2007 State Strategy was submitted to EPA as a revision to the SIP in November 2007 (ARB 2008b). In July 2011, ARB approved revisions to the SIP that updated ARB rulemaking calendar, made adjustments to transportation conformity budgets, and revised reasonable further progress tables and associated reductions for contingency purposes (ARB 2011b). These actions affect the state's actions and ability to attain the new 8-hour and PM_{2.5} standards.

Toxic Air Contaminants

TACs in California are regulated primarily through the Tanner Air Toxics Act (Assembly Bill [AB] 1807 [Chapter 1047, Statutes of 1983]) and the Air Toxics Hot Spots Information and Assessment Act (AB 2588 [Chapter 1252, Statutes of 1987]). AB 1807 sets forth a formal procedure for ARB to designate substances as TACs. Research, public participation, and scientific peer review must occur before ARB can designate a substance as a TAC. To date, ARB has identified more than 21 TACs and adopted EPA's list of HAPs as TACs. Most recently, diesel PM was added to the ARB list of TACs.

After a TAC is identified, ARB then adopts an airborne toxics control measure (ATCM) for sources that emit that particular TAC. If there is a safe threshold for a substance at which there is no toxic effect, the control measure must reduce exposure below that threshold. If there is no safe threshold, the measure must incorporate best available control technologies (BACT) to minimize emissions; for example, the ATCM limits truck idling to 5 minutes (Title 13, Section 2485 of the California Code of Regulations).

The Air Toxics Hot Spots Information and Assessment Act requires that existing facilities that emit toxic substances above a specified level prepare an inventory of toxic emissions, prepare a risk assessment if emissions are significant, notify the public of significant risk levels, and prepare and implement risk reduction measures.

ARB has adopted control measures for diesel PM and more stringent emissions standards for various on-road mobile sources of emissions, including transit buses and off-road diesel equipment (e.g., tractors, generators). In February 2000, ARB adopted a new rule for public-transit bus fleets and emissions standards for new urban buses. These new rules and standards include all the following elements:

- ▶ more stringent emission standards for some new urban bus engines, beginning with 2002 model year engines;
- ▶ zero-emission bus demonstration and purchase requirements applicable to transit agencies; and
- ▶ reporting requirements, under which transit agencies must demonstrate compliance with the public-transit bus fleet rule.

Recent and future milestones include the low-sulfur diesel fuel requirement and tighter emissions standards for heavy-duty diesel trucks (2007) and off-road diesel equipment (2011) nationwide. Over time, replacing older vehicles will result in a vehicle fleet that produces substantially lower levels of TACs than under current conditions. Mobile-source emissions of TACs (e.g., benzene, 1,3-butadiene, diesel PM) have been reduced significantly over the last decade and will be reduced further in California through a progression of regulatory measures (e.g., Low Emission Vehicle/Clean Fuels and Phase II reformulated gasoline regulations) and control technologies. With implementation of ARB's Risk Reduction Plan, it is expected that diesel PM concentrations will be reduced by 75 percent in 2010 and 85 percent in 2020 from the estimated year-2000 level. Adopted regulations are also expected to continue to reduce formaldehyde emissions from cars and light-duty trucks. As emissions are reduced, it is expected that risks associated with exposure to the emissions will also be reduced.

In addition, the *Air Quality and Land Use Handbook: A Community Health Perspective*, published by ARB, provides guidance on land use compatibility with sources of TACs (ARB 2005). The handbook is not a law or adopted policy but offers advisory recommendations for the siting of sensitive receptors near uses associated with TACs, such as freeways and high-traffic roads, commercial distribution centers, rail yards, ports, refineries, dry cleaners, gasoline stations, and industrial facilities, to help keep children and other sensitive populations out of harm's way.

Odors

There are no state plans, policies, regulations, or laws related to odors that would be relevant to the alternatives under consideration.

REGIONAL AND LOCAL PLANS, POLICIES, REGULATIONS, AND LAWS

Criteria Air Pollutants

Sacramento Metropolitan Air Quality Management District

SMAQMD attains and maintains air quality conditions in Sacramento County through a comprehensive program of planning, regulation, enforcement, technical innovation, and promotion of the understanding of air quality issues. The clean-air strategy of SMAQMD includes the preparation of plans for the attainment of ambient air-quality standards, adoption and enforcement of rules and regulations concerning sources of air pollution, and issuance of permits for stationary sources of air pollution. SMAQMD also inspects stationary sources of air pollution and responds to citizen complaints, monitors ambient air quality and meteorological conditions, and implements programs and regulations required by the CAA and CAAA, and the CCAA.

SMAQMD's *Guide to Air Quality Assessment in Sacramento County* is an advisory document that provides lead agencies, consultants, and project applicant(s) with uniform procedures for addressing air quality in environmental documents. A new version of the guide was updated in June 2011 and supersedes the version released in July 2004 (SMAQMD 2009a). The new version of the guide does not include the development of new thresholds of significance; however, it does include updated methodologies for evaluating potential effects and refined list of recommended mitigation measures. In addition, the guide contains the following applicable components:

- ▶ criteria and thresholds for determining whether a project may have a significant adverse air quality effect;
- ▶ specific procedures and modeling protocols for quantifying and analyzing air quality effects;

- ▶ methods available to mitigate air quality effects; and
- ▶ information for use in air quality assessments and EIRs that will be updated more frequently such as air quality data, regulatory setting, climate, and topography.

Sacramento Metropolitan Air Quality Management District Rules and Regulations

As mentioned above, SMAQMD adopts rules and regulations. All projects are subject to SMAQMD rules and regulations in effect at the time of construction. Specific rules applicable to the construction of the project may include, but are not limited to, the following:

Rule 201: General Permit Requirements. Any project that includes the use of equipment capable of releasing emissions to the atmosphere may require permit(s) from SMAQMD before equipment operation. The applicant, developer, or operator of a project that includes an emergency generator, boiler, or heater should contact SMAQMD early to determine whether a permit is required, and to begin the permit application process. Portable construction equipment (e.g., generators, compressors, pile drivers, lighting equipment) with an internal combustion engine over 50 horsepower (hp) are required to have a SMAQMD permit or ARB portable equipment registration.

Rule 403: Fugitive Dust. The developer or contractor is required to control dust emissions from earthmoving activities or any other construction activity to prevent airborne dust from leaving the SPA.

In addition, effective as of October 10, 2005, if modeled construction-generated emissions for a project are not reduced to SMAQMD's threshold of significance (85 pounds per day [lb/day]) by the application of the standard construction mitigation, then an off-site construction mitigation fee is recommended. The fee must be paid before a grading permit can be issued. This fee is used by SMAQMD to purchase off-site emissions reductions. Such purchases are made through SMAQMD's Heavy Duty Incentive Program, through which select owners of heavy-duty equipment in Sacramento County can repower or retrofit their old engines with cleaner engines or technologies. SMAQMD provides a Mitigation Fee Calculator for determining the fee for construction projects when off-site mitigation is needed (SMAQMD 2009b).

Air Quality Plans

SMAQMD, in coordination with the air quality management districts and air pollution control districts of El Dorado, Placer, Solano, Sutter, and Yolo Counties, prepares air quality attainment plans (AQAP) in compliance with the requirements set forth in the CCAA. The CCAA also requires a triennial assessment of the extent of air quality improvements and emission reductions achieved through the use of control measures. As part of the assessment, the attainment plan must be reviewed and, if necessary, revised to correct for deficiencies in progress and to incorporate new data or projections. Triennial reports have been prepared since 1994 and include updates in 1997, 2000, 2003, and most recently in 2009 in compliance with the CCAA.

Sacramento County is also part of the Sacramento Federal Ozone Nonattainment Area (SFNA), which also comprises of Yolo County and portions of Placer, and Solano Counties. As a nonattainment area, the region is also required to submit rate-of-progress milestone evaluations in accordance with the CAAA. Milestone reports were prepared for 1996, 1999, 2002, 2006, and most recently in 2008 for the 8-hour ozone standard. The most recent 2008 milestone report demonstrated that the Sacramento Region has met the requirement of reducing volatile organic compounds (VOC) by 15 percent from 1990 to 1996.

The Sacramento region was classified by EPA on June 15, 2004, as a “serious” nonattainment area for the national 8-hour ozone standard with an attainment deadline of June 15, 2013. Emission reductions needed to achieve the air quality standard were identified based on air quality modeling. An evaluation of proposed new control measures and associated ROG and NO_x emission reductions concluded that no set of feasible controls was available to provide the needed emission reductions before the attainment deadline year. Given the magnitude of the shortfall in emission reductions and the schedule for implementing new control measures, the earliest possible attainment demonstration year for the Sacramento region is determined to be the “severe” area deadline of June 15, 2019. Section 181(b)(3) of the CAA permits a state to request that EPA reclassify a nonattainment area to a higher classification and extend the time allowed for attainment. This process is appropriate for areas that must rely on longer term strategies to achieve the emission reductions needed for attainment. On May 5, 2010, EPA approved SMAQMD’s request for “severe” designation, which became effective June 4, 2010. Future AQAP and rate-of-progress evaluations would reflect this designation and attainment demonstration deadline.

For PM_{2.5}, pursuant to the requirements of the Federal CAA, SMAQMD, in coordination with El Dorado Air Quality Management District, Placer County Air Pollution Control District, and Yolo-Solano Air Quality Management District, developed its PM_{2.5} Implementation/Maintenance Plan and Redesignation Request for Sacramento PM_{2.5} Nonattainment Area (PM_{2.5} Plan) (SMAQMD 2013b). The plan fulfills the Federal CAA requirements for nonattainment areas to develop attainment plans that cover air monitoring, emissions inventory, control measures, and contingency plans. The PM_{2.5} Plan fulfills all these requirements and also requests a redesignation to attainment from EPA. The PM_{2.5} Plan was submitted to EPA in December 2013, and EPA is scheduled to announce final designations by December 14, 2014.

Toxic Air Contaminants

At the local level, air pollution control or management districts may adopt and enforce ARB control measures. Under SMAQMD Rule 202 (New Source Review), all sources that possess the potential to emit TACs must obtain permits from the district. Permits may be granted to these operations if they are constructed and operated in accordance with applicable regulations, including new-source review standards and air toxics control measures. SMAQMD limits emissions and public exposure to TACs through a number of programs. The district prioritizes TAC-emitting stationary sources based on the quantity and toxicity of the TAC emissions and the proximity of the facilities to sensitive receptors.

Sources that require a permit are analyzed by SMAQMD (e.g., health risk assessment) based on their potential to emit toxics. If it is determined that the project would emit toxics in excess of SMAQMD’s threshold of significance for TACs (identified below), sources have to implement the BACT for TACs (T-BACT) to reduce emissions. If a source cannot reduce the risk below the threshold of significance even after T-BACT has been implemented, SMAQMD will deny the permit required by the source. This helps to prevent new problems and reduces emissions from existing older sources by requiring them to apply new technology for controlling TACs when retrofitting emissions sources. It is important to note that the air quality permitting process applies only to stationary sources; properties that may be exposed to elevated levels of TACs from nonstationary sources (e.g., high traffic-volume roadways, truck yards) and the nonstationary sources themselves are not subject to this process or to any requirements of T-BACT implementation. Rather, emissions controls on nonstationary sources are subject to regulations implemented on the state and Federal level.

Odors

SMAQMD adopted a nuisance rule that addresses odor exposure. Rule 402 states that no person shall discharge from any source whatsoever such quantities of air contaminants or other material that cause injury, detriment, nuisance, or annoyance to any considerable number of persons, or to the public, or that endanger the comfort, repose, health, or safety of any such persons, or the public, or that cause to have a natural tendency to cause injury or damage to business or property. The provisions of Rule 402 do not apply to odors emanating from agricultural operations necessary for the growing of crops or raising of fowl or animals.

SMAQMD recommends that odor effects be addressed in a qualitative manner. Such an analysis shall determine whether the project would result in excessive nuisance odors, as defined under the California Code of Regulations and Section 41700 of the California Health and Safety Code, and thus would constitute a public nuisance related to air quality.

Two situations increase the potential for odor problems. The first occurs when a new odor source is located near existing sensitive receptors. The second occurs when new sensitive receptors are developed near existing sources of odors. In the first situation, SMAQMD recommends operational changes, add-on controls, process changes, or buffer zones where feasible to address odor complaints. In the second situation, the potential conflict is considered significant if the plan area is at least as close as any other site that has already experienced significant odor problems related to the odor source. For projects being developed near a source of odors where there is no nearby development that may have filed complaints, and for odor sources being developed near existing sensitive receptors, SMAQMD recommends that the determination of potential conflict be based on the distance and frequency at which odor complaints from the public have occurred in the vicinity of a similar facility.

Odors in Sacramento County are regulated by SMAQMD. SMAQMD does not have specific rules or standards related to odor emissions. Any actions related to odors are based on citizen complaints to local governments and/or to SMAQMD.

3.3.4 ANALYSIS METHODOLOGY

This analysis relies on information provided from Section 3.15, “Traffic and Transportation.”

Air quality effects that could result from construction and operational activities related to buildout of the Proposed Action or Alternatives were evaluated based on required construction activities for the proposed land uses, schedule of construction, and the locations of the activities. Construction emissions evaluated in this analysis were obtained from the *Cordova Hills Final EIR*, which had modeled construction-related air quality emissions. Operational emissions were modeled using ARB’s most recent on-road emissions inventory model, EMFAC2011 and URBEMIS2007 Version 9.2.4. Construction and operational air quality emissions were compared with the applicable *de minimis* thresholds (described further below) to determine significance. These thresholds are used to determine if the Proposed Action and alternatives are significant of a project-level; however, these thresholds are also used to determine if the evaluated emissions would be considered a cumulatively considerable contribution to regional impacts.

Because the Final EIR has already been certified, all Final EIR Mitigation Measures, the Rezone and Tentative Large Lot Parcel Map Conditions of Approval, and the obligations found in the Development Agreement (collectively referred to as the project entitlements) are considered a part of the Proposed Action. Thus, these

measures and requirements are considered when analyzing the significance of effects under the Proposed Action. Because the project entitlements were imposed on the Proposed Action by the County as part of its approval process, it is reasonable to assume that if one of the action alternatives were adopted, the County would impose similar conditions during the entitlement of the alternative.

THRESHOLDS OF SIGNIFICANCE

The determinations of the significance of effects for this analysis are based on professional standards regularly used in environmental review documents in the region. These thresholds encompass the factors taken into account under NEPA to determine the significance of an action in terms of its context and the intensity of its effects. These are also informed by the environmental checklist in Appendix G of the State CEQA Guidelines. The alternatives under consideration were determined to result in a significant effect related to air quality if they would do any of the following:

- ▶ conflict with or obstruct implementation of the applicable air quality plan;
- ▶ violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- ▶ 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);
- ▶ expose sensitive receptors to substantial pollutant concentrations; or
- ▶ create objectionable odors affecting a substantial number of people.

In accordance with SMAQMD-recommended thresholds for evaluating air quality effects (SMAQMD 2009), project implementation would result in a significant effect if operation of the alternatives under consideration would:

- ▶ **Construction Emissions**
 - generate construction-related criteria air pollutant or precursor emissions that exceed 85 lbs/day for NO_x,
 - generate concentrations of any criteria air pollutant or precursors that exceed a CAAQS or NAAQS.
- ▶ **Operational Emissions**
 - generate daily operational precursor emissions that exceed 65 lbs/day for ROG and NO_x.
 - generate concentrations of any criteria air pollutant or precursors that exceed a CAAQS or NAAQS.

Sensitive Receptors

Carbon Monoxide Hotspots

SMAQMD has established a two-tier screening threshold to determine if a project would have the potential to exceed the CO ambient air quality standard. According to SMAQMD's CEQA Guide to Air Quality Assessment, a project has the potential to cause a localized exceedance of the CO standard if the project would 1) generate traffic that deteriorates an intersection's LOS to LOS E or F, or 2) contribute additional traffic to an intersection

that already operates at LOS E or F. SMAQMD recommends that projects use a second tier, which states that a project would result in a less-than-significant effect if the project would: 1) not result in an affected intersection experiencing more than 31,600 vehicles per hour; 2) not contribute traffic to a tunnel, parking garage, bridge underpass, urban street canyon, or below-grade roadway, or other locations where horizontal or vertical mixing of air would be substantially limited; and 3) not add a mix of vehicles that would be substantially different from the Sacramento County average.

Toxic Air Contaminants

- ▶ generate construction or operational emissions that cause an incremental increase in cancer risk greater than 10 in one million at any off-site receptor.
- ▶ Generate construction or operational emissions that cause a ground-level concentration of TACs that result in a Hazard Index greater than 1 at any off-site receptor.

The alternatives under consideration would be considered to result in an adverse effect related to criteria pollutant emissions if they would result in annual criteria pollutant emissions during construction or operation in excess of EPA General Conformity *de minimis* thresholds, as stated in Table 3.3-5.

Pollutant	Emissions Threshold (tons/year)
NO _x	25
VOC/ROG	25
PM ₁₀	100
PM _{2.5}	100
SO ₂	¹
CO	¹

Notes: CO = carbon monoxide; NO_x = oxides of nitrogen; PM₁₀ = particulate matter with aerodynamic diameter less than 10 microns; PM_{2.5} = particulate matter with aerodynamic diameter less than 2.5 microns; ROG = reactive organic gases; SO₂ = sulfur dioxide; VOC = volatile organic compounds

¹ The Sacramento County portion of the Sacramento Valley Air Basin is currently designated as attainment for the national carbon monoxide and sulfur dioxide standards and thus no *de minimis* threshold applies.

Sources: EPA 2013b, EPA 2006

Direct emissions would result from construction activities that are allowed from the Federal action or decision. In the case of the Proposed Action or the Alternatives, construction emissions associated with fill activities would be considered direct emissions. Although General Conformity only applies to direct emissions, the *de minimis* thresholds shown in Table 3.3-5 are also used to evaluate the total construction (i.e., direct and indirect) and long-term operational (i.e., indirect) emissions. For indirect operational emissions, the *de minimis* thresholds are used to evaluate the proposed project’s air quality emissions; however, indirect operational emissions are not subject to General Conformity. Indirect area source emissions of criteria pollutants resulting from energy use (electricity and water use) are too speculative to evaluate, as it is unknown what proportion of electricity consumed by the alternatives is produced in the SVAB. Additionally, criteria emissions resulting from permitted sources of

electricity production in the SVAB are presumably already included in the regional emissions budget and covered under the current SIP.

3.3.5 ENVIRONMENTAL CONSEQUENCES AND MITIGATION MEASURES

EFFECTS ANALYSIS

Effects that would occur under each alternative development scenario are identified as follows: NA (No Action), PA (Proposed Action), EDP (Expanded Drainage Preservation), EP (Expanded Preservation), P (Pilatus), and RC (Regional Conservation). The effects for each alternative are compared relative to the PA at the end of each effect conclusion (i.e., similar, greater, lesser).

EFFECT 3.3-1 **Conflict With Air Quality Plan.** *Construction and operational activities would generate emissions that could affect the applicable air quality plan's ability to achieve attainment of ambient air quality standards (Federal Thresholds).*

NA

Under the No Action Alternative, the Cordova Hills and Pilatus sites would not be developed and no construction or operational emissions would be generated that could conflict with an air quality plan. Therefore, there would be **no indirect** or **direct** construction or operational adverse effects to air quality. [*Lesser*]

Mitigation Measure: No mitigation measures are required.

PA

Construction

Construction of the Proposed Action would result in short-term and temporary air quality emissions from a variety of emissions sources. Fugitive PM dust emissions are among the pollutants of greatest concern with respect to construction-related activities. These emissions from construction-related activities can lead to adverse health effects and nuisance concerns, such as reduced visibility and soiling of exposed surfaces. Cut-and-fill operations along with general site grading operations are the primary sources of fugitive particulate matter dust emissions from construction-related activities. Construction fugitive PM dust emissions can vary greatly, depending on the level of activity, the specific operations taking place, the number and types of equipment operated, vehicle speeds, local soil conditions, weather conditions, and the amount of earth disturbance (e.g., site grading, excavation, cut-and-fill).

Emissions of ozone precursors (i.e., ROG and NO_x), are primarily generated from mobile sources (i.e., material and equipment delivery trucks, soil and debris haul trucks, and construction worker vehicles) and off-road construction equipment. On-road mobile source emissions vary as a function of vehicle trips per day associated with delivery of construction materials and equipment, the importing and exporting of soil and debris, vendor trips, and worker commute trips. For off-road mobile sources (i.e., construction equipment), daily emissions would vary depending on the types and number of heavy-duty, off-road equipment used and the intensity and frequency of their operation. For example, during activities that require extensive mechanical force such as site

grading or excavation, more equipment and more operating hours would be anticipated than during construction activities such as architectural coatings that do not require much mechanical force.

As discussed in the Cordova Hills Final EIR, the Proposed Action would be built out over an approximate 30-year period and therefore construction emissions are highly variable throughout this time. Nevertheless, the Cordova Hills Final EIR conservatively modeled the Proposed Action's construction emissions assuming a more condensed 22-year period, which would result in higher emission per year. In addition, for the purposes of this NEPA analysis, the Basic Emission Control Practices (BCECP), Enhanced Construction Emission Control Practices (ECECP), and mitigation measures established in the Cordova Hills Final EIR are considered part of the Proposed Action's design.

As part of the CEQA EIR certification and project approval process, the project applicant committed to implementing various mitigation measures for the Proposed Action. The mitigation measures that are applicable to this effect that were incorporated into the Proposed Action are listed below:

- ▶ All individual development projects shall implement Sacramento Metropolitan Air Quality Management District rules and mitigation pertinent to the construction-related ozone precursor emissions, as defined by the most current version of the Sacramento Metropolitan Air Quality Management District Guide to Air Quality Assessment. (*Final EIR Mitigation Measure AQ-1*)

Table 3.3-6 presents the Proposed Action's annual construction emissions. It should be noted that this analysis conservatively compares total construction emissions against the applicable *de minimis* thresholds. However, a General Conformity analysis is only applicable to a project's direct emissions. Direct emissions are those generated as a result of the Federal action. In this case, the direct construction emissions are those resulting from earth fill activities, which would be less than the values shown in Table 3.3-6.

As shown in Table 3.3-6, with BCECP, ECECP, and Final EIR Mitigation Measure AQ-1, which are design features of the Proposed Action, the construction emissions under the Proposed Action would be less than the *de minimis* thresholds. Lastly, construction activities would be required to implement SMAQMD's BCECP and ECECP. Implementation of the BCECP and ECECPs would minimize fugitive dust emissions and therefore annual temporary and short-term construction emissions would not exceed the *de minimis* thresholds of 100 tons per year of PM₁₀ or PM_{2.5}.

Therefore, with respect to the *de minimis* thresholds, this temporary and short-term **indirect** and **direct** adverse effect related to air quality is considered **less than significant**. No other mitigation measures were identified to further reduce these effects.

Operation

Following buildout of the Proposed Action, long-term operational emissions would be generated from the day-to-day activities associated with the proposed land uses. Operational emissions would include mobile-, area-, and stationary-sources associated with residential, commercial, and educational land uses. Mobile source emissions would be generated by vehicles coming to and leaving from the proposed land uses, which include resident, visitor, customer, student, and material delivery trips. Area source emissions are those associated with fuel combustion for space and water heating, landscape maintenance equipment, consumer products, and periodic architectural coatings for buildings. Stationary source emissions would be generated from sources such as

Table 3.3-6 Annual Proposed Action Construction Emissions					
Construction Emissions	Pollutants (tons/year)				
	ROG	NO _x	CO	PM ₁₀	PM _{2.5}
Total Annual Construction Emissions ^a	9.61	9.82	11.95	1.84	0.97
<i>De Minimis</i> Thresholds	25	25	— ^b	100	100
Exceeds Threshold?	No	No	— ^b	No	No
Notes: CO = carbon monoxide; NO _x = oxides of nitrogen; PM ₁₀ = particular matter with aerodynamic diameter less than 10 microns; PM _{2.5} = particular matter with aerodynamic diameter less than 2.5 microns; ROG = reactive organic gases; SO ₂ = sulfur dioxide ^a Annual construction emissions were estimated assuming 10 percent of the total land uses are constructed in a single year, which represents a conservative estimate of annual construction emissions. ^b The SVAB region is designated for CO and therefore is not subject to the <i>de minimis</i> thresholds for CO. Emissions are shown for informational purposes. Source: AECOM 2014					

emergency generators and auxiliary generators for commercial or educational land uses. The Proposed Action does not plan for heavy industrial land uses that could include stationary sources such as manufacturing plants.

As part of the CEQA EIR certification and project approval process, the project applicant committed to implementing various mitigation measures for the Proposed Action. The mitigation measures that are applicable to this effect that were incorporated into the Proposed Action by the EIR mitigation measures, conditions of approval, and development agreement (project entitlements) are listed below:

- ▶ Comply with the provisions of the Air Quality Management Plan dated June 1, 2011, as amended, and incorporate the requirements of this plan into the Cordova Hills Special Planning Area conditions. Also, the following text shall be added to the Cordova Hills SPA: “All amendments to the Cordova Hills SPA with the potential to result in a change in ozone precursor emissions shall include an analysis which quantifies, to the extent practicable, the effect of the proposed SPA amendment on ozone precursor emissions. The amendment shall not increase total ozone precursor emissions above what was considered in the AQMP for the entire Cordova Hills project and shall achieve the original 35 percent reduction in overall project emissions. If the amendment would require a change in the AQMP to meet that requirement, then the proponent of the SPA amendment shall consult with SMAQMD on the revised analysis and shall prepare a revised AQMP for approval by the County, in consultation with SMAQMD.” (*Final EIR Mitigation Measure AQ-2*)
- ▶ The following language shall be added to the SPA: Buffers must be established on a project-by-project basis and incorporated during permit or project review to provide for buffer separations between sensitive land uses and sources of air pollution or odor. The California Air Resources Board’s “Air Quality and Land Use Handbook: A Community Health Perspective”, or more current document shall be used when establishing these buffers. Sensitive uses include schools, daycare facilities, congregate care facilities, hospitals, or other places of long-term residency for people (this includes both single- and multifamily). The buffers shall be applied to the source of air pollution or odor, and shall be established based either on proximity to existing sensitive uses or proximity to the property boundary of land designated for sensitive uses. Buffers current at the time of establishment of this SPA indicate that sensitive uses should be (*Final EIR Mitigation Measure AQ-3*):

- At least 500 feet from auto body repair services.
 - At least 50 feet from existing gasoline dispensing stations with an annual throughput of less than 3.6 million gallons and 300 feet from existing gasoline dispensing stations with an annual throughput at or above 3.6 million gallons.
 - At least 300 feet from existing land uses that use methylene chloride or other solvents identified as a TAC, including furniture manufacturing and repair services.”
- ▶ Include in the SPA a requirement that the western perimeter of the Sports Park and University/College Campus Center (where these are within 2,000 feet of the Kiefer Landfill) include a minimum 25-foot-wide landscaping area. This landscaping area shall include a dense mix of trees and shrubs, to screen the uses from the landfill. Acceptable tree species include those expected to reach minimum heights of 40 feet.” (Final EIR Mitigation Measure AQ-4)

In addition to the Final EIR mitigation measures listed above, the Proposed Action also prepared an Air Quality Mitigation Plan (AQMP) that was approved by SMAQMD. The AQMP requires compliance with the following mitigation measures (see Appendix F of this EIS for a full and complete copy of the AQMP):

- ▶ Provide On-site Renewable energy systems. 20 percent of the project’s residential electricity usage will come from a renewable source. (3.0 mitigation points – SMAQMD 28).
- ▶ Project Exceeds Year 2008 Title 24 Requirements by 20 percent and uses energy efficient appliances. (1.0 mitigation point – SMAQMD 29).
- ▶ All property owners will be required to become permanent members of a transportation management association. Funding to be provided through special tax assessments. (5.0 mitigation points – SMAQMD 33).
- ▶ Roundabouts. Provide 5 roundabouts in reduce NOx emissions from vehicle idling. (1.0 mitigation point – SMAQMD 99A).
- ▶ Reduce overall VMT. Project reduces VMTs 25.32 percent from Business As Usual through increased density and a mix of land uses, pedestrian friendly design features, improved connectivity, parking reductions, expansion of a transit network with good frequency and speed, and improvement of traffic flow. (25.59 points – SMAQMD 99B).
- ▶ Natural Gas Emission Reductions. Project provides tankless water heaters, low-emission furnaces, electrical outlets for appliances, and other energy reduction technologies. (13.68 mitigation points – SMAQMD 99C).
- ▶ Exceed Year 2013, Title 24, Energy Star Roofs and Tankless Water Heaters. Project will exceed the 2013 Title 24 requirements by 20 percent and will include energy star cool roofs and tankless water heaters. (1.0 mitigation point – SMAQMD 99D).
- ▶ Enhanced on-site renewable energy system. Project provides on-site renewable energy system(s) of at least 20 percent of the project’s energy needs. (1.5 mitigation points – SMAQMD 99E).

SMAQMD determined that implementation of the above measures for the operational phase of the Proposed Action would result in a grand total of 51.47 mitigation points, for an operational emission reduction of 51.47 percent. SMAQMD’s emissions reduction goal for the Proposed Action was 35 mitigation points or a 35 percent reduction. Importantly, SMAQMD further determined that even if there were no university user at the Proposed Action, these mitigation measures would still result in a 51.47 percent reduction in emissions and still meet the emissions reduction goal. See Table 3.3-7 for the Proposed Action’s unmitigated and mitigated annual operational emissions.

Table 3.3-7 Proposed Action Operational Emissions					
Operational Emission Source	Pollutants (tons/year)				
	ROG	NO _x	CO	PM ₁₀	PM _{2.5}
Area Sources	78.76	15.78	8.81	0.03	0.03
Mobile Sources	22.38	37.65	198.94	9.51	4.03
Total Annual Emissions	101.14	53.43	207.75	9.54	4.06
Total Mitigated Emissions	65.74	34.73	207.75	9.54	4.06
<i>De Minimis</i> Thresholds	25	25	— ^a	100	100
Exceeds Thresholds?	Yes	Yes	— ^a	No	No

Notes: NO_x = oxides of nitrogen; PM₁₀ = particulate matter with aerodynamic diameter less than 10 microns; PM_{2.5} = particulate matter with aerodynamic diameter less than 2.5 microns; ROG = reactive organic gases
Values may not appear to add exactly due to rounding.
^a The SVAB region is designated attainment for CO and therefore is not subject to the *de minimis* thresholds for CO. Emissions are shown for informational purposes.
Source: AECOM 2014

The operational emissions associated with the Proposed Action were modeled using the most recently available California on-road emissions inventory model, EMFAC2011 and URBEMIS2007 Version 9.2.4. Table 3.3-7 presents the estimated annual operational emissions under the Proposed Action.

As shown in Table 3.3-7, because Final EIR Mitigation Measure AQ-2 has been incorporated into the Proposed Action, the long-term annual operational emissions of PM₁₀ and PM_{2.5} would be reduced to a less-than-significant level. However, the Proposed Action’s long-term annual operational emissions of ROG and NO_x would still exceed the *de minimis* thresholds. No other mitigation measures were identified to further reduce these effects. As described in Thresholds of Significance, the applicable *de minimis* thresholds are used as significance thresholds. However, because USACE would not maintain operational control over the long-term operational activities of the Proposed Action or other alternatives, which are considered indirect emissions, these indirect operational emissions are not subject to the General Conformity Rule. Therefore, the **indirect** adverse effects that would result from the Proposed Action’s operational emissions of ROG and NO_x would remain **significant and unavoidable**.

Construction

The Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives would all include fewer dwelling units and square footage of commercial than the Proposed Action. Therefore, it is anticipated that construction activities associated with the aforementioned alternatives would require less off-road construction equipment, material and equipment delivery truck trips, and construction worker trips. Therefore, with respect to the *de minimis* thresholds, this **direct** adverse effect is considered **less than significant**. [*Lesser*]

As part of the CEQA EIR certification and project approval process, various mitigation measures were incorporated into the Proposed Action. Because these mitigation measures were incorporated into the Proposed Action, it is reasonable to assume that they would also be incorporated into the four action alternatives, if any of those alternative were adopted. The mitigation measures that are applicable to this effect that were incorporated into the Proposed Action are listed below:

- ▶ All individual development projects shall implement Sacramento Metropolitan Air Quality Management District rules and mitigation pertinent to the construction-related ozone precursor emissions, as defined by the most current version of the Sacramento Metropolitan Air Quality Management District Guide to Air Quality Assessment. (*Final EIR Mitigation Measure AQ-1*)

Implementation of Final EIR Mitigation Measure AQ-1 would reduce the temporary and short-term construction-related emissions to daily levels that do not exceed the applicable *de minimis* thresholds. Therefore, these adverse effects under the Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives would be **less than significant**. No other mitigation measures were identified to further reduce these effects.

Operation

Similar to the Proposed Action, following construction of the Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives, long-term operational emissions would be generated from similar sources. These alternatives would include fewer residential and commercial land uses than the Proposed Action and therefore the annual operational emissions associated with these alternatives are expected to be less than those of the Proposed Action. However, it is not anticipated that the reduction in land uses associated with the Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives would reduce unmitigated operational emissions below the ROG or NO_x *de minimis* thresholds and therefore the **indirect** adverse effect would be **potentially significant**. [*Lesser*]

As part of the CEQA EIR certification and project approval process, various mitigation measures were incorporated into the project entitlements. Because these mitigation measures were incorporated into the Proposed Action, it is reasonable to assume that they would also be incorporated into the four action alternatives, if any of those alternatives were adopted. The mitigation measures that are applicable to this effect that were incorporated into the Proposed Action by the project entitlements are listed below:

- ▶ Comply with the provisions of the Air Quality Management Plan dated June 1, 2011, and incorporate the requirements of this plan into the Cordova Hills Special Planning Area conditions. Also, the following text

shall be added to the Cordova Hills SPA: “All amendments to the Cordova Hills SPA with the potential to result in a change in ozone precursor emissions shall include an analysis which quantifies, to the extent practicable, the effect of the proposed SPA amendment on ozone precursor emissions. The amendment shall not increase total ozone precursor emissions above what was considered in the AQMP for the entire Cordova Hills project and shall achieve the original 35 percent reduction in overall project emissions. If the amendment would require a change in the AQMP to meet that requirement, then the proponent of the SPA amendment shall consult with SMAQMD on the revised analysis and shall prepare a revised AQMP for approval by the County, in consultation with SMAQMD.” (*Final EIR Mitigation Measure AQ-2*)

Implementation of Final EIR Mitigation Measure AQ-2 would reduce the operational emissions of ROG and NOX under the Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives; however, even with mitigation, annual operational ROG and NOX would continue to exceed the applicable *de minimis* thresholds. No other mitigation measures were identified to further reduce these effects. Similar to the Proposed Action, the applicable *de minimis* thresholds are used as significance thresholds in this case. However, because USACE would not maintain operational control over the long-term operational activities, which are considered indirect emissions, and thus not subject to the General Conformity Rule. These adverse ROG and NOx effects would remain **significant and unavoidable**.

P

Construction

The Pilatus Alternative would include more dwelling units and commercial square footage than the Proposed Action and is anticipated to generate temporary and short-term construction emissions greater than those of the Proposed Action. Thus, it is anticipated that construction activities associated with the Pilatus Alternative would require more off-road construction equipment, material and equipment delivery truck trips, and construction worker trips. Table 3.3-8 presents the Pilatus Alternative’s annual construction emissions with respect to the applicable *de minimis* thresholds.

As shown in Table 3.3-8, the conservatively modeled annual construction emissions resulting from the Pilatus Alternative would not exceed the applicable *de minimis* thresholds. Therefore, with respect to the applicable *de minimis* thresholds, the **direct** adverse effects resulting from the Pilatus Alternative’s temporary and short-term construction-related emissions would be **less than significant**. [*Greater*]

As part of the CEQA EIR certification and project approval process, various mitigation measures were incorporated into the project entitlements. Because these mitigation measures were incorporated into the Proposed Action, it is reasonable to assume that they would also be incorporated into the four action alternatives, if any of those alternatives were adopted. The mitigation measures that are applicable to this effect that were incorporated into the Proposed Action by the project entitlements are listed below:

- ▶ All individual development projects shall implement Sacramento Metropolitan Air Quality Management District rules and mitigation pertinent to the construction-related ozone precursor emissions, as defined by the most current version of the Sacramento Metropolitan Air Quality Management District Guide to Air Quality Assessment. (*Final EIR Mitigation Measure AQ-1*)

**Table 3.3-8
Annual Pilatus Alternative Construction Emissions**

Construction Emissions	Pollutants (tons/year)				
	ROG	NO _x	CO	PM ₁₀	PM _{2.5}
Total Annual Construction Emissions ^a	10.25	20.77	18.35	2.56	1.54
<i>De Minimis</i> Thresholds	25	25	— ^b	100	100
Exceeds Threshold?	No	No	— ^b	No	No

Notes: ROG = reactive organic gases; NO_x = oxides of nitrogen; CO = carbon monoxide; SO₂ = sulfur dioxide; PM₁₀ = particulate matter with aerodynamic diameter less than 10 microns; PM_{2.5} = particulate matter with aerodynamic diameter less than 2.5 microns.

^a Annual construction emissions were estimated assuming 10 percent of the total land uses are constructed in a single year, which represents a conservative estimate of annual construction emissions.

^b The SVAB region is designated for CO and therefore is not subject to the *de minimis* thresholds for CO. Emissions are shown for informational purposes.

Source: AECOM 2014

Implementation of Final EIR Mitigation Measure AQ-1 would reduce the temporary and short-term construction-related emissions to levels that do not exceed the applicable *de minimis* thresholds. Therefore, with respect to the applicable *de minimis* thresholds, these adverse effects under the Pilatus Alternative would be **less than significant**. No other mitigation measures were identified to further reduce these effects.

Operation

The Pilatus Alternative would involve long-term operations with an increased amount of dwelling units and commercial square footage as compared to the Proposed Action. Therefore, the annual operational emissions associated with the Pilatus Alternative would be greater than those of the Proposed Action. Thus, it is anticipated that the Pilatus Alternative would also generate long-term annual operational emissions of ROG and NO_x that would exceed the applicable *de minimis* thresholds. This **indirect** adverse effect would be **significant**. [*Greater*]

As part of the CEQA EIR certification and project approval process, various mitigation measures were incorporated into the project entitlements. Because these mitigation measures were incorporated into the Proposed Action, it is reasonable to assume that they would also be incorporated into the four action alternatives, if any of those alternatives were adopted. The mitigation measures that are applicable to this effect that were incorporated into the Proposed Action by the project entitlements are listed below:

- ▶ Comply with the provisions of the Air Quality Management Plan dated June 1, 2011, and incorporate the requirements of this plan into the Cordova Hills Special Planning Area conditions. Also, the following text shall be added to the Cordova Hills SPA: “All amendments to the Cordova Hills SPA with the potential to result in a change in ozone precursor emissions shall include an analysis which quantifies, to the extent practicable, the effect of the proposed SPA amendment on ozone precursor emissions. The amendment shall not increase total ozone precursor emissions above what was considered in the AQMP for the entire Cordova Hills project and shall achieve the original 35 percent reduction in overall project emissions. If the amendment would require a change in the AQMP to meet that requirement, then the proponent of the SPA amendment shall consult with SMAQMD on the revised analysis and shall prepare a revised AQMP for approval by the County, in consultation with SMAQMD.” (*Final EIR Mitigation Measure AQ-2*)

It is anticipated because the Pilatus Alternative would involve more residential and more commercial land uses than the Proposed Action, even with implementation of Final EIR Mitigation Measure AQ-2, both ROG and NO_x emissions would continue to exceed the applicable *de minimis* thresholds. No other mitigation measures were identified to further reduce these effects. Similar to the Proposed Action, the applicable *de minimis* thresholds are used as significance thresholds in this case. However, USACE would not maintain operational control over the long-term operational activities, which are considered indirect emissions, and thus indirect operational emissions are not subject to the General Conformity Rule. The adverse effects from operational ROG and NO_x emissions under the Pilatus Alternative would remain **significant and unavoidable**.

EFFECT **Conflict With Air Quality Plan.** *Construction and operational activities associated with the project would*
3.3-2 *generate emissions that could affect the applicable air quality plan's ability to achieve attainment of ambient*
air quality standards (Local Thresholds).

NA

Under the No Action Alternative, the Cordova Hills and Pilatus sites would not be developed and no construction or operational emissions would be generated that could conflict with an air quality plan. Therefore, there would be **no indirect** or **direct** construction or operational adverse effects to air quality. [*Lesser*]

Mitigation Measure: No mitigation measures are required.

PA

Construction

See Effect 3.3-1 for a description of the Proposed Action's construction activities and emissions. The following analysis evaluates the Proposed Action's construction emission with respect to the local, SMAQMD threshold of significance.

For the purposes of this analysis, the Proposed Action's daily construction emissions were conservatively modeled assuming 10 percent of the total land uses are constructed in the earliest year of construction. Table 3.3-9 presents the estimated daily construction emissions associated with implementation of the Proposed Action.

As part of the CEQA EIR certification and project approval process, the project applicant committed to implementing various mitigation measures for the Proposed Action. The mitigation measures that are applicable to this effect that were incorporated into the Proposed Action are listed below:

- ▶ All individual development projects shall implement Sacramento Metropolitan Air Quality Management District rules and mitigation pertinent to the construction-related ozone precursor emissions, as defined by the most current version of the Sacramento Metropolitan Air Quality Management District Guide to Air Quality Assessment. (*Final EIR Mitigation Measure AQ-1*)

**Table 3.3-9
Proposed Action Daily Construction Emissions**

Construction Emissions	Pollutants (lbs/day)				
	ROG	NO _x	CO	PM ₁₀	PM _{2.5}
Total Annual Construction Emissions ^a	73.94	75.55	91.89	14.14	7.49
SMAQMD Thresholds	–	85	–	–	–
Exceeds Threshold?	–	No	–	–	–

Notes: lbs/day = pounds per day; ROG = reactive organic gases; NO_x = oxides of nitrogen; CO = carbon monoxide; SO₂ = sulfur dioxide; PM₁₀ = particulate matter with aerodynamic diameter less than 10 microns; PM_{2.5} = particulate matter with aerodynamic diameter less than 2.5 microns.

^a Annual construction emissions were estimated assuming 10 percent of the total land uses are constructed in a single year, which represents a conservative estimate of annual construction emissions. Daily construction emissions were estimated assuming 260 work days per year.

Source: AECOM 2014.

The SMAQMD construction threshold of significance is applicable to all construction emissions and does not differentiate between direct or indirect emissions such as the *de minimis* thresholds. Therefore, because Final EIR Mitigation Measure AQ-1 has been incorporated into the Proposed Action and all construction-related NO_x emissions would be below the SMAQMD threshold of significance (see Table 3.3-9), this temporary and short-term adverse effect related to air quality is considered **less than significant**. No other mitigation measures were identified to further reduce these effects.

Operation

See Effect 3.3-1 for a description of the Proposed Action’s operational activities and emissions. In addition, mitigation measures required for the Proposed Action are listed in Effect 3.3-1. The following analysis evaluates the Proposed Action’s operational emission with respect to the local, SMAQMD thresholds of significance.

As part of the CEQA EIR certification and project approval process, the project applicant committed to implementing various mitigation measures for the Proposed Action. The mitigation measures that are applicable to this effect that were incorporated into the Proposed Action, and therefore are part of the Proposed Action, are listed below:

- ▶ Comply with the provisions of the Air Quality Management Plan dated June 1, 2011, as amended, and incorporate the requirements of this plan into the Cordova Hills Special Planning Area conditions. Also, the following text shall be added to the Cordova Hills SPA: “All amendments to the Cordova Hills SPA with the potential to result in a change in ozone precursor emissions shall include an analysis which quantifies, to the extent practicable, the effect of the proposed SPA amendment on ozone precursor emissions. The amendment shall not increase total ozone precursor emissions above what was considered in the AQMP for the entire Cordova Hills project and shall achieve the original 35 percent reduction in overall project emissions. If the amendment would require a change in the AQMP to meet that requirement, then the proponent of the SPA amendment shall consult with SMAQMD on the revised analysis and shall prepare a revised AQMP for approval by the County, in consultation with SMAQMD.” (*Final EIR Mitigation Measure AQ-2*)

- ▶ The following language shall be added to the SPA: Buffers must be established on a project-by-project basis and incorporated during permit or project review to provide for buffer separations between sensitive land uses and sources of air pollution or odor. The California Air Resources Board’s “Air Quality and Land Use Handbook: A Community Health Perspective”, or more current document shall be utilized when establishing these buffers. Sensitive uses include schools, daycare facilities, congregate care facilities, hospitals, or other places of long-term residency for people (this includes both single- and multiple-family). The buffers shall be applied to the source of air pollution or odor, and shall be established based either on proximity to existing sensitive uses or proximity to the property boundary of land designated for sensitive uses. Buffers current at the time of establishment of this SPA indicate that sensitive uses should be (*Final EIR Mitigation Measure AQ-3*):
 - At least 500 feet from auto body repair services.
 - At least 50 feet from existing gasoline dispensing stations with an annual throughput of less than 3.6 million gallons and 300 feet from existing gasoline dispensing stations with an annual throughput at or above 3.6 million gallons.
 - At least 300 feet from existing land uses that use methylene chloride or other solvents identified as a TAC, including furniture manufacturing and repair services.”
- ▶ Include in the SPA a requirement that the western perimeter of the Sports Park and University/College Campus Center (where these are within 2,000 feet of the Kiefer Landfill) include a minimum 25-foot-wide landscaping area. This landscaping area shall include a dense mix of trees and shrubs, to screen the uses from the landfill. Acceptable tree species include those expected to reach minimum heights of 40 feet.” (*Final EIR Mitigation Measure AQ-4*)

In addition to the Final EIR mitigation measures listed above, the Proposed Action also prepared an Air Quality Mitigation Plan (AQMP) that was approved by SMAQMD. The AQMP requires compliance with the following mitigation measures (see Appendix F of this EIS for a full and complete copy of the AQMP):

- ▶ Provide On-site Renewable energy systems. 20 percent of the project’s residential electricity usage will come from a renewable source. (3.0 mitigation points – SMAQMD 28)
- ▶ Project Exceeds Year 2008 Title 24 Requirements by 20 percent and uses energy efficient appliances. (1.0 mitigation point – SMAQMD 29)
- ▶ All property owners will be required to become permanent members of a transportation management association. Funding to be provided through special tax assessments. (5.0 mitigation points – SMAQMD 33)
- ▶ Roundabouts. Provide 5 roundabouts in reduce NOx emissions from vehicle idling. (1.0 mitigation point – SMAQMD 99A)
- ▶ Reduce overall VMT. Project reduces VMTs 25.32 percent from Business As Usual through increased density and a mix of land uses, pedestrian friendly design features, improved connectivity, parking reductions, expansion of a transit network with good frequency and speed, and improvement of traffic flow. (25.59 points – SMAQMD 99B)

- ▶ Natural Gas Emission Reductions. Project provides tankless water heaters, low-emission furnaces, electrical outlets for appliances, and other energy reduction technologies. (13.68 mitigation points – SMAQMD 99C)
- ▶ Exceed Year 2013, Title 24, Energy Star Roofs and Tankless Water Heaters. Project will exceed the 2013 Title 24 requirements by 20 percent and will include energy star cool roofs and tankless water heaters. (1.0 mitigation point – SMAQMD 99D)
- ▶ Enhanced on-site renewable energy system. Project provides on-site renewable energy system(s) of at least 20 percent of the project’s energy needs. (1.5 mitigation points – SMAQMD 99E)

Table 3.3-10 presents the Proposed Action’s daily long-term operational emissions with and without the mitigation measures described above.

Table 3.3-10 Proposed Action Operational Emissions					
Operational Emission Source	Pollutants (lbs/day)				
	ROG	NO _x	CO	PM ₁₀	PM _{2.5}
Area Sources	433.11	130.90	59.40	3.77	3.73
Mobile Sources	129.00	217.00	1,146.60	54.80	23.20
Total Annual Emissions	562.11	347.90	1,206.00	58.57	26.93
Total Mitigated Emissions	365.37	226.14	1,206.00	58.57	26.93
SMAQMD Thresholds	65	65	–	–	–
Exceeds Thresholds?	Yes	Yes	–	–	–

Notes: lbs/day = pounds per day; NO_x = oxides of nitrogen; PM₁₀ = particulate matter with aerodynamic diameter less than 10 microns; PM_{2.5} = particulate matter with aerodynamic diameter less than 2.5 microns; ROG = reactive organic gases
 Values may not appear to add exactly due to rounding.
 Source: AECOM 2014

As shown in Table 3.3-10, the Proposed Action’s daily operational emissions, even with implementation of AQMP, would exceed the SMAQMD operational thresholds of significance. No other mitigation measures were identified to further reduce these effects. Therefore, with respect to the SMAQMD thresholds of significance, the **indirect** adverse effects that would result from the Proposed Action’s operational emissions of ROG and NO_x would remain **significant and unavoidable**.

EDP, EP, RC

Construction

The Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives would all include fewer dwelling units and square footage of commercial than the Proposed Action. As part of the CEQA EIR certification and project approval process, various mitigation measures were incorporated into the Proposed Action. Because these mitigation measures were incorporated into the Proposed Action, it is reasonable to assume that they would also be incorporated into the four action alternatives, if any of those alternatives were adopted.

The mitigation measures that are applicable to this effect that were incorporated into the Proposed Action are listed below:

- ▶ All individual development projects shall implement Sacramento Metropolitan Air Quality Management District rules and mitigation pertinent to the construction-related ozone precursor emissions, as defined by the most current version of the Sacramento Metropolitan Air Quality Management District Guide to Air Quality Assessment. (*Final EIR Mitigation Measure AQ-1*)

Implementation of Final EIR Mitigation Measure AQ-1 would reduce the temporary and short-term construction-related emissions to daily levels that do not exceed SMAQMD's construction threshold of significance.

Therefore, with respect to the SMAQMD threshold of significance, these **indirect** and **direct** adverse effects under the Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives would be **less than significant**. [**Lesser**]

Operation

Similar to the Proposed Action, following construction of the Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives, long-term operational emissions would be generated from similar sources. These alternatives would include fewer residential and commercial land uses than the Proposed Action and therefore the annual operational emissions associated with these alternatives are expected to be less than those of the Proposed Action. As part of the CEQA EIR certification and project approval process, various mitigation measures were incorporated into the Proposed Action. Because these mitigation measures were incorporated into the Proposed Action, it is reasonable to assume that they would also be incorporated into the four action alternatives, if any of those alternatives were adopted. The mitigation measures that are applicable to this effect that were incorporated into the Proposed Action are listed below:

- ▶ Comply with the provisions of the Air Quality Management Plan dated June 1, 2011, and incorporate the requirements of this plan into the Cordova Hills Special Planning Area conditions. Also, the following text shall be added to the Cordova Hills SPA: "All amendments to the Cordova Hills SPA with the potential to result in a change in ozone precursor emissions shall include an analysis which quantifies, to the extent practicable, the effect of the proposed SPA amendment on ozone precursor emissions. The amendment shall not increase total ozone precursor emissions above what was considered in the AQMP for the entire Cordova Hills project and shall achieve the original 35 percent reduction in overall project emissions. If the amendment would require a change in the AQMP to meet that requirement, then the proponent of the SPA amendment shall consult with SMAQMD on the revised analysis and shall prepare a revised AQMP for approval by the County, in consultation with SMAQMD." (*Final EIR Mitigation Measure AQ-2*)

Even with implementation of *Final EIR Mitigation Measure AQ-2* and the AQMP, the Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives' long-term operational emissions would continue to exceed SMAQMD operational thresholds of significance. No other mitigation measures were identified to further reduce these effects. Therefore, this **indirect** adverse effect would be **potentially significant and unavoidable**. [**Lesser**]

Construction

The Pilatus Alternative would include more dwelling units and commercial square footage than the Proposed Action and is anticipated to generate temporary and short-term construction emissions greater than those of the Proposed Action. Table 3.3-11 presents the Pilatus Alternative's daily construction emissions.

Table 3.3-11 Pilatus Alternative Daily Construction Emissions					
Construction Emissions	Pollutants (lbs/day)				
	ROG	NO _x	CO	PM ₁₀	PM _{2.5}
Total Annual Construction Emissions ^a	78.88	159.76	141.16	19.66	11.82
SMAQMD Thresholds	–	85	–	–	–
Exceeds Threshold?	–	Yes	–	–	–
Notes: lbs/day = pounds per day; ROG = reactive organic gases; NO _x = oxides of nitrogen; CO = carbon monoxide; SO ₂ = sulfur dioxide; PM ₁₀ = particular matter with aerodynamic diameter less than 10 microns; PM _{2.5} = particular matter with aerodynamic diameter less than 2.5 microns.					
^a Annual construction emissions were estimated assuming 10 percent of the total land uses are constructed in a single year, which represents a conservative estimate of annual construction emissions. Daily construction emissions were estimated assuming 260 work days per year.					
Source: AECOM 2014					

As part of the CEQA EIR certification and project approval process, various mitigation measures were incorporated into the Proposed Action. Because these mitigation measures were incorporated into the Proposed Action, it is reasonable to assume that they would also be incorporated into the four action alternatives, if any of those alternatives were adopted. The mitigation measures that are applicable to this effect that were incorporated into the Proposed Action are listed below:

- ▶ All individual development projects shall implement Sacramento Metropolitan Air Quality Management District rules and mitigation pertinent to the construction-related ozone precursor emissions, as defined by the most current version of the Sacramento Metropolitan Air Quality Management District Guide to Air Quality Assessment. (*Final EIR Mitigation Measure AQ-1*)

As shown in Table 3.3-11, unmitigated Pilatus Alternative construction emissions would exceed the SMAQMD threshold of significance. However, with implementation of *Final EIR Mitigation Measure AQ-1*, temporary and short-term construction-related emissions would be reduced to level less than the SMAQMD threshold of significance. Therefore, these adverse effects under the Pilatus Alternative would be **less than significant**. No other mitigation measures were identified to further reduce these effects.

Operation

The Pilatus Alternative would involve long-term operations with an increased amount of dwelling units and commercial square footage as compared to the Proposed Action. Therefore, the annual operational emissions associated with the Pilatus Alternative would be greater than those of the Proposed Action. As part of the CEQA EIR certification and project approval process, various mitigation measures were incorporated into the Proposed

Action. Because these mitigation measures were incorporated into the Proposed Action, it is reasonable to assume that they would also be incorporated into the four action alternatives, if any of those alternatives were adopted. The mitigation measures that are applicable to this effect that were incorporated into the Proposed Action are listed below:

- ▶ Comply with the provisions of the Air Quality Management Plan dated June 1, 2011, and incorporate the requirements of this plan into the Cordova Hills Special Planning Area conditions. Also, the following text shall be added to the Cordova Hills SPA: “All amendments to the Cordova Hills SPA with the potential to result in a change in ozone precursor emissions shall include an analysis which quantifies, to the extent practicable, the effect of the proposed SPA amendment on ozone precursor emissions. The amendment shall not increase total ozone precursor emissions above what was considered in the AQMP for the entire Cordova Hills project and shall achieve the original 35 percent reduction in overall emissions. If the amendment would require a change in the AQMP to meet that requirement, then the proponent of the SPA amendment shall consult with SMAQMD on the revised analysis and shall prepare a revised AQMP for approval by the County, in consultation with SMAQMD.” (*Final EIR Mitigation Measure AQ-2*)

Even with implementation of *Final EIR Mitigation Measure AQ-2* and the AQMP, the Pilatus Alternative’s ROG and NOX emissions would continue to exceed the SMAQMD’s long-term operational thresholds of significance. No other mitigation measures were identified to further reduce these effects. Therefore, this **indirect** adverse effect would be **significant and unavoidable**. [*Greater*]

EFFECT 3.3-3 Violate or Contribute Substantially to an Exceedance of Ambient Air Quality Standards. *Temporary and short-term construction and operational activities would generate ROG, NO_x, CO, PM₁₀, and PM_{2.5} emissions that could potentially exceed or contribute substantially to an exceedance of national ambient air quality standards.*

NA

Under the No Action Alternative, the Cordova Hills and Pilatus sites would not be developed and no construction disturbances or operational activities would occur. No ROG, NO_x, CO, PM₁₀, or PM_{2.5} emissions would be generated that could potentially exceed or contribute to an exceedance of a NAAQS. Therefore, there would be **no indirect** or **direct** construction or operational adverse effects to air quality. [*Lesser*]

Mitigation Measure: No mitigation measures are required.

PA

Construction

As discussed in Effect 3.3-1 above, the temporary and short-term construction-related emissions under the Proposed Action would not generate emissions that would exceed any of the applicable *de minimis* thresholds. Construction emissions would occur intermittently over the approximate 30-year construction period and would vary day-to-day depending on the type of construction activities proposed.

As part of the CEQA EIR certification and project approval process, the project applicant committed to implementing various mitigation measures for the Proposed Action. The mitigation measures that are applicable to this effect that were incorporated into the Proposed Action by the project entitlements are listed below:

- ▶ All individual development projects shall implement Sacramento Metropolitan Air Quality Management District rules and mitigation pertinent to the construction-related ozone precursor emissions, as defined by the most current version of the Sacramento Metropolitan Air Quality Management District Guide to Air Quality Assessment. (*Final EIR Mitigation Measure AQ-1*)

Because Final EIR Mitigation Measure AQ-1 has been incorporated into the Proposed Action, and with implementation of SMAQMD's BCECP and ECECP, it is anticipated that construction emissions would not be generated at an intensity that would exceed any ambient air quality standards. Therefore, this **indirect** and **direct** adverse effect from generation of temporary and short-term construction-related emissions is considered **less than significant**. No other mitigation measures were identified to further reduce these effects.

Operation

The Proposed Action would generate long-term annual operational emissions that would exceed the ROG and NO_x *de minimis* thresholds. The *de minimis* thresholds are part of the General Conformity Rule, which was developed to ensure that Federal activities do not cause or contribute to new violations of NAAQS, do not cause additional or worsening of existing violations, and do not delay attainment of NAAQS. As discussed in the Analysis Methodology, for the purposes of this analysis, the *de minimis* thresholds are used to evaluate operational emissions in the absence of federally-applicable thresholds for indirect emissions. The Proposed Action's indirect operational emissions would not be subject to the requirements of General Conformity.

As part of the CEQA EIR certification and project approval process, the project applicant committed to implementing various mitigation measures for the Proposed Action. The mitigation measures that are applicable to this effect that were incorporated into the Proposed Action by the project entitlements are listed below:

- ▶ Comply with the provisions of the Air Quality Management Plan dated June 1, 2011, and incorporate the requirements of this plan into the Cordova Hills Special Planning Area conditions. Also, the following text shall be added to the Cordova Hills SPA: "All amendments to the Cordova Hills SPA with the potential to result in a change in ozone precursor emissions shall include an analysis which quantifies, to the extent practicable, the effect of the proposed SPA amendment on ozone precursor emissions. The amendment shall not increase total ozone precursor emissions above what was considered in the AQMP for the entire Cordova Hills project and shall achieve the original 35 percent reduction in overall project emissions. If the amendment would require a change in the AQMP to meet that requirement, then the proponent of the SPA amendment shall consult with SMAQMD on the revised analysis and shall prepare a revised AQMP for approval by the County, in consultation with SMAQMD." (*Final EIR Mitigation Measure AQ-2*)

However, even after implementation of Final EIR Mitigation Measure AQ-2, the Proposed Action would still generate annual operational emissions of ROG and NO_x that would exceed the applicable *de minimis* thresholds. No other mitigation measures were identified to further reduce these effects. The applicable *de minimis* thresholds are used as significance thresholds in this case. However, USACE would not maintain operational control over the long-term operational activities, which are considered indirect emissions, and thus indirect operational emissions are not subject to the General Conformity Rule. The Proposed Action could exceed or contribute

substantially to an exceedance of NAAQS, and this **indirect** adverse effect would remain **significant and unavoidable**.

EDP, EP, RC

Construction

The Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives would all include fewer dwelling units and square footage of commercial land uses than the Proposed Action. Therefore, it is anticipated that construction activities associated with the aforementioned alternatives would require less off-road construction equipment, material and equipment delivery truck trips, and construction worker trips. It is anticipated that temporary and short-term construction emissions associated with these alternatives, though they would be less than the Proposed Action, could still result in annual emissions that exceed the annual *de minimis* thresholds during peak construction periods and could contribute to a NAAQS exceedance. Therefore this temporary and short-term **indirect** and **direct** adverse effect would be **potentially significant**. [*Lesser*]

As part of the CEQA EIR certification and project approval process, various mitigation measures were incorporated into the project entitlements. Because these mitigation measures were incorporated into the Proposed Action, it is reasonable to assume that they would also be incorporated into the four action alternatives, if any of those alternatives were adopted. The mitigation measures that are applicable to this effect that were incorporated into the Proposed Action by the project entitlements are listed below:

- ▶ All individual development projects shall implement Sacramento Metropolitan Air Quality Management District rules and mitigation pertinent to the construction-related ozone precursor emissions, as defined by the most current version of the Sacramento Metropolitan Air Quality Management District Guide to Air Quality Assessment. (*Final EIR Mitigation Measure AQ-1*)

Implementation of Final EIR Mitigation Measure AQ-1 would reduce the temporary and short-term construction-related emissions to daily levels that do not exceed the SMAQMD threshold of significance and would not exceed the applicable *de minimis* thresholds. Therefore, construction of the Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives would not exceed or contribute substantially to an exceedance of a NAAQS, and this adverse effect would be reduced to a **less-than-significant** level. No other mitigation measures were identified to further reduce these effects.

Operation

Although the Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives would include less residential and less commercial development than that of the Proposed Action, it is anticipated that these alternatives' annual operational emissions would continue to exceed the applicable ROG and NO_x *de minimis* thresholds. The major portion of operational emissions, which are mobile source emissions, would be generated throughout the region along the regional roadway system. Thus, it is not anticipated these alternatives, similar to the Proposed Action, would include large stationary sources that could individually generate emissions that exceed or contribute substantially to an exceedance of an ambient air quality standard. As part of the CEQA EIR certification and project approval process, various mitigation measures were incorporated into the project entitlements. Because these mitigation measures were incorporated into the Proposed Action, it is reasonable to assume that they would also be incorporated into the four action alternatives, if any of those alternatives were

adopted. The mitigation measures that are applicable to this effect that were incorporated into the Proposed Action by the project entitlements are listed below:

- ▶ Comply with the provisions of the Air Quality Management Plan dated June 1, 2011, and incorporate the requirements of this plan into the Cordova Hills Special Planning Area conditions. Also, the following text shall be added to the Cordova Hills SPA: “All amendments to the Cordova Hills SPA with the potential to result in a change in ozone precursor emissions shall include an analysis which quantifies, to the extent practicable, the effect of the proposed SPA amendment on ozone precursor emissions. The amendment shall not increase total ozone precursor emissions above what was considered in the AQMP for the entire Cordova Hills project and shall achieve the original 35 percent reduction in overall project emissions. If the amendment would require a change in the AQMP to meet that requirement, then the proponent of the SPA amendment shall consult with SMAQMD on the revised analysis and shall prepare a revised AQMP for approval by the County, in consultation with SMAQMD.” (*Final EIR Mitigation Measure AQ-2*)

Implementation of Final EIR Mitigation Measure AQ-2 would reduce the operational emissions of ROG and NO_x under the Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives. However, annual operational emissions of ROG and NO_x would continue to exceed applicable *de minimis* thresholds, and no other mitigation measures were identified to reduce these effects. Similar to the Proposed Action, the applicable *de minimis* thresholds are used as significance thresholds in this case. However, USACE would not maintain operational control over the long-term operational activities, which are considered indirect emissions, and thus indirect operational emissions are not subject to the General Conformity Rule. The adverse ROG and NO_x effects would remain **significant and unavoidable**.

P

Construction

The Pilatus Alternative would include more dwelling units and more commercial square footage than the Proposed Action and is anticipated to generate temporary and short-term construction emissions greater than those of the Proposed Action.

As part of the CEQA EIR certification and project approval process, various mitigation measures were incorporated into the project entitlements. Because these mitigation measures were incorporated into the Proposed Action, it is reasonable to assume that they would also be incorporated into the four action alternatives, if any of those alternatives were adopted. The mitigation measures that are applicable to this effect that were incorporated into the Proposed Action by the project entitlements are listed below:

- ▶ All individual development projects shall implement Sacramento Metropolitan Air Quality Management District rules and mitigation pertinent to the construction-related ozone precursor emissions, as defined by the most current version of the Sacramento Metropolitan Air Quality Management District Guide to Air Quality Assessment. (*Final EIR Mitigation Measure AQ-1*)

Implementation of Final EIR Mitigation Measure AQ-1 would reduce the temporary and short-term **indirect** and **direct** construction-related emissions to daily levels that do not exceed the SMAQMD threshold of significance and would not exceed the applicable *de minimis* thresholds. Therefore, construction of the Pilatus Alternative

would not exceed or contribute substantially to an exceedance of a NAAQS, and this effect would be reduced to a **less-than-significant** level. No other mitigation measures were identified to further reduce this effect. *[Greater]*

Operation

The Pilatus Alternative would involve long-term operations with an increased amount of dwelling units and commercial square footage as compared to the Proposed Action.

As part of the CEQA EIR certification and project approval process, various mitigation measures were incorporated into the project entitlements. Because these mitigation measures were incorporated into the Proposed Action, it is reasonable to assume that they would also be incorporated into the four action alternatives, if any of those alternatives were adopted. The mitigation measures that are applicable to this effect that were incorporated into the Proposed Action by the project entitlements are listed below:

- ▶ Comply with the provisions of the Air Quality Management Plan dated June 1, 2011, and incorporate the requirements of this plan into the Cordova Hills Special Planning Area conditions. Also, the following text shall be added to the Cordova Hills SPA: “All amendments to the Cordova Hills SPA with the potential to result in a change in ozone precursor emissions shall include an analysis which quantifies, to the extent practicable, the effect of the proposed SPA amendment on ozone precursor emissions. The amendment shall not increase total ozone precursor emissions above what was considered in the AQMP for the entire Cordova Hills project and shall achieve the original 35 percent reduction in overall project emissions. If the amendment would require a change in the AQMP to meet that requirement, then the proponent of the SPA amendment shall consult with SMAQMD on the revised analysis and shall prepare a revised AQMP for approval by the County, in consultation with SMAQMD.” *(Final EIR Mitigation Measure AQ-2)*

As with the Proposed Action, Implementation of Final EIR Mitigation Measure AQ-2 would reduce operational emissions under the Pilatus Alternative. However, annual operational ROG and NO_x emissions would continue to exceed the applicable *de minimis* thresholds and could contribute substantially to a potential NAAQS exceedance. No other mitigation measures were identified to further reduce these effects. Similar to the Proposed Action, the applicable *de minimis* thresholds are used as significance thresholds in this case. However, USACE would not maintain operational control over the long-term operational activities, which are considered indirect emissions, and thus indirect operational emissions are not subject to the General Conformity Rule. **Indirect** adverse effects from ROG and NO_x would remain **significant and unavoidable**.

EFFECT 3.3-4	Cumulative Contribution of Construction and Operational Emissions. <i>Construction and operational emissions would contribute to the region's cumulative emissions.</i>
-----------------	---

NA

Under the No Action Alternative, the Cordova Hills and Pilatus sites would not be developed and no construction disturbances or operational activities would occur. Therefore, there would **no indirect** or **direct** construction effects to air quality. **No cumulative effects** would occur. *[Lesser]*

Construction

Construction emissions are considered short-term and temporary emissions; however, can contribute a substantial amount of pollutants to the region's cumulative emissions profile, which determines the attainment status of the region. As discussed above, Federal projects that would not exceed the applicable *de minimis* thresholds would not trigger the need for a full conformity analysis and thus are considered not to exceed or contribute substantially to an exceedance of a NAAQS.

Thus, because the Proposed Action would implement Mitigation Measure AQ-1 from the Cordova Hills Final EIR and SMAQMD's BCECP and ECECP, it is anticipated that temporary and short-term construction emissions would not exceed any applicable *de minimis* thresholds and thus the Proposed Action's construction-related emissions would not contribute a cumulatively considerable amount of pollutants. Therefore, this **indirect** and **direct** adverse effect related to cumulative construction-related emissions exceeding ambient air quality standards is considered **less than cumulatively significant**. No other mitigation measures were identified to further reduce these effects.

Operation

As shown in Table 3.3-7, the Proposed Action's operational emissions would exceed the applicable *de minimis* thresholds for ROG and NO_x. Even with implementation of Mitigation Measure AQ-2 from the Cordova Hills Final EIR, the annual operational emissions would continue to exceed the ROG and NO_x *de minimis* thresholds. No other mitigation measures were identified to further reduce these effects. The applicable *de minimis* thresholds are used as significance thresholds in this case. However, USACE would not maintain operational control over the long-term operational activities, which are considered indirect emissions, and thus indirect operational emissions are not subject to the General Conformity Rule. The Proposed Action is considered to contribute a cumulatively considerable amount of long-term operational emissions and this **indirect** adverse cumulative effect is **cumulatively significant**.

EDP, EP, RC

Construction

The Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives would all include fewer dwelling units and square footage of commercial land uses than the Proposed Action and are anticipated to result in less construction emissions. Thus, annual construction-related emissions under these alternatives are anticipated to be similar or less than the Proposed Action (see Table 3.3-6), which would be less than the *de minimis* thresholds during peak construction periods. Similar to the Proposed Action, these alternative would also implement Mitigation Measure AQ-1 from the Cordova Hills Final EIR and SMAQMD's BCECP and ECECP. Therefore, the **indirect** and **direct** effect of the Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives' cumulative contribution of annual construction emissions would be considered **less than cumulatively significant**. [Lesser] No other mitigation measures were identified to further reduce these effects.

Operation

Although the Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives would include less residential and commercial development than that of the Proposed Action, it is anticipated that even with implementation of Mitigation Measure AQ-2 from the Cordova Hills Final EIR, these alternatives' annual operational emissions would continue to exceed the applicable ROG and NOX *de minimis* thresholds. No other mitigation measures were identified to further reduce these effects. Similar to the Proposed Action, the applicable *de minimis* thresholds are used as significance thresholds to evaluate the proposed project's emissions. However, USACE would not maintain operational control over the long-term operational activities, which are considered indirect emissions, and thus indirect operational emissions are not subject to the General Conformity Rule. The Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives are considered to have the potential to generate cumulatively considerable emissions and this **indirect** adverse cumulative effect is considered **cumulatively significant**. [Lesser]

P

Construction

The Pilatus Alternative would include more dwelling units and commercial square footage than the Proposed Action and is anticipated to generate temporary and short-term construction emissions greater than those of the Proposed Action.

As part of the CEQA EIR certification and project approval process, various mitigation measures were incorporated into the project entitlements. Because these mitigation measures were incorporated into the Proposed Action, it is reasonable to assume that they would also be incorporated into this action alternative, if adopted. The mitigation measures that are applicable to this effect that were incorporated into the Proposed Action by the project entitlements are listed below:

- ▶ All individual development projects shall implement Sacramento Metropolitan Air Quality Management District rules and mitigation pertinent to the construction-related ozone precursor emissions, as defined by the most current version of the Sacramento Metropolitan Air Quality Management District Guide to Air Quality Assessment. (*Final EIR Mitigation Measure AQ-1*)

Implementation of Final EIR Mitigation Measure AQ-1 would reduce the temporary and short-term construction-related emissions to annual levels that would not exceed the applicable *de minimis* thresholds. Therefore, the **indirect** and **direct** effect of the Pilatus' cumulative contribution of annual construction emissions would be considered **less than cumulatively significant**. [Greater] No other mitigation measures were identified to further reduce these effects.

Operation

The Pilatus Alternative would involve long-term operations with an increased amount of dwelling units and commercial square footage with respect to the Proposed Action. Therefore, the annual operational emissions associated with the Pilatus Alternative would be greater than those of the Proposed Action and would also exceed the applicable *de minimis* thresholds. No other mitigation measures were identified to further reduce these effects. Similar to the Proposed Action, the applicable *de minimis* thresholds are used as significance thresholds in this case. However, USACE would not maintain operational control over the long-term operational activities, which

are considered indirect emissions, and thus indirect operational emissions are not subject to the General Conformity Rule. It is anticipated that the **indirect** effects of the Pilatus Alternative's operational emissions could generate a cumulatively considerable contribution to air quality. This effect would be **cumulatively considerable**. *[Greater]*

EFFECT 3.3-5 Exposure of Sensitive Receptors to Criteria Air Pollutants and Toxic Air Contaminants. *Temporary and short-term construction and long-term operational emissions would generate criteria air pollutants and toxic air contaminants that could expose sensitive receptors to substantial pollutant concentrations.*

NA

Under the No Action Alternative, the Cordova Hills and Pilatus sites would not be developed and no construction disturbances or operational activities would occur that could expose sensitive receptors to criteria air pollutants to TACs. Therefore, there would **no indirect** or **direct** construction- or operation-related adverse effects to air quality. *[Lesser]*

Mitigation Measure: No mitigation measures are required.

PA

Construction-Related Toxic Air Contaminants

Construction of the Proposed Action would result in the temporary and short-term generation of diesel PM emissions from the use of off-road diesel equipment required for site grading, asphalt paving, utilities installation, and building construction among other activities. Diesel PM has been classified as a TAC by the ARB and therefore even acute exposure could have potential adverse health effects. Construction emissions would occur intermittently during the buildout of the Proposed Action. Diesel PM emissions would vary daily depending on the types of construction activities occurring. For example, during site grading activities that require extensive mechanical force, there would be more construction equipment operating than during building construction where more of the work would be completed by construction workers. Hence, it can be expected that diesel PM emissions during site grading would be more than those during building construction. However, following buildout of the Proposed Action, all construction activities and associated diesel PM emissions would cease.

The dose to which receptors are exposed is the primary factor used to determine health risk and is a function of concentration and duration of exposure. According to the Office of Environmental Health Hazard Assessment (OEHHA), health risk assessments that determine the health risks associated with exposure of residential receptors to TAC emissions should generally be based on a 70-year exposure period (OEHHA 2003). However, health risk assessments should be limited to the period/duration of activities associated with the emissions activity. Although overall construction activities could occur over 20 to 30 years, these construction activities would move around the Cordova Hills site as land uses are completed. It is anticipated that construction activities occurring within 500 feet of existing or proposed sensitive receptors (i.e., the most stringent buffer distance from TAC sources recommended by ARB) would only last for a fraction of the overall construction period (i.e., approximately 3 years). Therefore, the total exposure time for a given on- or off-site receptor where construction activities are within 500 feet would be approximately 3 years, which is less than 5 percent of the exposure period generally recommended for a health risk assessments. Following buildout of land uses within proximity of a given receptor, construction activities would move away from the receptor. The ARB Air Quality and Land Use

Handbook states that studies show a 70 percent drop off in particulate pollution at 500 feet from roadways. It is anticipated that the TAC emissions from construction sites, which would be more intermittent, would drop at a similar rate. Therefore, it is anticipated that as construction activities move away from receptors, diesel PM concentrations would drop to levels that would not substantially affect receptors.

In addition to the above, SMAQMD-required BCECP and ECECP would also reduce diesel PM emissions from heavy-duty construction equipment. As the Proposed Action is built out over time, TAC emissions associated with construction equipment would also be reduced due to fleet turnover and increased emissions technology.

As part of the CEQA EIR certification and project approval process, the project applicant committed to implementing various mitigation measures for the Proposed Action. The mitigation measures that are applicable to this effect that were incorporated into the Proposed Action are listed below:

- ▶ All individual development projects shall implement Sacramento Metropolitan Air Quality Management District rules and mitigation pertinent to the construction-related ozone precursor emissions, as defined by the most current version of the Sacramento Metropolitan Air Quality Management District Guide to Air Quality Assessment. (*Final EIR Mitigation Measure AQ-1*)

Because Final EIR Mitigation Measure AQ-1 has been incorporated into the Proposed Action, because the use of off-road construction equipment would be temporary and intermittent in nature, and would move around the Cordova Hills site (reducing emissions to which a single sensitive receptor would be exposed), and because of the relatively low exposure period for any particular receptor and the dispersive properties of diesel PM (Zhu and Hinds 2002), temporary and short-term construction activities would not result in the exposure of sensitive receptors to substantial TAC levels. This **direct** effect would be **less than significant**. No other mitigation measures were identified to further reduce this effect.

Operation-Related Toxic Air Contaminants

The Proposed Action would develop residential and commercial land uses, which are not typically large sources of TAC emissions. However, some of the commercial land uses could be TAC-generating facilities such as dry cleaners and gasoline dispensing stations. Therefore, it is possible that some of the proposed sensitive receptors as part of the Proposed Action and future planned nearby sensitive receptors could be exposed to TAC emissions generated by the Proposed Action's land uses. In addition, the Cordova Hills site would be located adjacent to Grant Line Road, which could generate substantial traffic volumes in future conditions when the area around the Cordova Hills site is built out. However, even under cumulative plus project conditions at full buildout, Grant Line Road would not carry more than 100,000 vehicle trips per day (50,200 vehicle trips per day under worst-case conditions), which is the threshold volume the SMAQMD uses to identify high traffic-volume roadways that would require further evaluation using the SMAQMD *Protocol for Evaluating the Location of Sensitive Land Uses Adjacent to the Major Roadways*. Thus, Grant Line Road, even under full buildout and cumulative conditions, would not be considered a substantial TAC emissions source.

Although the Proposed Action's receptors would not be exposed to substantial TAC concentrations from nearby roadways or from most of the proposed land uses, it is possible that some of the commercial land uses could generate TAC emissions and be located in proximity of sensitive receptors.

As part of the CEQA EIR certification and project approval process, the project applicant committed to implementing various mitigation measures for the Proposed Action. The mitigation measures that are applicable to this adverse effect that were incorporated into the Proposed Action are listed below.

- ▶ Buffers shall be established on a project-by-project basis and incorporated during permit or project review to provide for buffer separations between sensitive land uses and sources of air pollution or odor. The California Air Resources Board's "Air Quality and Land Use Handbook: A Community Health Perspective," or more current document, shall be utilized when establishing these buffers. Sensitive uses include schools, daycare facilities, congregate care facilities, hospitals, or other places of long-term residency for people (this includes both single- and multiple-family). The buffers shall be applied to the source of air pollution or odor, and shall be established based either on proximity to existing sensitive uses or proximity to the property boundary of land designated for sensitive uses. Buffers current at the time of the establishment of this SPA indicate that sensitive uses should be (*Final EIR Mitigation Measure AQ-3*):
 - A. At least 500 feet from auto body repair services.
 - B. At least 50 feet from existing gasoline dispensing stations with an annual throughput of less than 3.6 million gallons and 300 feet from existing gasoline dispensing stations with an annual throughput at or above 3.6 million gallons.
 - C. At least 300 feet from existing land uses that use methylene chloride or other solvents identified as a TAC, including furniture manufacturing and repair services.

Because Final EIR Mitigation Measure AQ-3 has been incorporated into the Proposed Action, TAC-generating commercial land uses would not be sited in the prescribed buffer distances from sensitive receptors. This would ensure that operational activities associated with the Proposed Action's roadways and commercial land uses would not expose sensitive receptors to substantial TAC concentrations. Therefore, this **indirect** effect would be **less than significant**. No other mitigation measures were identified to further reduce these effects.

Carbon Monoxide Hotspots

The primary mobile-source pollutant of localized concern is CO. Local mobile-source CO emissions and concentrations near roadway intersections are a direct function of traffic volume, speed, and delay. Transport of CO is extremely limited because it disperses rapidly with distance from the source under normal meteorological conditions. However, under specific meteorological conditions, CO concentrations near roadways and/or intersections may reach unhealthy levels with respect to local sensitive land uses, such as residential units, hospitals, schools, and childcare facilities. Intersections that operate at a lower level of service (LOS) (i.e. LOS E or F) have the potential to cause a CO hotspot, which is a localized exceedance of the state or Federal CO ambient air quality standard. LOS is a measurement of an intersection's performance based on idling time and speed of vehicles as they pass through. Therefore, intersections operating at LOS E or F will result in a greater number of vehicles idling and/or moving slowly through the intersection, thereby increasing the possibility for a CO hotspot.

Section 3.15, "Traffic and Transportation" evaluated the regional intersections that would be affected as a result of the Proposed Action. The maximum peak hourly volume determined at an affected intersection was 9,392 vehicles per hour at the Sunrise Boulevard and U.S. Highway 50 Westbound Ramps intersection under the A.M. peak-hour conditions, which is less than the 31,600 vehicles per hour threshold. In addition, the Proposed Action

would not contribute traffic to areas where horizontal or vertical mixing of air would be limited as the Cordova Hills site is relatively flat. Finally, the Proposed Action includes residential and commercial land uses that are not anticipated to substantially change the vehicle mix served by the affected intersections. Therefore, the Proposed Action would not exceed any of the SMAQMD screening criteria for CO hotspots. Therefore, this **indirect** adverse effect would be **less than significant**. No mitigation measures were identified to further reduce these effects.

EDP, EP, RC

Construction-Related Toxic Air Contaminants

Construction of the Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives would result in fewer overall TAC emissions than the Proposed Action due to these alternatives developing fewer residential dwelling units and commercial square footage. However, on a day-to-day basis, construction activities associated with the Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives would be similar to those of the Proposed Action. As with the Proposed Action, construction activities would move around the Cordova Hills site once particular developments are complete and therefore would not constantly expose a certain receptor to all 20 to 30 years of construction emissions. Because overall construction emissions associated with the Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives would be less than the Proposed Action, it is anticipated that any potential exposure periods from construction emissions would also be reduced.

In addition to the information discussed above, as part of the CEQA EIR certification and project approval process, various mitigation measures were incorporated into the Proposed Action. Because these mitigation measures were incorporated into the Proposed Action, it is reasonable to assume that they would also be incorporated into these action alternatives, if any of them are adopted. The mitigation measures that are applicable to this effect that were incorporated into the Proposed Action are listed below:

- ▶ All individual development projects shall implement Sacramento Metropolitan Air Quality Management District rules and mitigation pertinent to the construction-related ozone precursor emissions, as defined by the most current version of the Sacramento Metropolitan Air Quality Management District Guide to Air Quality Assessment. (*Final EIR Mitigation Measure AQ-1*)

Considering that Final EIR Mitigation Measure AQ-1 and SMAQMD's BCECPs have been incorporated into the Pilatus Alternative; construction emissions would decrease with time due to fleet turnover and improved emissions technology; the use of off-road construction equipment would be temporary and intermittent in nature, and would move around the Cordova Hills site (reducing emissions to which a single sensitive receptor would be exposed); and the relatively low exposure period for any particular receptor and the dispersive properties of diesel PM (Zhu and Hinds 2002), temporary and short-term construction activities associated with the Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives' would not result in the exposure of sensitive receptors to substantial TAC levels. This **indirect and direct** effect would be **less than significant**. [Lesser] No other mitigation measures were identified to further reduce these effects.

Operation-Related Toxic Air Contaminants

The Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives would develop the same type but fewer residential dwelling units and less commercial square footage as compared to the Proposed Action. Therefore, because these alternatives would develop less residential and commercial land uses, and the land uses would be similar to those of the Proposed Action, it is not anticipated that the proposed residential and commercial land uses would be large sources of TAC emissions. However, it is also possible that some of the commercial land uses would generate TAC emissions from dry cleaning facilities and gasoline dispensing facilities. Sensitive receptors sited next to these types of facilities could be exposed to long-term TAC emissions.

As discussed above, the Cordova Hills site would be adjacent to Grant Line Road; however, even under full buildout plus cumulative traffic conditions, Grant Line Road would not carry traffic volumes that would exceed SMAQMD's threshold for high traffic volume roadways. Thus, it is not anticipated that the proposed receptors as part of the Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives would be exposed to substantial TAC emissions from roadways.

Considering the information above, it is unlikely that the Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives would expose sensitive receptors to substantial TAC concentrations from operational activities. However, in the case that TAC-generating commercial land uses are sited near existing or proposed sensitive receptors, it is possible the sensitive receptors could be exposed to substantial TAC concentrations.

As part of the CEQA EIR certification and project approval process, various mitigation measures were incorporated into the Proposed Action. Because these mitigation measures were incorporated into the Proposed Action, it is reasonable to assume that they would also be incorporated into the four action alternatives, if any of those alternatives were adopted. The mitigation measures that are applicable to this effect that were incorporated into the Proposed Action are listed below:

- ▶ Buffers shall be established on a project-by-project basis and incorporated during permit or project review to provide for buffer separations between sensitive land uses and sources of air pollution or odor. The California Air Resources Board's "Air Quality and Land Use Handbook: A Community Health Perspective," or more current document, shall be utilized when establishing these buffers. Sensitive uses include schools, daycare facilities, congregate care facilities, hospitals, or other places of long-term residency for people (this includes both single- and multiple-family). The buffers shall be applied to the source of air pollution or odor, and shall be established based either on proximity to existing sensitive uses or proximity to the property boundary of land designated for sensitive uses. Buffers current at the time of the establishment of this SPA indicate that sensitive uses should be (*Final EIR Mitigation Measure AQ-3*):
 - A. At least 500 feet from auto body repair services.
 - B. At least 50 feet from existing gasoline dispensing stations with an annual throughput of less than 3.6 million gallons and 300 feet from existing gasoline dispensing stations with an annual throughput at or above 3.6 million gallons.

- C. At least 300 feet from existing land uses that use methylene chloride or other solvents identified as a TAC, including furniture manufacturing and repair services.

Implementation of Final EIR Mitigation Measure AQ-3 would reduce the potentially significant **indirect** effects from exposure to operational TACs under the Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives to a **less-than-significant** level because sensitive receptors would not be sited in areas where they could be exposed to substantial TAC concentrations. No other mitigation measures were identified to further reduce these effects. *[Lesser]*

Carbon Monoxide Hotspots

The Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives would entail fewer residential dwelling units and commercial square footage than the Proposed Action and therefore would generate fewer vehicle trips affecting regional intersections. Considering that these alternatives would generate fewer vehicle trips, they would thus also have a reduced effect on the LOS and peak-hour volumes of regional intersections. Considering that these alternatives would not include land uses that would substantially change the vehicle type mix (e.g., industrial or distribution center) and that the development would occur in the same area where the topography is relatively flat to avoid vertical and horizontal mixing of air, the Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives would also not exceed any of the SMAQMD's screening criteria thus are not anticipated to result in CO hotspots, therefore, this **indirect** adverse effect would be **less than significant**. *[Lesser]* No mitigation measures were identified to further reduce these effects.

P

Construction-Related Toxic Air Contaminants

Construction of the Pilatus Alternative would develop more residential dwelling units and more commercial square footage than the Proposed Action and thus would result in more overall TAC emissions than the Proposed Action. However, on a day-to-day basis, construction activities associated with the Pilatus Alternatives would be similar to those of the Proposed Action. As with the Proposed Action, construction activities associated with the Pilatus Alternative would move around the Pilatus site once particular developments are complete and therefore would not constantly expose a certain receptor to all 20 to 30 years of construction emissions. However, is it anticipated that construction activities associated with the Pilatus Alternative could last longer overall because of the increased amount of proposed development. Nevertheless, the relative exposure time to any particular receptor would still be approximately 3 years under the Pilatus Alternative.

As part of the CEQA EIR certification and project approval process, various mitigation measures were incorporated into the Proposed Action. Because these mitigation measures were incorporated into the Proposed Action, it is reasonable to assume that they would also be incorporated into this action alternative, if adopted. The mitigation measures that are applicable to this effect that were incorporated into the Proposed Action are listed below:

- ▶ All individual development projects shall implement Sacramento Metropolitan Air Quality Management District rules and mitigation pertinent to the construction-related ozone precursor emissions, as defined by the

most current version of the Sacramento Metropolitan Air Quality Management District Guide to Air Quality Assessment. (*Final EIR Mitigation Measure AQ-1*)

Considering that Final EIR Mitigation Measure AQ-1 and SMAQMD's BCECPs have been incorporated into the Pilatus Alternative; construction emissions would decrease with time due to fleet turnover and improved emissions technology; the use of off-road construction equipment would be temporary and intermittent in nature, and would move around the Cordova Hills site (reducing emissions to which a single sensitive receptor would be exposed); and the relatively low exposure period for any particular receptor and the dispersive properties of diesel PM (Zhu and Hinds 2002), temporary and short-term construction activities would not result in the exposure of sensitive receptors to substantial TAC levels. This **direct** effect would be **less than significant**. [*Greater*] No other mitigation measures were identified to further reduce these effects.

Operation-Related Toxic Air Contaminants

The Pilatus Alternative would develop the same type, but more residential dwelling units and more commercial square footage than the Proposed Action. Therefore, although it is anticipated that the Pilatus Alternative would likely generate more TAC emissions than the Proposed Action based on the increased land uses, it is not anticipated that the Pilatus Alternative's residential and commercial land uses would pose a substantial source of TAC emissions. Commercial land uses would be similar to that proposed for the Proposed Action alternative and would not be anticipated to be large sources of TAC emissions. However, it is also possible that some of the commercial land uses would generate TAC emissions from dry cleaning facilities and gasoline dispensing facilities. Sensitive receptors sited next to these types of facilities could be exposed to long-term TAC emissions. In addition, because the Pilatus Alternative would develop more residential receptors and more commercial land uses than the Proposed Action, there is a higher probability that a residential receptor could be sited near a TAC-generating commercial land use and vice versa.

As discussed above, the Pilatus site would be adjacent to Grant Line Road; however, even under full buildout plus cumulative traffic conditions, Grant Line Road would not carry traffic volumes that would exceed SMAQMD's threshold for high traffic volume roadways. Thus, it is not anticipated that the proposed receptors as part of the Pilatus Alternative would be exposed to substantial TAC emissions from roadways.

Considering the information above, it is unlikely that the Pilatus Alternative would expose sensitive receptors to substantial TAC concentrations from operational activities. However, in the case that TAC-generating commercial land uses are sited near existing or proposed sensitive receptors, it is possible the sensitive receptors could be exposed to substantial TAC concentrations.

As part of the CEQA EIR certification and project approval process, various mitigation measures were incorporated into the Proposed Action. Because these mitigation measures were incorporated into the Proposed Action, it is reasonable to assume that they would also be incorporated into the four action alternatives, if any of those alternatives were adopted. The mitigation measures that are applicable to this effect that were incorporated into the Proposed Action are listed below:

- ▶ Buffers shall be established on a project-by-project basis and incorporated during permit or project review to provide for buffer separations between sensitive land uses and sources of air pollution or odor. The California Air Resources Board's "Air Quality and Land Use Handbook: A Community Health Perspective," or more current document, shall be utilized when establishing these buffers. Sensitive uses include schools, daycare

facilities, congregate care facilities, hospitals, or other places of long-term residency for people (this includes both single- and multiple-family). The buffers shall be applied to the source of air pollution or odor, and shall be established based either on proximity to existing sensitive uses or proximity to the property boundary of land designated for sensitive uses. Buffers current at the time of the establishment of this SPA indicate that sensitive uses should be (*Final EIR Mitigation Measure AQ-3*):

- A. At least 500 feet from auto body repair services.
- B. At least 50 feet from existing gasoline dispensing stations with an annual throughput of less than 3.6 million gallons and 300 feet from existing gasoline dispensing stations with an annual throughput at or above 3.6 million gallons.
- C. At least 300 feet from existing land uses that use methylene chloride or other solvents identified as a TAC, including furniture manufacturing and repair services.

Implementation of Final EIR Mitigation Measure AQ-3 would reduce the potentially significant effects from operational exposure to TACs under the Pilatus Alternative to a **less-than-significant** level because sensitive receptors would not be sited in areas where they could be exposed to substantial TAC concentrations. No other mitigation measures were identified to further reduce these effects. [*Greater*]

Carbon Monoxide Hotspots

The Pilatus Alternative would include more residential dwelling units and commercial square footage than the Proposed Action and therefore would generate more vehicle trips affecting regional intersections. However, as determined in the traffic analysis, the effects on baseline delay-to-volume ratios under the Proposed Action would be minimal. Therefore, it is not anticipated that even with the additional residential and commercial land uses associated with the Pilatus Alternative, that intersection volumes would degrade an intersection to LOS E or F or would substantially degrade an existing LOS E or F intersection. In addition, the maximum peak hourly volume at an affected intersection under the Proposed Action (i.e., 9,392 vehicles per hour) would be 30 percent of the SMAQMD screening threshold. Therefore, even with the additional vehicle trips, the Pilatus Alternative is not anticipated to increase peak-hour volumes by another 70 percent that would exceed the SMAQMD screening threshold. Lastly, the Pilatus Alternative would develop similar land use types as the Project Action and therefore would not add vehicle volumes in areas where vertical or horizontal mixing would be limited or cause a substantial change in vehicle types serviced by the intersections. Therefore, the Pilatus Alternative would not have the potential to generate CO hotspots, and this **indirect** adverse effect would be **less than significant**. [*Greater*]
No mitigation measures were identified to further reduce these effects.

EFFECT Generation of Odors. *Construction and operational activities could generate objectionable odor emissions.*
3.3-6

NA

Under the No Action Alternative, the Cordova Hills and Pilatus sites would not be developed and no construction disturbances or operational activities would occur that could generate objectionable odor emissions. Therefore, there would **no indirect** or **direct** construction- or operation-related adverse effects to air quality. [*Lesser*]

Mitigation Measure: No mitigation measures are required.

PA

The occurrence and severity of odor effects depends on numerous factors including the nature, frequency, and intensity of the source; wind speed and direction; and the sensitivity of the receptors. While offensive odors rarely cause any physical harm, they can be very unpleasant, leading to considerable distress among the public and often generating citizen complaints to local governments and regulatory agencies. Projects with the potential to frequently expose individuals to objectionable odors would be deemed to have a significant adverse effect. Typical facilities that generate odors include wastewater treatment facilities, sanitary landfills, composting facilities, petroleum refineries, chemical manufacturing plants, and food processing facilities, among others.

Construction Odors

Construction of the Proposed Action is not anticipated to expose nearby off-site receptors (existing or future planned) to objectionable odors. Construction activities would generate diesel PM exhaust from heavy-duty trucks and off-road construction equipment, which could be considered offensive to some individuals. Though construction activities would be fairly intensive during grading and earthmoving activities, other phases would not require such intensive use of construction equipment. In addition, construction emissions would occur intermittently on any given day and throughout the year, and therefore would not generate a constant source of odor emissions that would expose nearby or future receptors. Based on the temporary, short-term, and variable nature of construction activities, it is not anticipated that the construction activities associated with the Proposed Action would expose a substantial number of receptors to odor emissions, and this **indirect** and **direct** adverse effect is considered **less than significant**. No mitigation measures were identified to further reduce these effects.

Odors During Operation

The Proposed Action would involve residential, commercial, and community recreational land uses, which as described above are not typical land uses that generate substantial odor emissions. Residential and community recreational land uses typically only include odor emissions associated with garbage disposal. As part of the Proposed Action, regular (i.e., weekly) garbage disposal services would be provided to ensure that garbage does not accumulate and generate a substantial odor source. The commercial developments could include food service land uses; cooking processes and the disposal of food waste could generate objectionable odor emissions that may affect nearby receptors. In addition, any proposed restaurant would be required to comply with the SMAQMD's Rule 402 (Nuisance) to minimize nuisance odor emissions from char boilers, deep fryers, and any other food preparation equipment. Kiefer Landfill is located southwest of the Cordova Hills site and could be a potential odor source for the proposed residents. However, the Proposed Action would not site sensitive receptors within Kiefer Landfill's 2,000-foot buffer, which is their established buffer area to avoid exposing residents to odors. Considering this and the fact that the proposed land uses are not typical large odor sources and the fact that all potential odor emissions would be controlled through a combination of SMAQMD rules and regulations, California Retail Food Code, and regular garbage disposal services provided by Sacramento County, it is not anticipated that operation of the Proposed Action would expose a substantial number of on- or off-site receptors to objectionable odor emissions. Therefore, this **indirect** effect is considered **less than significant**. No mitigation measures were identified to further reduce these effects.

Construction Odors

Construction activities associated with the Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives would be less than the Proposed Action because of the reduced number of residential dwelling units and less commercial square footage that would be developed. Therefore, the construction activities associated with the Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives would not be more intensive or occur in different areas that could potentially expose receptors to substantial odor emissions. Thus, the **indirect** and **direct** adverse odor effect associated with construction of the Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternative would be **less than significant**. *[Lesser]* No mitigation measures were identified to further reduce these effects.

Odors During Operation

Buildout of the Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives would result in fewer residential dwelling units and commercial square footage than the Proposed Action. These alternatives would develop similar land uses as the Proposed Action, which typically do not generate substantial odor emissions. In addition, the same SMAQMD rules and regulations, and regular garbage collection service would apply to these alternatives to minimize any potential for odor emissions. Therefore, it is anticipated that the **indirect** adverse odor effect associated with operation of the Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives would be **less than significant**. *[Lesser]* No mitigation measures were identified to further reduce these effects.

P

Construction Odors

The Pilatus Alternative would require more construction activities than the Proposed Action. Although the Pilatus Alternative would include more overall emissions due to additional residential dwelling units and commercial square footage, both the Pilatus Alternative and the Proposed Action would be built out based on economic and demand conditions. Therefore, it is not anticipated the Pilatus Alternative would require substantially more intensive construction activities that would have a greater potential to generate odor emissions. Rather, the Pilatus Alternative would be built out over a longer period of time. Thus, the **indirect** and **direct** adverse odor effect from construction emissions under the Pilatus Alternative would be **less than significant**. *[Greater]* No mitigation measures were identified to further reduce these effects.

Odors During Operation

The Pilatus Alternative would result in more residential dwelling units and commercial square footage than the Proposed Action. This alternative would develop similar land uses as the Proposed Action, which typically do not generate substantial odor emissions. The Pilatus Alternative would develop more dwelling units and more commercial square footage than the Proposed Action, which would increase the potential for adverse odor effects due to addition receptors and potential odor sources. However, the same SMAQMD rules and regulations and regular garbage collection service would apply to the Pilatus Alternative and would minimize any potential for odor emissions. Therefore, it is anticipated that the **indirect** adverse operational odor effect associated with the

Pilatus Alternative would be **less than significant**. [*Greater*] No mitigation measures were identified to further reduce these effects.

3.3.6 RESIDUAL SIGNIFICANT EFFECTS

The operational emissions under the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives after mitigation would continue to exceed the applicable *de minimis* threshold for ROG and NO_x after implementation of mitigation and would conflict with or obstruct implementation of the applicable air quality plan and would cause or contribute substantially to an exceedance of a NAAQS. Thus, these effects would remain **significant and unavoidable**.

All other air quality effects either would be less than significant, or would be reduced to a less-than-significant level with implementation of mitigation.

3.3.7 CUMULATIVE EFFECTS

Cumulative effects are addressed in Effect 3.3-4.

3.4 BIOLOGICAL RESOURCES

3.4.1 INTRODUCTION

This chapter presents a description of the existing environment in relation to biological resources, regulations that are pertinent to these topics, and an analysis of potential effects of each of the alternatives under consideration. Mitigation measures are recommended, where feasible, to reduce adverse effects. While focusing primarily on Federally identified sensitive biological resources, this analysis also includes a discussion regarding state or locally sensitive biological resources for compliance with NEPA. However, USACE does not have the authority to enforce any mitigation measures required to reduce effects to state or locally sensitive biological resources. CEQA review of the Proposed Action has been conducted separately, which includes an analysis of effects on state or local sensitive biological resources, including required mitigation measures, and an environmental impact report has been certified by Sacramento County.

3.4.2 AFFECTED ENVIRONMENT

The Cordova Hills site is located in eastern Sacramento County east of Grant Line Road and west of Carson Creek. The Pilatus site abuts the Cordova Hills site to the north. The Cordova Hills site is approximately 2,669 acres, and the Pilatus site is approximately 882.5 acres in size. The Cordova Hills and Pilatus sites are located on undulating topography; the Cordova Hills site ranges in elevation from 130 to 280 feet above mean sea level (MSL), and the Pilatus site ranges from approximately 180 to 295 feet above MSL. The dominant vegetation type is nonnative grassland. Interspersed through the grassland community are aquatic resources consisting of vernal pools, seasonal wetlands, seasonal wetland swales, seeps, intermittent drainages, and ponds. There is one tree, a eucalyptus (*Eucalyptus* sp.), on the Cordova Hills site, and there are a few cottonwood and oak trees on the Pilatus site.

The Cordova Hills site contains two distinct watersheds that differ hydrologically, geologically, and biologically. The western plateau portion of the site is approximately 905 acres or 34 percent of the 2,668 acres that make up the Cordova Hills site. The western plateau area is relatively flat and is within the Sacramento Valley 8 digit HUC watershed (Laguna Creek Watershed). The remainder of the Cordova Hills site (east of plateau area) represents 1,763 acres or 66 percent of the site. The east of plateau area has topography that drops off significantly from the western plateau area turning into undulating hills and is located within the Cosumnes 8 digit HUC watershed (Carson Creek and Deer Creek Watersheds). The majority of the wetlands on the western plateau are vernal pools while the majority of the wetlands in the area east of the plateau area are flashy intermittent drainages and seasonal wetland swales.

The western plateau area is comprised of a single geologic unit – the Laguna Formation, which is the oldest alluvially-deposited surface in the Central Valley (CNPS 2009). The remaining geologic units east of the plateau area are Mehrten Formation, Valley Springs Formation, Lower Modesto Formation, and Gopher Ridge Volcanics. The Mehrten Formation is derived from volcanic mudflow deposits, the Valley Springs Formation is derived from volcanic ash flow deposits, the Lower Modesto Formation is comprised of recent alluvial deposits, and the Gopher Ridge Volcanics are comprised of metamorphic rocks. The western plateau area of the Cordova Hills site seems to be consistent with soil horizon characteristics of “old terrace” restrictive layers and is the only formation on the site that fits the description of “old terrace.”

The Cordova Hills and Pilatus sites are primarily surrounded by undeveloped land that consists of pastureland and agricultural fields. South of the Cordova Hills site is Kiefer Landfill, around which a 2,000-foot buffer was established that precludes urban development. Although a portion of this “bufferlands” area is a conservation easement and a portion of the Cordova Hills site is within this buffer, none of the Cordova Hills site is within the conservation easement. To the east is the former Sacramento County Boys Ranch facility (a juvenile correction facility, currently closed) and agricultural farmlands. To the north is agricultural land (primarily nonirrigated grazing land). In the city of Rancho Cordova to the west across Grant Line Road, land is largely undeveloped, but includes an approved and partially constructed planning area called the Sunridge Specific Plan (a mix of commercial and residential development of approximately 2,606 acres).

3.4.3 VEGETATION AND HABITAT

Vegetation on the Cordova Hills and Pilatus sites consist primarily of annual grassland. This community is dominated by nonnative grasses, including medusa head grass (*Elymus caput-medusae*), ripgut brome (*Bromus diandrus*), soft brome (*Bromus hordeaceus*), wild oats (*Avena fatua*), and Italian ryegrass (*Festuca perennis*). Other herbaceous species in this community include rose clover (*Trifolium hirtum*), bicolored lupine (*Lupinus bicolor*), cut-leaf geranium (*Geranium dissectum*), common vetch (*Vicia sativa*), filaree (*Erodium* spp.), sticky tarweed (*Holocarpha virgata*), Fitch's spikeweed (*Centromadia fitchii*), yellow star-thistle (*Centaurea solstitialis*), hairy hawkbit (*Leontodon saxatilis*), and turkey mullein (*Croton setigerus*). Vernal pool complexes, seasonal wetlands, swales, ponds, and drainages are interspersed within the grassland habitat and are described below in Section 3.4.4, “Sensitive Biological Resources.”

Habitats on the Cordova Hills and the Pilatus sites are suitable to support a variety of both common and sensitive wildlife species.

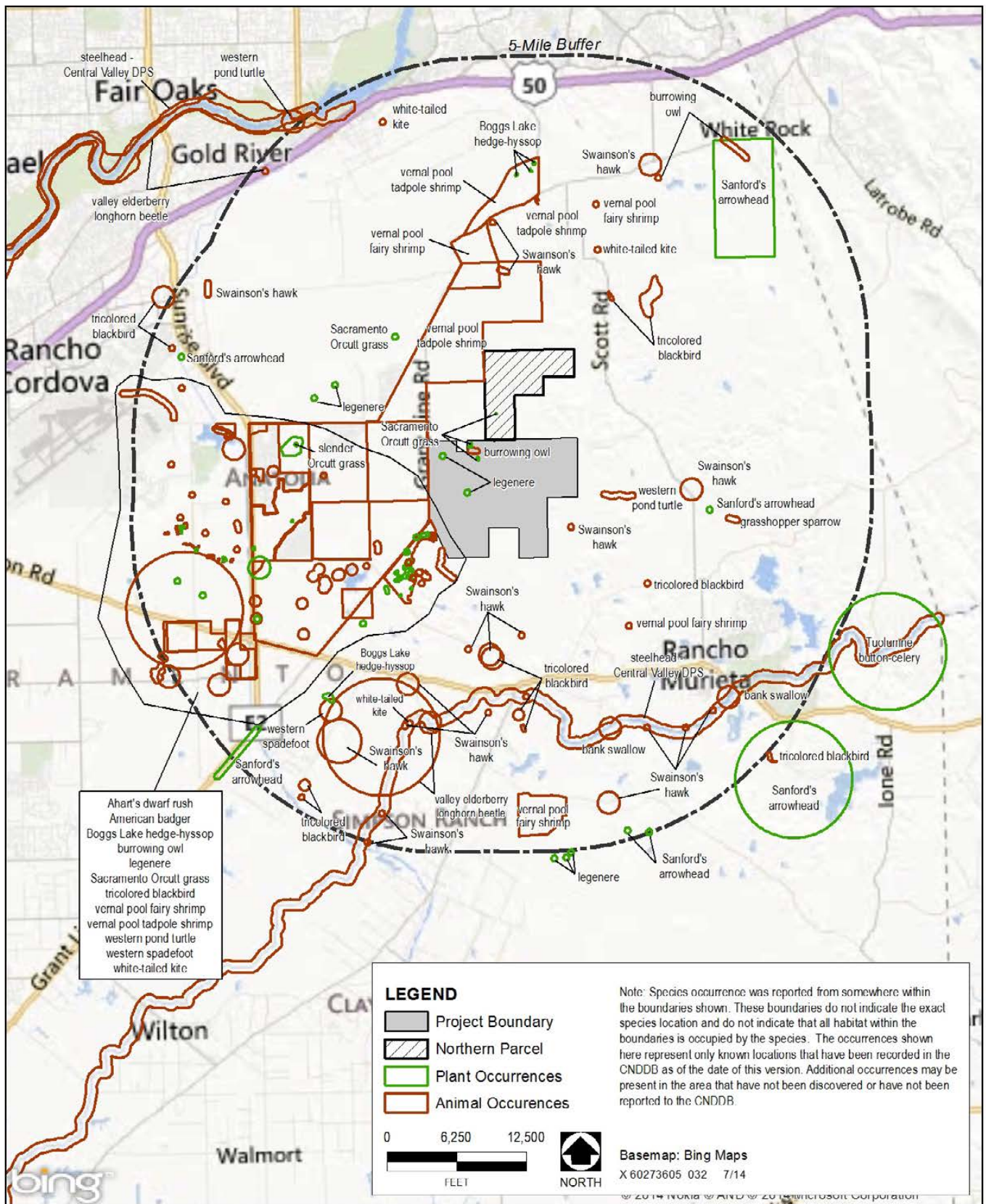
3.4.4 SENSITIVE BIOLOGICAL RESOURCES

A number of special-status species have been documented in the vicinity of the Proposed Action. Special-status species are defined as those species that meet one or more of the following criteria:

- ▶ Species listed as Federally threatened or endangered
- ▶ Candidates for Federal-listing
- ▶ Species listed as state-threatened or endangered
- ▶ Candidates for state-listing
- ▶ California Species of Special Concern
- ▶ California Fully Protected species
- ▶ Plants that are California Rare Plant Rank 1 or 2

A search of the California Natural Diversity Database (CNDDDB) was conducted to identify past occurrences of special-status species in the Cordova Hills and Pilatus sites and within 5 miles of these locations (Exhibit 3.4-1). A number of documents and reports were also consulted to identify additional species having potential to occur or known to occur in the Proposed Action area. These sources include the following:

- ▶ ECORP Consulting, Inc. (ECORP) 2009 Special-Status Plant Survey for Cordova Hills;
- ▶ ECORP 2010 *Special-Status Plant Survey for Grantline, LLC.*;
- ▶ ECORP 2011a *Late Season Special-Status Plant Survey for Grantline, LLC.*;



Source: CNDDB May 2014

Exhibit 3.4-1

CNDDB Occurrences Within 5 Miles of Cordova Hills and Pilatus Sites

- ▶ ECORP 2011b U.S. Fish and Wildlife Service (USFWS) *Biological Assessment to Support Section 7 Consultation for Cordova Hills*;
- ▶ ECORP 2011c *Updated Watershed Analysis of the Existing Wetlands for Cordova Hills*; and
- ▶ County of Sacramento 2012 *Cordova Hills Final Environmental Impact Report*.

Table 3.4-1 and Table 3.4-2 include an analysis of the potential for each special-status plant and wildlife species, respectively, to occur on the Cordova Hills site as well as the Pilatus site. The potential to occur is based on the habitat present, recorded occurrences of the species in the vicinity of the Cordova Hills and Pilatus sites, survey results from prior studies, and data from literature resources.

- ▶ Not Present: A comprehensive survey was performed by a qualified biologist and the species was not found, the Cordova Hills and Pilatus sites are outside the species' current known range, or habitat is absent at the site, and the species is not included on USFWS list of species that may be affected by projects occurring in Sacramento County.
- ▶ Low Potential: Habitat for the species is marginal, and the species is not expected to occur on-site.
- ▶ Moderate Potential: Habitat is present, but the species has not been documented within 5 miles of the site.
- ▶ High Potential: Habitat is present and the species has been documented within 5 miles of the site.
- ▶ Present: The CNDDDB contains a recorded occurrence on the site, or the species was found during site-specific surveys.

Special-status species that are known or have moderate or high potential to occur on the Cordova Hills or Pilatus sites are discussed in more detail in the following paragraphs. Species that are not present or have a low potential to occur on the Cordova Hills and Pilatus sites are not discussed further in this EIS.

FEDERALLY PROTECTED PLANTS

Slender Orcutt Grass

Slender Orcutt grass is an annual, wind-pollinated grass species that is endemic to vernal pools. Seed dispersal is generally via water, which causes the inflorescences to break apart. Population sizes can vary widely from year to year. This species is generally found on soils of volcanic origin. It occurs in pools in a variety of habitat types, including grasslands, oak woodlands, and mixed conifer forest. Three occurrences are located in southeastern Sacramento County.

The vernal pools, seasonal wetlands, and seasonal wetland swales in the Cordova Hills and Pilatus sites provide suitable habitat for this species. Botanical surveys were conducted on the Cordova Hills site, for the Proposed Action, and this species was not detected. Thus, slender Orcutt grass is considered to be absent from the Cordova Hills site. The Pilatus site has not been surveyed for special-status plant species, but Slender Orcutt grass has a high potential to occur on this property.

**Table 3.4-1
 Special-status Plant Species**

Species	Status ¹	Blooming Period	Habitat ¹	Potential for Occurrence
Federally Protected Plants				
Ione Manzanita <i>Arctostaphylos myrtifolia</i>	FT, CRPR 1B.2	November – March	Native to the sandy clay soils of the Ione formation in the western Sierra Nevada foothills.	Cordova Hills site: Not present Pilatus site: Not present This species requires serpentinite, volcanic, or gabbroic soils or soils of the Ione formation; the site is not located on Ione formation soils. Furthermore, this species occurs within chaparral cismontane woodlands; this habitat is not present on the Cordova Hills site or the Pilatus site.
Stebbin's morning glory <i>Calystegia stebbinsii</i>	FE, SE, CRPR 1B.1	April – July	Occurs on gabbroic or serpentinite soils in openings in chaparral habitat and cismontane woodlands between 600 and 3,575 feet in elevation.	Cordova Hills site: Not present Pilatus site: Not present This species requires gabbroic soils, which are not present on-site. Furthermore, neither chaparral nor foothill woodland habitat are present on the Cordova Hills or the Pilatus sites.
Pine Hill ceanothus <i>Ceanothus roderickii</i>	FE, CRPR 1B.2	April – June	Occurs on gabbro soils in western El Dorado County, scattered throughout chaparral habitat. Positive effects from periodic fires have been demonstrated (U.S. Bureau of Land Management [BLM] 2011).	Cordova Hills site: Not present Pilatus site: Not present This species requires gabbroic soils, which are not present on-site. Chaparral habitat is not present on the Cordova Hills or Pilatus sites.
Ione Buckwheat <i>Eriogonum apricum var. apricum</i>	FE, CE, CRPR 1B.1	July – October	Native to the sandy clay soils of the Ione formation in the western Sierra Nevada foothills.	Cordova Hills site: Not present Pilatus site: Not present This species requires serpentinite, volcanic, or gabbroic soils or soils of the Ione formation, none of which are present on-site. Further, species occur within chaparral cismontane woodlands; this habitat is not present on the Cordova Hills or Pilatus sites.
Irish Hill Buckwheat <i>Eriogonum apricum var. prostratum</i>	FE, CE, CRPR 1B.1	June – July	Native to the sandy clay soils of the Ione formation in the western Sierra Nevada foothills.	Cordova Hills site: Not Present Pilatus site: Not Present This species requires serpentinite, volcanic, or gabbroic soils or soils of the Ione formation, none of which are present on-site. Further, species occur within chaparral cismontane woodlands; this habitat is not present on the Cordova Hills site or the Pilatus site.

**Table 3.4-1
Special-status Plant Species**

Species	Status ¹	Blooming Period	Habitat ¹	Potential for Occurrence
Pine Hill flannelbush <i>Fremontodendron californicum</i> ssp. <i>decumbens</i>	FE, CR, CRPR 1B.2	April – July	Entirely confined to rocky ridges on Pine Hill and the immediate vicinity of Pine Hill in the Sierra Nevada (BLM 2011).	Cordova Hills site: Not present Pilatus site: Not present The specific gabbroic rock outcrop habitat type this species occurs on is not present within the Cordova Hills or the Pilatus sites. Also, the Cordova Hills and Pilatus sites are outside of the known species range, which is confined to the Pine Hill area of western El Dorado County.
El Dorado bedstraw <i>Galium californicum</i> ssp. <i>sierrae</i>	FE, CRPR 1B.2	March – July	Known only from several sites scattered throughout the gabbro soils in western El Dorado County. This species often grows in open pine, chaparral, and in the understory of live oak or black oak woodlands, often on north facing slopes (BLM 2011; Baldwin et al. 2012).	Cordova Hills site: Not present Pilatus site: Not present This species is restricted to gabbroic soils that are not found on the proposed Cordova Hills or Pilatus sites. Further, this species occurs in open pine and oak forest or chaparral habitats, which are not present on the Cordova Hills or Pilatus sites, and these areas are outside of the known species range, which is restricted to western El Dorado County.
Slender Orcutt Grass <i>Orcuttia tenuis</i>	FT, CE, CRPR 1B.1	May – October	Occurs in vernal pools that are often gravelly from 115 – 5,775feet in elevation.	Cordova Hills site: Not present Pilatus site: High potential The vernal pools, seasonal wetlands, and seasonal swales on-the Cordova Hills and Pilatus sites provide suitable habitat for this species. The nearest listed occurrence in the CNDDDB is 2.3 miles west of the Cordova Hills and Pilatus sites. This species was not observed during rare plant surveys of the Cordova Hills site. Because there is suitable habitat, the nearest known occurrence is within 5 miles, and because focused surveys have not been conducted, there is a high potential for this species on the Pilatus site.
Sacramento Orcutt Grass <i>Orcuttia viscida</i>	FE, SE, CRPR 1B.1	April – July	Occurs in vernal pools from 100 to 330 feet in elevation.	Cordova Hills site: Present Pilatus site: Present Species observed in vernal pools along the northern boundary of the Cordova Hills site during plant surveys (ECORP 2009). The vernal pools, seasonal wetlands, and seasonal swales on the Cordova Hills and Pilatus sites provide suitable habitat for this species. Although rare plant surveys have not been conducted on the Pilatus site, a CNDDDB occurrence has been recorded within the property.

**Table 3.4-1
 Special-status Plant Species**

Species	Status ¹	Blooming Period	Habitat ¹	Potential for Occurrence
Layne's ragwort <i>Packera layneae</i>	FT, CR, CRPR 1B.2	April – August	Occurs on gabbic, rocky soils in chaparral and foothill woodland habitat in the Sierra Nevada foothills between 660 and 3,280.	Cordova Hills site: Not present Pilatus site: Not present The habitat type is not present within the Cordova Hills or the Pilatus sites, and these areas are outside of known species range.
State Listed and Other Special-Status Plants				
Dwarf downingia <i>Downingia pusilla</i>	CRPR 2.2	March – May	Occurs in vernal pools and mesic areas in valley and foothill grasslands from 3 to 1,460 feet in elevation.	Cordova Hills site: Not present Pilatus site: Moderate potential Suitable habitat is present on the Cordova Hills and Pilatus sites. The nearest occurrence is over 5 miles from the Cordova Hills and Pilatus sites, and this species was not found during rare plant surveys conducted on the Cordova Hills site. Because there is suitable habitat, the nearest known occurrence is over 5 miles away, and because focused surveys have not been conducted, there is a moderate potential for this species on the Pilatus site
Tuolumne Button-Celery <i>Eryngium pinnatisectum</i>	CRPR 1B.2	May – August	Occurs in mesic areas within cismontane woodland, vernal pools, and lower montane coniferous forests at elevations between 230 and 3,000 feet.	Cordova Hills site: Not present Pilatus site: Not present This species is found in vernal pools within cismontane and lower montane coniferous forest habitats, which do not occur on the proposed Cordova Hills or the Pilatus sites. Further, the species occurs only in the Sierra Nevada Foothills region above 200 feet elevation; therefore, the Cordova Hills site and Pilatus site are outside of the species' current known range.
Bogg's Lake Hedge Hyssop <i>Gratiola heterosepala</i>	CE, CRPR 1B.2	April – August	Occurs at the margins of marshes and swamps and in vernal pools from 30 to 7,790 feet in elevation.	Cordova Hills site: Not present Pilatus site: High potential Suitable habitat present on the Cordova Hills and Pilatus sites. The nearest occurrence is approximately 0.25-mile southwest of the Cordova Hills site. Rare plant surveys conducted in 2008 and 2010 did not observe the species at the Cordova Hills site, but surveys have not been conducted on the Pilatus site. Because there is suitable habitat, the nearest known occurrence is within 5 miles, and because focused surveys have not been conducted, there is a high potential for this species on the Pilatus site.

**Table 3.4-1
Special-status Plant Species**

Species	Status ¹	Blooming Period	Habitat ¹	Potential for Occurrence
Parry's Horkelia <i>Horkelia parryi</i>	CRPR 1B.2	April – September	Native to the sandy clay soils of the Ione formation in the western Sierra Nevada foothills. Occurs in chaparral and cismontane woodland habitat.	Cordova Hills site: Not present Pilatus site: Not present This species requires serpentinite, volcanic, or gabbroic soils of the Ione formation, none of which are present on-site. Further, chaparral and cismontane woodlands are also not present at the Cordova Hills and Pilatus sites.
Northern California Black Walnut <i>Juglans hindsii</i>	CRPR 1B.1	April – May	Occurs in riparian forest and riparian woodland habitats from 0 to 1,440 feet in elevation.	Cordova Hills site: Not present Pilatus site: Not present There is one eucalyptus tree present on the Cordova Hills site, and a few cottonwood and oak trees on the Pilatus site. In addition, although this species is widely cultivated in California as rootstock for English walnut, there are only three native populations still present. This species is widely naturalized in cismontane woodland habitat, which is not present on the Cordova Hills or Pilatus sites. The only native occurrence in Sacramento County is listed as extirpated.
Ahart's Dwarf Rush <i>Juncus leiospermus</i> var. <i>ahartii</i>	CRPR 1B.2	March – May	Occurs in mesic valley and foothill grasslands from elevation 100 to 750 feet in elevation.	Cordova Hills site: Not present Pilatus site: High potential The vernal pools, seasonal wetlands, and seasonal swales on the Cordova Hills site and the Pilatus site provide suitable habitat for this species. The plant surveys did not detect the species within the Cordova Hills site and the nearest occurrence listed in the CNDDDB is approximately 4.5 miles to the west of the Cordova Hills and Pilatus sites. Because there is suitable habitat, the nearest known occurrence is within 5 miles, and because focused surveys have not been conducted, there is a high potential for this species on the Pilatus site.

**Table 3.4-1
 Special-status Plant Species**

Species	Status ¹	Blooming Period	Habitat ¹	Potential for Occurrence
<i>Legenere Legenere limosa</i>	CRPR 1B.1	April – June	Occurs in vernal pools from 3 to 2,890 feet in elevation.	Cordova Hills site: Present Pilatus site: High potential Species was observed in two vernal pools on the Cordova Hills site during plant surveys. It is unknown if it is also present on the Pilatus site. The vernal pools, seasonal wetlands, seasonal wetland swales, drainages, ditches, and stock pond on the Pilatus site represent suitable habitat. Because there is suitable habitat, the nearest known occurrence is within 5 miles, and because focused surveys have not been conducted, there is a high potential for this species on the Pilatus site.
<i>Pincushion Navarretia Navarretia myersii ssp. myersii</i>	CRPR 1B.1	April – May	Occurs in vernal pools, often acidic pools, from 65 – 1,080 feet in elevation.	Cordova Hills site: Not present Pilatus site: Moderate potential The vernal pools, seasonal wetlands, and seasonal swales on the Cordova Hills site and the Pilatus site provide suitable habitat for this species. The plant surveys did not detect the species within the Cordova Hills site, and the nearest occurrence is over 5 miles from the Cordova Hills and Pilatus sites. Because there is suitable habitat, the nearest known occurrence is more than 5 miles from the Pilatus site, and because focused surveys have not been conducted, there is a moderate potential for this species on the Pilatus site
<i>Sanford’s Arrowhead Sagittaria sanfordii</i>	CRPR 1B.2	May – October	Occurs in shallow freshwater marshes and swamps from elevation 0 – 2,130 feet in elevation.	Cordova Hills site: Not present Pilatus site: Not present The ponds on the Cordova Hills site provide suitable habitat for this species. The nearest listed occurrence in the CNDDDB is 2.2 miles east of the Cordova Hills and Pilatus sites. The plant surveys in 2008 and 2010 did not observe the species within the Cordova Hills site. There is no suitable habitat for this species on the Pilatus site.

**Table 3.4-1
Special-status Plant Species**

Species	Status ¹	Blooming Period	Habitat ¹	Potential for Occurrence					
<p>¹ Species Status Definitions:</p> <table border="0"> <tr> <td style="vertical-align: top;"> Federal Listing Status Definitions: FE = Federal Endangered FT = Federal Threatened FC = Federal Candidate </td> <td style="vertical-align: top;"> California Listing Status Definitions: CE = California Endangered; CT = California Threatened CC = California Candidate CR = California Rare </td> <td style="vertical-align: top;"> California Rare Plant Rank (CRPR) Definitions: CRPR 1B = Plants that are rare, threatened, or endangered in California and elsewhere CRPR 2 = Plants that are rare, threatened, or endangered in California, but are more common elsewhere Threat Rank 0.1 = Seriously threatened in California 0.2 = Fairly threatened in California 0.3 = Not very threatened in California </td> <td colspan="2"></td> </tr> </table>					Federal Listing Status Definitions: FE = Federal Endangered FT = Federal Threatened FC = Federal Candidate	California Listing Status Definitions: CE = California Endangered; CT = California Threatened CC = California Candidate CR = California Rare	California Rare Plant Rank (CRPR) Definitions: CRPR 1B = Plants that are rare, threatened, or endangered in California and elsewhere CRPR 2 = Plants that are rare, threatened, or endangered in California, but are more common elsewhere Threat Rank 0.1 = Seriously threatened in California 0.2 = Fairly threatened in California 0.3 = Not very threatened in California		
Federal Listing Status Definitions: FE = Federal Endangered FT = Federal Threatened FC = Federal Candidate	California Listing Status Definitions: CE = California Endangered; CT = California Threatened CC = California Candidate CR = California Rare	California Rare Plant Rank (CRPR) Definitions: CRPR 1B = Plants that are rare, threatened, or endangered in California and elsewhere CRPR 2 = Plants that are rare, threatened, or endangered in California, but are more common elsewhere Threat Rank 0.1 = Seriously threatened in California 0.2 = Fairly threatened in California 0.3 = Not very threatened in California							
<p>² Species determined to be present or have potential to occur on the Cordova Hills or Pilatus sites are discussed further in the text; species determined not present are not discussed further.</p> <p>Sources: CDFW 2013, County of Sacramento 2008, and ECORP 2009, 2011a, 2011b.</p>									

**Table 3.4-2
Special-status Wildlife Species**

Species	Status ¹	Habitat ¹	Potential for Occurrence
Federally Protected Wildlife			
INVERTEBRATES			
Valley Elderberry Longhorn Beetle <i>Desmocerus californicus dimorphus</i>	FT	Associated with mature elderberry (<i>Sambucus</i> spp.) shrubs/trees generally found in riparian habitat.	Cordova Hills site: Not present Pilatus site: Moderate potential The elderberry host plant is not present on the Cordova Hills site. While it is unlikely that elderberry shrubs are present on the Pilatus site, no surveys have been conducted, and therefore there is a potential for them to be present. CNDDDB occurrences of the species have been documented within 5 miles of the Cordova Hills and Pilatus sites.
Conservancy Fairy Shrimp <i>Branchinecta conservatio</i>	FE	This species is endemic to grasslands of the Central Valley in California. It is found in a number of soil types and landforms and is often found in large, turbid vernal pools.	Cordova Hills site: Not present Pilatus site: Not present Vernal pools, seasonal wetlands, and seasonal wetland swales within the Cordova Hills and Pilatus sites provide suitable habitat for this species. However, the currently known distribution of this species does not include Sacramento County or the Southeastern Sacramento Valley Vernal Pool Region (USFWS 2005, 2007).

**Table 3.4-2
 Special-status Wildlife Species**

Species	Status ¹	Habitat ¹	Potential for Occurrence
Vernal Pool Fairy Shrimp <i>Branchinecta lynchi</i>	FT	Inhabits ephemeral habitats such as vernal pools and wetland swales with clear or tea-colored water.	Cordova Hills site: Present Pilatus site: High potential This species was identified in 36 aquatic features on the Cordova Hills site during wet season surveys conducted in 2013 (ECORP 2013a). This species was not detected during 2013 dry season surveys conducted east of the western plateau. There are 13 presumed extant CNDDDB occurrences of this species documented within 5 miles of the Cordova Hills and Pilatus sites. Vernal pools, seasonal wetlands, and seasonal wetland swales within the Cordova Hills site and Pilatus sites provide suitable habitat.
Vernal Pool Tadpole Shrimp <i>Lepidurus packardi</i>	FE	Found only in ephemeral habitats such as vernal pool and vernal swales.	Cordova Hills site: Present Pilatus site: High potential This species was identified in 74 aquatic features on the Cordova Hills site during wet season surveys conducted in 2013 (ECORP 2013a). This species was not detected during 2013 dry season surveys conducted east of the western plateau. There are 29 presumed extant CNDDDB occurrences of this species documented within 5 miles of the Cordova Hills and Pilatus sites. Vernal pools, seasonal wetlands, and seasonal wetland swales within the Cordova Hills and Pilatus sites provide suitable habitat.
FISH			
Delta Smelt <i>Hypomesus transpacificus</i>	FT, CE	The delta smelt is a small, slender-bodied fish that inhabits the Sacramento-San Joaquin Delta (Delta) and occurs seasonally in San Pablo Bay, Suisun Bay, and Carquinez Strait. This species occurs in the Sacramento River as far upstream as the confluence with the American River. Delta smelt may also be found in the Cosumnes River and San Joaquin River.	Cordova Hills site: Not present Pilatus site: Not present Although Carson Creek, which borders the eastern portion of the Cordova Hills site, is hydrologically connected to the Delta via the Cosumnes River the Cordova Hills and Pilatus sites are outside of the species range (i.e., the Delta) (Merz, et al. 2011).

**Table 3.4-2
Special-status Wildlife Species**

Species	Status ¹	Habitat ¹	Potential for Occurrence
Central Valley Steelhead <i>Oncorhynchus mykiss</i>	FT	Requires perennial streams with cool, clear, fast moving water with abundant riffles and gravel substrate. Most of Sacramento County is within the distinct population segment area for this species. Critical habitat has been designated within Sacramento County on the Sacramento River, American River, Mokelumne River, and Dry Creek (both north and south creeks). Spawning has been documented on the Cosumnes River in the past. (NMFS 2009)	Cordova Hills site: Not present Pilatus site: Not present There is no suitable spawning habitat for this species within the Cordova Hills or Pilatus sites.
Central Valley Spring and Winter-run Chinook Salmon <i>Oncorhynchus tshawytscha</i>	FT, CT (Central Valley spring-run) FE, CE (Sacramento River winter-run)	Requires shallow streams with gravel and cobble substrates for spawning. Distribution occurs throughout the Sacramento River and through a portion of the American River, but the distribution maps do not include the Cosumnes River as habitat. (NMFS 2009)	Cordova Hills site: Not present Pilatus site: Not present Habitat is not present within or near the Cordova Hills or Pilatus sites.
AMPHIBIANS			
California Tiger Salamander <i>Ambystoma californiense</i>	FT, CT, SSC	Endemic to annual grasslands and valley-foothill habitats in California. Adults spend most time in subterranean refugia, particularly in ground squirrel burrows. Seasonal ponds or vernal pools are required for breeding.	Cordova Hills site: Not present Pilatus site: Not present The site contains suitable breeding habitat and upland habitat for the species; however, it is not expected to occur due to the fact that the Cordova Hills and Pilatus sites are outside of the known range of the species. The nearest recorded occurrence is nearly 9 miles south of the Cordova Hills and Pilatus sites.
California Red-legged Frog <i>Rana draytonii</i>	FT, SSC	Adults prefer dense emergent riparian vegetation near deep (at least two feet), still, or slow-moving water. Needs a minimum 11-20 weeks of water for larval development, and upland refugia for aestivation. Often occurs in permanent or semi-permanent pools.	Cordova Hills site: Not present Pilatus site: Not present Suitable habitat conditions are not present on the Cordova Hills or Pilatus sites. There are no CNDDDB occurrences of this species recorded within 5 miles of the Cordova Hills or Pilatus sites. This species is considered extirpated in the Central Valley (USFWS 2002).

**Table 3.4-2
 Special-status Wildlife Species**

Species	Status ¹	Habitat ¹	Potential for Occurrence
REPTILES			
Giant Garter Snake <i>Thamnophis gigas</i>	FT, CT	Endemic to the Sacramento and San Joaquin Valleys. Inhabits freshwater marshes, ponds, low gradient streams, and agricultural wetlands. Requires permanent water, emergent vegetation, and suitable upland habitat for basking and cover.	Cordova Hills site: Not present Pilatus site: Not present The Cordova Hills site is located north of the Cosumnes River and east of Grant Line Road. This region is not known to be within the current range of giant garter snake, per the Giant Garter Snake 5-Year Review (USFWS 2012b), and there are no CNDDDB records for this species within 5 miles of the Cordova Hills and Pilatus sites.
State-listed and Other Special-Status Wildlife			
AMPHIBIANS			
Western Spadefoot <i>Spea hammondi</i>	SSC	Occurs primarily in grasslands but occasionally populates valley-foothill hardwood woodlands. Almost entirely terrestrial, but requires temporary rain pools that lack predators for breeding. Needs burrows for refuge, where adults remain for the majority of each year.	Cordova Hills site: Present Pilatus site: High potential Populations of western spadefoot have been documented to the west of the Cordova Hills and Pilatus sites. The species was observed on the Cordova Hills site during rare plant surveys.
REPTILES			
Western Pond Turtle <i>Emys marmorata</i>	SSC	Occurs in perennial ponds, lakes, rivers, and streams with suitable basking habitat (mud banks, mats of floating vegetation, partially submerged logs) and submerged shelter. Nests in upland sites up to 1,300 feet or more from aquatic habitat.	Cordova Hills site: High potential Pilatus site: Not present There is one recorded observance of the species less than 1 mile to the east of the Cordova Hills site, within an isolated pool along Deer Creek. There is no suitable aquatic habitat on the Cordova Hills or Pilatus sites. However, the species could be present in upland habitats on the Cordova Hills site during breeding.
BIRDS			
Tricolored Blackbird <i>Agelaius tricolor</i>	SSC (Nesting colony)	Nests near emergent wetlands in large breeding colonies in habitat made up of dense cattails (<i>Typha</i> sp.), bulrush (<i>Scirpus</i> sp.), blackberry thickets, or other dense riparian vegetation.	Cordova Hills site: Not present Pilatus site: Not present No nesting habitat is present on the Cordova Hills and Pilatus sites. There are 11 presumed extant CNDDDB records of this species within 5 miles of the Cordova Hills and Pilatus sites.

**Table 3.4-2
Special-status Wildlife Species**

Species	Status ¹	Habitat ¹	Potential for Occurrence
Grasshopper Sparrow <i>Ammodramus savannarum</i>	SSC (Nesting)	Occurs in dry, dense grasslands, especially those with a variety of grasses and tall forbs and scattered shrubs for singing perches.	Cordova Hills site: High potential Pilatus site: High potential The nearest recorded occurrence is approximately 2.5 miles east of the Cordova Hills and site. Foraging and nesting habitat is present, although there is a lack of shrubs or other singing perches which may limit use of the Cordova Hills and Pilatus sites.
Golden Eagle <i>Aquila chrysaetos</i>	BGEPA, FP (Nesting and wintering)	Found in grasslands, forested areas, and deserts. Nests on cliffs and in large trees often in open areas with an unobstructed view of the surrounding habitat.	Cordova Hills site: Not present Pilatus site: Not present The Cordova Hills and Pilatus sites are outside of the typical breeding range of this species and there is just one large tree on the Cordova Hills site and very few trees on the Pilatus site. There are no cliffs or other structures for nesting on either site. Surrounding areas to the east may provide nesting habitat, and the species could occasionally forage in grassland habitat on the Cordova Hills and Pilatus sites, but it is not expected to nest or winter on site. There are no recorded occurrences for this species within 10 miles.
Burrowing Owl <i>Athene cunicularia</i>	SSC (Burrows and wintering sites)	Frequents open grasslands, deserts, and shrublands with perches and burrows. Nests and roosts in small mammal burrows and pipes, culverts, and other similar structures where burrows are scarce.	Cordova Hills site: Present Pilatus site: High potential There are CNDDDB occurrences recorded on the Cordova Hills site and in the surrounding vicinity; presence was also noted within the Cordova Hills site during a site visit. Suitable nesting and foraging habitat exists over the entire Cordova Hills site and the Pilatus site.
Swainson's Hawk <i>Buteo swainsoni</i>	CT (Nesting and foraging)	Breeds in stands with few trees in juniper-sage flats, riparian areas, and oak savannah. Forages in adjacent grasslands, agricultural fields, and pasture land.	Cordova Hills site: High potential Pilatus site: High potential Swainson's hawk has been recorded nesting less than 0.5-mile from the Cordova Hills site, along Deer Creek. There is one potential nest tree on the Cordova Hills site and several on the Pilatus site. The species is likely to forage on the Cordova Hills and Pilatus sites and could nest on either site or in the vicinity.
Northern Harrier <i>Circus cyaneus</i>	SSC (Nesting)	Frequents meadows, grasslands, open rangelands, desert sinks, and fresh and saltwater emergent wetlands. Nests on the ground in grasslands, marshes, and agricultural areas.	Cordova Hills site: High potential Pilatus site: High potential The Cordova Hills and the Pilatus sites contain potentially suitable nesting habitat. There are no CNDDDB occurrences recorded within 5 miles of the Cordova Hills and Pilatus sites; however, this species was observed foraging on the Cordova Hills site during a site visit.

**Table 3.4-2
 Special-status Wildlife Species**

Species	Status ¹	Habitat ¹	Potential for Occurrence
White-tailed Kite <i>Elanus leucurus</i>	FP (Nesting)	Inhabits a variety of low-elevation habitat types, generally near agricultural areas. Nests near the top of oak, willow, or other trees near open foraging areas.	Cordova Hills site: High potential Pilatus site: High potential There is one potential nest tree on the Cordova Hills site and several trees on the Pilatus site, which could provide nesting habitat. Nesting habitat is also available along the nearby Carson and Deer Creeks. Therefore, this species could nest on or adjacent to the Cordova Hills or Pilatus sites. There are five extant CNDDDB records of this species within 5 miles of the Cordova Hills and Pilatus sites.
Loggerhead Shrike <i>Lanius ludovicianus</i>	SSC (Nesting)	Nests in a densely-foliaged shrubs or trees. Prefers open habitats with scattered shrubs, trees, or other structures for perches.	Cordova Hills site: Moderate potential Pilatus site: Moderate potential There is one tree on the Cordova Hills site and several trees on the Pilatus site, which could provide nesting habitat. There are no CNDDDB occurrences recorded within 5 miles of the Cordova Hills and Pilatus sites.
Bank Swallow <i>Riparia riparia</i>	CT (Nesting)	Requires banks and cliffs with fine-textured or sandy soils near streams, rivers, ponds, lakes, and the ocean for nesting.	Cordova Hills site: Not present Pilatus site: Not present There is no suitable nesting habitat on the Cordova Hills or Pilatus sites. Two CNDDDB records for this species have been recorded within 5 miles of the Cordova Hills and Pilatus sites.
MAMMALS			
American Badger <i>Taxidea taxus</i>	SSC	Occurs in a variety of habitats, including dry, open stages of herbaceous, shrub, and forest habitats. This species digs burrows in friable soils for cover and reproduction.	Cordova Hills site: Moderate potential Pilatus site: Moderate potential Potentially suitable denning habitat is located on the Cordova Hills and Pilatus sites. One occurrence has been recorded within 5 miles of the Cordova Hills and Pilatus sites. This occurrence has been extirpated.
¹ Species Status Definitions: BGEPA = Protected under the Bald and Golden Eagle Protection Act Federal Listing Status Definitions: FE = Federal Endangered FT = Federal Threatened FC = Federal Candidate California Listing Status Definitions: CE = California Endangered; CT = California Threatened CC = California Candidate SSC = California Species of Special Concern FP = California Fully Protected			
² Species determined to be present or have at least moderate potential to occur on the Cordova Hills or Pilatus sites are discussed further in the text; species determined not present or to have low potential are not discussed further. Sources: CDFW 2013, County of Sacramento 2008, ECORP 2011b, ECORP 2013a.			

Sacramento Orcutt Grass

Sacramento Orcutt grass is an annual, wind- and bee-pollinated grass species that is endemic to vernal pools. This species has been found in northern hardpan and northern volcanic mudflow vernal pools. It generally occurs on high-terrace locations between 150 and 270 feet in elevation. It has been found in pools in grassland and oak woodland habitats. Sacramento Orcutt grass is restricted to Sacramento County, and the majority of occurrences are concentrated in the Rancho Cordova area. The *Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon* (recovery plan) (USFWS 2005) specifically mentions that urbanization in the Rancho Cordova area is a continuing threat, and that development surrounding Kiefer Landfill could adversely affect the species. The Cordova Hills and Pilatus sites are not located within designated critical habitat for this species. The majority of the Cordova Hills and Pilatus sites is within the Mather Core Area, an area identified by USFWS as Priority 1 in the recovery plan (USFWS 2005:IV-16 and IV-22), which they define as highest priority not only for the recovery of Sacramento Orcutt grass, but to preventing the extinction or irreversible decline of the species in the foreseeable future (USFWS:IV-22). Core area boundaries may be refined by USFWS based on site-specific data on the distribution of suitable habitat and species occurrences (USFWS 2005:IV-2). A site-specific analysis of the extent of the Mather Core Area at the Cordova Hills site is provided in Appendix M of this DEIS.

The vernal pools, seasonal wetlands, and seasonal wetland swales in the Cordova Hills and Pilatus sites provide suitable habitat for this species. Botanical surveys of the Cordova Hills site were conducted for the Proposed Action. One previously documented occurrence of Sacramento Orcutt grass (CNDDDB Occurrence #19) was observed during surveys in May 2007 and June 2008 (ECORP 2009). In addition, Sacramento Orcutt grass was also observed in portions of three vernal pools (VP-358, VP-363, and VP-370 in the wetland delineation) (ECORP 2007). The number of individuals varied within each of the features. Approximately 400 to 600 individuals were estimated within VP-370 during the 2007 surveys, and 200 to 400 plants were observed in this pool in 2008. Several thousand individuals were observed in VP-363 in 2007, and approximately 200 to 400 were documented in this pool in 2008. Several thousand individuals were estimated to occur within VP-358 during both the 2007 and 2008 surveys. All of the pools containing Sacramento Orcutt grass are located on the western plateau portion of the Cordova Hills site, which contains the highest concentration and highest quality vernal pools and those most suitable for this species. Sacramento Orcutt grass was not observed elsewhere within the Cordova Hills site during the 2008, 2009, 2010, or 2011 surveys (ECORP 2009, 2010, and 2011a). The Pilatus site has not been surveyed for special-status plant species, but a CNDDDB occurrence of Sacramento Orcutt grass has been recorded within the Pilatus site and the species is considered present.

STATE LISTED AND OTHER SPECIAL-STATUS PLANTS

Dwarf Downingia

Dwarf downingia is an annual herb species found in the North Coast Ranges, southern Sacramento Valley, northern and central San Joaquin Valley, and the Bay/Delta region. Within this range, it is known from 117 locations (i.e., CNDDDB occurrences), and at 110 of these locations, the species is presumed to be extant (CNDDDB 2014). It grows in vernal pools, playa pools, on margins of vernal lakes, and other seasonally moist areas within valley and foothill grassland, both in alkaline (saline) and non-alkaline soils. This species was not found during surveys on the Cordova Hills site; however, the Pilatus site has not been surveyed for special-status plant species and dwarf downingia has moderate potential to occur on this site.

Boggs Lake Hedge Hyssop

Boggs' Lake hedge hyssop is a self-pollinating, annual herb that ranges from the Modoc Plateau, to the Central Valley and Bay/Delta regions. Within this range, it is known from 87 locations (i.e., CNDDDB occurrences). At 85 of these locations the species is presumed to be extant (CNDDDB 2014). It grows on clay substrates in vernal pools, playa-type pools, marshy areas, on the margins of reservoirs and lakes, and in man-made habitats such as borrow pits and cattle ponds. This species has a short life cycle and is typically found in relatively bare areas with low competition from other vegetation (Witham 2006). This species was not found during surveys on the Cordova Hills site; however, the Pilatus site has not been surveyed for special-status plant species and Boggs' Lake hedge hyssop has a high potential to occur on this site.

Ahart's Dwarf Rush

Ahart's dwarf rush is a small, annual, wind-pollinated herb that is known from only about twelve locations, primarily in Butte County. There are five known populations in Sacramento County (Witham 2006). Ahart's dwarf rush is a vernal pool endemic that prefers areas with low cover of competing vegetation including vernal pool edges, intermittent stream bottoms, and gopher or ground squirrel mounds (USFWS 2005, Witham 2006). This species was not found during surveys on the Cordova Hills site; however, the Pilatus site has not been surveyed for special-status plant species and Ahart's dwarf rush has a high potential to occur on this site.

Legenere

Legenere is an emergent aquatic, or terrestrial, annual herb known from scattered occurrences in the Sacramento-San Joaquin Delta, north Central Valley, and north San Francisco Bay Area. Legenere is a diminutive plant that produces two types of flowers; a self-pollinating form (the most common) that does not produce corollas and is very inconspicuous, and an outcrossing form that has irregular white corollas (USFWS 2005, Witham 2006). There are approximately 50 known occurrences of this species that are thought to remain and nearly 40 percent of those are in Sacramento County (USFWS 2005). This species grows in a variety of wetland habitats including vernal pools, vernal marshes, artificial ponds, and floodplains of intermittent streams (USFWS 2005) though it is thought to prefer wetter and deeper vernal pools (Witham 2006). This species was found on the Cordova Hills site during surveys conducted in 2007 and 2008 and has high potential to occur on the Pilatus site.

Pincushion Navarretia

Pincushion navarretia is an annual herb with a scattered distribution within the Central Valley and northern and central Sierra Nevada Foothills. It is known from fewer than 20 occurrences within this range (CNPS 2014). This species is endemic to vernal pools and is often found in acidic pools. This species was not found during surveys on the Cordova Hills site; however, the Pilatus site has not been surveyed for special-status plant species and dwarf downingia has moderate potential to occur on this site.

FEDERALLY PROTECTED WILDLIFE

Valley Elderberry Longhorn Beetle

Valley elderberry longhorn beetle (VELB) is an invertebrate species that is nearly always found on or close to its host plant, elderberry (*Sambucus* spp.). Elderberry shrubs must have stems that are at least 1 inch in diameter at ground level to serve as habitat for this species. This beetle is known to occur from southern Shasta County to Fresno County, including Sacramento County. VELB was recommended for delisting in a 2007, 5-year review of

the species; the USFWS recently withdrew the delisting proposal. The Cordova Hills and Pilatus sites are not located within critical habitat for this species.

The Cordova Hills site does not contain elderberry shrubs; thus, VELB is not present on the Cordova Hills site. The Pilatus site has very few shrubs and trees, but it is unknown if any of this vegetation could include elderberry plants. In addition, the CNDDDB documents four occurrences of the species within 5 miles of the Cordova Hills and Pilatus sites. Thus, there is a moderate potential for the species to occur on the Pilatus site.

Vernal Pool Fairy Shrimp

Vernal pool fairy shrimp, Federally listed as threatened, is a freshwater crustacean that is dependent on ephemeral habitats such as vernal pools and wetland swales with clear or tea-colored water. The species has been found in areas with low alkalinity, total dissolved solids, and conductivity. It is known to occur in southern Oregon, and northern, central, and portions of southern California. The Cordova Hills and Pilatus sites are not located within designated critical habitat for vernal pool fairy shrimp. The nearest designated critical habitat subunit for vernal pool fairy shrimp is approximately 4 miles west of the Pilatus site (USFWS 2006). Most of the Cordova Hills and Pilatus sites is within the Mather Core Area, an area identified by USFWS in the recovery plan, as having the highest priority protection because it has been determined by USFWS biologists as necessary to the recovery of vernal pool fairy shrimp and to preventing the extinction or irreversible decline of the species in the foreseeable future (USFWS 2005). Core area boundaries may be refined by USFWS based on site-specific data on the distribution of suitable habitat and species occurrences (USFWS 2005:IV-2). The site-specific analysis of the extent of the Mather Core Area at the Cordova Hills site (Appendix M of this DEIS) provides site-specific data supporting refinement of the Mather Core Area boundary within the Cordova Hills site.

There are 13 presumed extant CNDDDB occurrences of this species that have been documented within 5 miles of the Cordova Hills and Pilatus sites. The vernal pools, seasonal wetlands, and seasonal wetland swales on the Cordova Hills site provide suitable habitat for vernal pool fairy shrimp. This species was identified in 36 aquatic features on the Cordova Hills site during wet season surveys (ECORP 2013a). Most of the aquatic features occupied by this species are on the western plateau portion of the site, but six are located in the central drainage portion. The species was not detected during 2013 dry season surveys conducted in 41 vernal pools and seasonal wetlands located east of the western plateau. The Pilatus site has not been surveyed for vernal pool fairy shrimp, but there is high potential for this species to occur there. The final determination regarding which aquatic features provide suitable habitat for listed branchiopods will be made during consultation between USACE and USFWS.

Vernal Pool Tadpole Shrimp

Vernal pool tadpole shrimp is a crustacean species that lives in freshwater ephemeral habitats such as vernal pools and vernal swales. The species is found in a number of soil types and land forms in clear to turbid water. The species is associated with grasslands of California's Central Valley.

The Cordova Hills and Pilatus sites are not located within designated critical habitat for vernal pool tadpole shrimp. The nearest designated critical habitat subunit for vernal pool tadpole shrimp is approximately 4 miles west of the Pilatus site (USFWS 2006); however, most of the Cordova Hills site is within the Mather Core Area, an area identified by USFWS in the recovery plan (USFWS 2005) as having the highest priority for protection because it has been determined by USFWS biologists as necessary not only to the recovery of vernal pool tadpole shrimp, but to preventing the extinction or irreversible decline of the species in the foreseeable future. USFWS

estimates that approximately 74 percent of the vernal pool tadpole shrimp occurrences in the Southeastern Sacramento Valley are in the Mather Core Area. The Southeastern Sacramento Valley vernal pool region supports the highest concentration of documented vernal pool tadpole shrimp occurrences (35 percent of the CNDDDB records for this species) and Sacramento County supports the highest percentage (28 percent) of vernal pool tadpole shrimp occurrences of any county in California (USFWS 2005). Core area boundaries may be refined by USFWS based on site-specific data on the distribution of suitable habitat and species occurrences (USFWS 2005:IV-2). The site-specific analysis of the extent of the Mather Core Area at the Cordova Hills site (Appendix M of this DEIS) provides site-specific data supporting refinement of the Mather Core Area boundary within the Cordova Hills site.

There are 30 presumed extant CNDDDB occurrences of this species documented within 5 miles of the Cordova Hills and Pilatus sites. This species was identified in 74 aquatic features on the Cordova Hills site during wet season surveys, all of which are located in the western plateau portion of the site (ECORP 2013a). Additional dry-season surveys conducted in the eastern portion of the Cordova Hills site did not detect this species east of the western plateau. The Pilatus site has not been surveyed for this species, but there is high potential for occurrence of this species. The final determination regarding which aquatic features provide suitable habitat for listed branchiopods will be made during consultation between USACE and USFWS.

STATE-LISTED AND OTHER SPECIAL-STATUS WILDLIFE

Western Spadefoot

Western spadefoot once ranged throughout the Central Valley, Coast Ranges, and coastal lowlands of California (Jennings and Hayes 1994). Today, it has been extirpated from most of the lowlands of southern California (Stebbins 1985) and from many historical locations within the Central Valley (Jennings and Hayes 1994) and has suffered drastic declines in the Sacramento Valley (USFWS 2005). To complete its life cycle, it needs appropriate aquatic habitats as well as adjacent upland habitats. Suitable aquatic habitat for breeding consists of vernal pools, or sometimes pools within ephemeral streams. Water temperature must be between 48 and 86 degrees Fahrenheit for western spadefoot to reproduce and the pools must retain water for a minimum of 30 days for larvae to complete metamorphosis (USFWS 2005). This species was observed on the Cordova Hills site during rare plant surveys conducted by ECORP and there are four CNDDDB records of its occurrence within 5 miles of the Cordova Hills site. It has high potential to be present on the Pilatus site as well.

Western Pond Turtle

Western pond turtle is common to uncommon in suitable aquatic habitat throughout California, west of the Sierra-Cascade crest, except desert regions. Suitable habitat includes permanent to nearly permanent water bodies in streams, large rivers, ponds and other slow-moving waters. They are most common in areas with logs or large rocks and boulders where they bask in the sun. Nests are typically excavated by the female on unshaded upland slopes in dry substrates with sandy clay or silt soils located up to 1,300 feet (but usually less) from the aquatic habitats where they occur. There is no suitable aquatic habitat within the Cordova Hills or Pilatus sites, but potential aquatic habitat is present in Carson Creek within 1,300 feet of the Cordova Hills site. Grassland slopes on the Cordova Hills site may provide suitable upland nesting habitat. The nearest known occurrence of western pond turtle is at Deer Cree approximately 1 mile east of the Cordova Hills site.

Grasshopper Sparrow

Grasshopper sparrow is an uncommon summer resident and breeder in the western Sierra Nevada and Cascade Range foothills and lowlands (Zeiner, Laudenslayer, and Mayer 1990). This species is found in dry grassland habitats with dense herbaceous cover, especially those with scattered shrubs available for singing perches. It nests on the ground in depressions at the bases of grass clumps (Zeiner, Laudenslayer, and Mayer 1990). The nearest recorded occurrence is from the Prairie City State Vehicle Recreation Area approximately 2.7 miles north of the Cordova Hills site (CDFW 2013). Foraging and nesting habitat is present and there is high potential for this species to nest on the Cordova Hills and Pilatus sites, although there is a lack of shrubs or other singing perches present, which may make these sites less attractive.

Burrowing Owl

Burrowing owl is found across much of California, including the Delta and Central Valley regions. This species typically inhabits grasslands and other open habitats with low-lying vegetation. They are also known to nest and forage in idle agricultural fields, ruderal fields, and the edges of cultivated fields, although these areas provide lower-quality habitat than grasslands. Burrow availability is an essential component of suitable habitat. Burrowing owls are capable of digging their own burrows in areas with soft soil, but they generally require burrows excavated by other animals, typically ground squirrels. In areas where burrows are scarce, they can use pipes, culverts, debris piles, and other artificial features. This species has been documented on the Cordova Hills site, both in the CNDDDB and during a site reconnaissance survey conducted by ECORP biologists. There are seven additional CNDDDB records of the species within 5 miles. Suitable nesting and foraging habitat exists throughout the entire Cordova Hills and Pilatus sites.

Swainson's Hawk

Swainson's hawks breed in North America and winter in Mexico and South America. Historically, Swainson's hawks nested throughout lowland California. As many as 17,000 Swainson's hawk pairs may have nested in California at one time (Bloom 1980). Currently, there are 700–1,000 breeding pairs in California, of which 600–900 are in the Central Valley (Estep 2003, Swainson's Hawk Technical Advisory Committee [SHTAC] 2000). Swainson's hawks are typically found in California only during the breeding season (March through September), although a small number of individuals winter in the San Francisco Bay-Delta area (City of Sacramento et al. 2003). The Central Valley population migrates only as far south as Central Mexico. Swainson's hawks begin to arrive in the Central Valley in March and typically establish nesting territories by April, with incubation and rearing of young taking place through June (Estep 1989).

Swainson's hawks are most commonly found in grasslands, low shrublands, and agricultural habitats that include large trees for nesting. They nest in riparian woodlands, roadside trees, trees along field borders, and isolated trees. Corridors of remnant riparian forest along drainages contain the majority of known nests in the Central Valley (England et al. 1997; Estep 1984; Schlorff and Bloom 1984). Nesting pairs frequently return to the same nest site for multiple years and decades.

Prey abundance and accessibility are the most important features determining the suitability of Swainson's hawk foraging habitat. Swainson's hawks feed primarily on small rodents, but also consume insects and birds. Although the most important foraging habitat for Swainson's hawks lies within a 1-mile radius of each nest (City of Sacramento et al. 2003), Swainson's hawks have been recorded foraging up to 18.6 miles from nest sites (Estep 1989). Any habitat within the foraging distance may provide food at some time in the breeding season that is

necessary for reproductive success. The CNDDDB has documented 15 Swainson's hawk nesting records within 5 miles of the Cordova Hills and Pilatus sites. Thus, there is high potential for the species to forage on the Cordova Hills and Pilatus sites and isolated trees on the Cordova Hills and Pilatus sites could provide suitable nest sites.

Northern Harrier

Northern harrier occurs throughout California, concentrated in the Central Valley and coastal valleys. They are found in a variety of habitats including freshwater marshes, wet meadows, weedy borders of lakes, rivers and streams, annual and perennial grasslands (including those with vernal pools), weed fields, ungrazed or lightly grazed pastures, and some croplands (Shuford and Gardali eds. 2008). Harriers nest on the ground, within patches of dense, often tall vegetation, in undisturbed areas (MacWhirter and Bildstein 1996). There are no CNDDDB records of this species within 5 miles of the Cordova Hills site; however, suitable habitat is present, the species is known to nest in Sacramento County, and a northern harrier was observed foraging on the Cordova Hills site during a site visit. Therefore, there is high potential for this species to nest on the Cordova Hills and Pilatus sites.

White-tailed Kite

This species is a common to uncommon, year round resident in the Central Valley, other lowland valleys, and along the entire length of the coast (Dunk 1995). It inhabits low elevation open grasslands, savannah-like habitats, agricultural areas, wetlands, and oak woodlands (Dunk 1995). White-tailed kites forage in open grasslands, meadows, or marshes close to dense-topped trees for nesting and perching (CNDDDB 2013). They have been reported to use any suitable tree that is of moderate height, such as oak, eucalyptus, and cottonwood. There are five CNDDDB records of white-tailed kite occurrences within 5 miles of the Cordova Hills and Pilatus sites. There is one eucalyptus tree on the Cordova Hills site and several trees on the Pilatus site that provide potential nesting habitat for this species. Therefore, there is high potential for white-tailed kite to nest on the Cordova Hills and Pilatus sites.

Loggerhead Shrike

Loggerhead shrike is a breeding resident or winter visitor in lowlands and foothills across most of California including the Bay, Delta, and Central Valley regions (Zeiner, Laudenslayer, and Mayer 1990, Shuford and Gardali eds. 2008). Loggerhead shrike breeds mainly in shrublands or open woodlands with a fair amount of grass cover and areas of bare ground. They use tall shrubs or trees (also use fences or power lines) for hunting perches; open areas of short grasses, forbs, or bare ground for hunting; and trees or large shrubs for nesting. They are known for impaling their insect prey on sharp, thorny, or multistemmed plants and barbed-wire fences (Zeiner, Laudenslayer, and Mayer 1990). There is no potential nesting habitat on the Cordova Hills site and there are no CNDDDB records of this species within 5 miles of the Cordova Hills or Pilatus sites, but the species is known from eastern Sacramento County. There is suitable nesting and foraging habitat on the Cordova Hills and Pilatus sites and there is moderate potential for the species to nest there.

American Badger

American badger is an uncommon, permanent resident throughout most of California. This species prefers open grassland habitats with dry, friable soils for digging burrows and generally requires large areas of contiguous open space. There is one CNDDDB occurrence of this species within 5 miles of the Cordova Hills and Pilatus sites. Since there is suitable habitat for American badger and known occurrences within 5 miles, this species has moderate potential to occur on the Cordova Hills and Pilatus sites.

SENSITIVE HABITATS

Sensitive habitats include those that are of special concern to resource agencies. Because this EIS has been prepared to comply solely with NEPA, only Federally protected habitats are addressed in the remainder of this section. Thus, this section describes wetlands and waters subject to Federal jurisdiction under the Clean Water Act (CWA). The discussion of these water features covers all sensitive habitats on the Cordova Hills and Pilatus sites.

WATERS OF THE U.S., INCLUDING WETLANDS

Waters of the U.S. subject to Section 404 of the CWA are defined in USACE regulations at 33 Code of Federal Regulations (CFR) 328.3(a) as:

- (1) All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
- (2) All interstate waters including interstate wetlands;
- (3) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters:
- (4) Which are or could be used by interstate or foreign travelers for recreation or other purposes; or
 - (i) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
 - (ii) Which are used or could be used for industrial purpose by industries in interstate commerce;
 - (iii) All impoundments of waters otherwise defined as waters of the U.S. under this definition
- (5) Tributaries of waters identified in paragraphs (a)(1) – (4)
- (6) The territorial seas
- (7) Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a)(1) – (6)

USACE regulations at 33 CFR 328.3(b) define wetlands as “those areas that are inundated or saturated by surface or ground water 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 can include perennial and seasonal freshwater marshes, vernal pools, swales, and other habitat types. Wetland features are characterized by three parameters: wetland hydrology, hydrophytic vegetation, and hydric soils. The Cordova Hills and Pilatus sites include a number of waters of the U.S., including wetlands. These consist of seasonal wetlands, vernal pools, seasonal swales, human-made stock ponds, seeps and ephemeral drainages. Wetlands that meet the delineation criteria may be jurisdictional under Section 404 of CWA pending USACE and the U.S. Environmental Protection Agency (EPA) review. Wetland delineations were prepared for both the Cordova Hills and Pilatus sites by ECORP and were verified by USACE in 2008 and 2009. These wetland delineations identify

waters of the U.S. on the Cordova Hills and the Pilatus sites. The location of waters of the U.S. on the Cordova Hills site are shown in Exhibit 3.4-2, and on the Pilatus site in Exhibit 3.4-3.

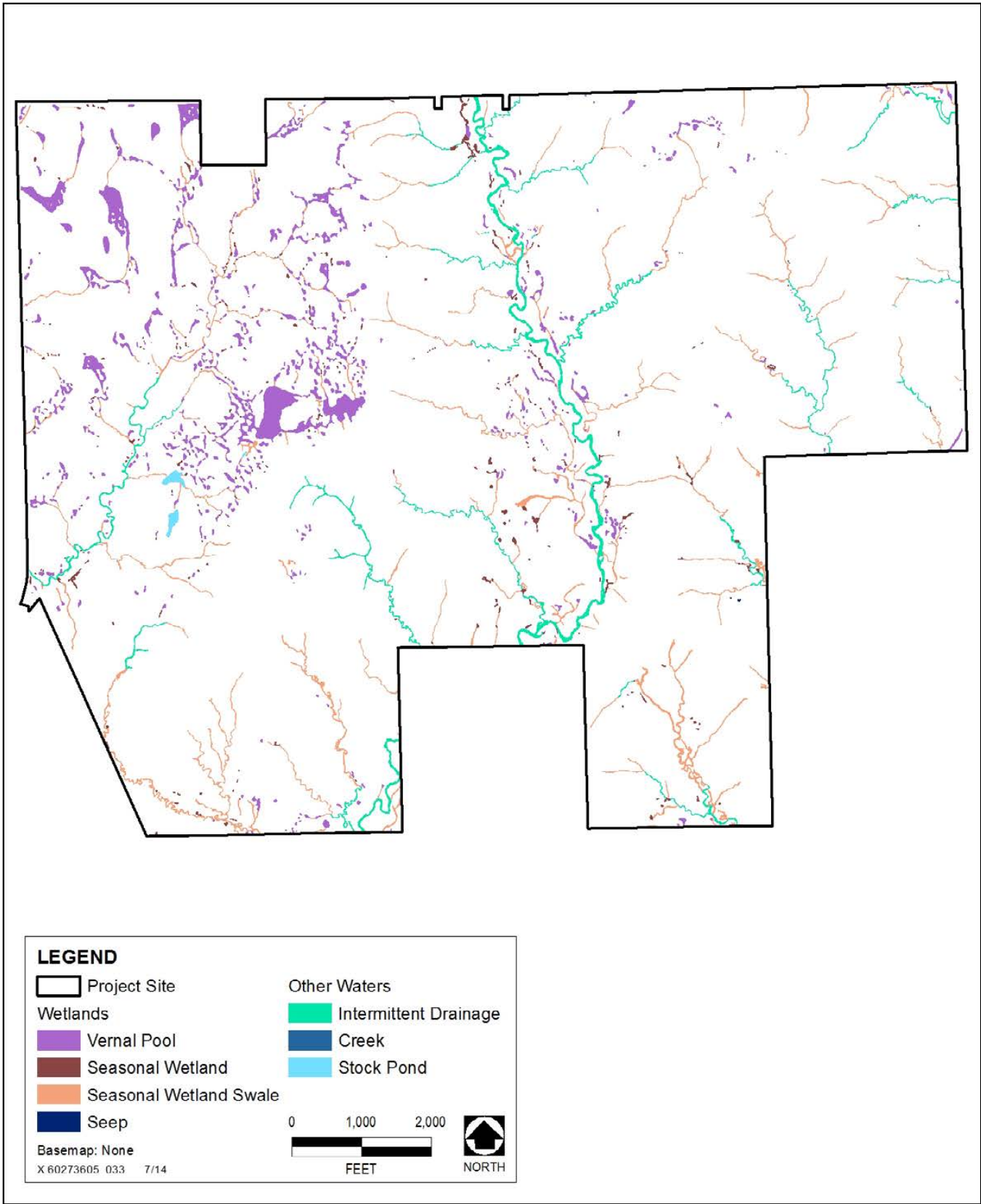
The Cordova Hills site contains 89.1 acres of waters of the U.S., consisting of 47.51 acres of vernal pools, 4.77 acres of seasonal wetlands, 18.22 acres of seasonal wetland swale, 0.01 acre of seep, 16.90 acres of intermittent drainage, 0.17 acre of creek (Carson Creek), and 1.52 acres of stock pond. The Pilatus site contains 20.72 acres of waters of the U.S., consisting of 6.59 acres of vernal pools, 4.05 acres of seasonal wetlands, 6.34 acres of seasonal wetland swale, 0.02 acre of seep, 3.37 acres of intermittent drainage, and 0.34 acre of stock pond.

Vernal Pools

Vernal pools are small basins, depressions on the landscape that collect seasonal rains to support a specialized collection of plant and animal species. Typically, semi-impermeable soil underlies most vernal pools and restricts downward percolation of collected rain water. Many plants found in vernal pools are endemic (found only in these habitats) and have adapted to survive partially submerged conditions. These conditions have kept the nonnative grasses that comprise much of the County's grazing lands from invading or at least dominating the pools. Thus, vernal pools are generally small pockets of mostly native vegetation surrounded by mostly nonnative grass species. A total of 47.51 acres of vernal pools are located on the Cordova Hills site, and 6.59 acres of vernal pools are located on the Pilatus site. The CNDDDB documents the sensitive vegetation community "Northern hardpan vernal pool" in the northwest portions of both the Cordova Hills site and the Pilatus site. This documented occurrence of this sensitive habitat type corresponds with the areas of highest vernal pool concentration on the western plateau of the Cordova Hills and Pilatus sites, which are located on the Laguna Formation. On the Cordova Hills site, plant species found in these pools included button-celery (*Eryngium vaseyi*), stalked popcornflower (*Plagiobothrys stipitatus*), white-headed navarretia (*Navarretia leucocephala*), and doublehorn downingia (*Downingia bicornuta*), among others. The vernal pools on the Cordova Hills site were also found to support sensitive plant species, including the CRPR 1B.1 species Legenere and the Federal and state endangered and CRPR 1B.1 plant Sacramento Orcutt grass.

Seasonal Wetlands

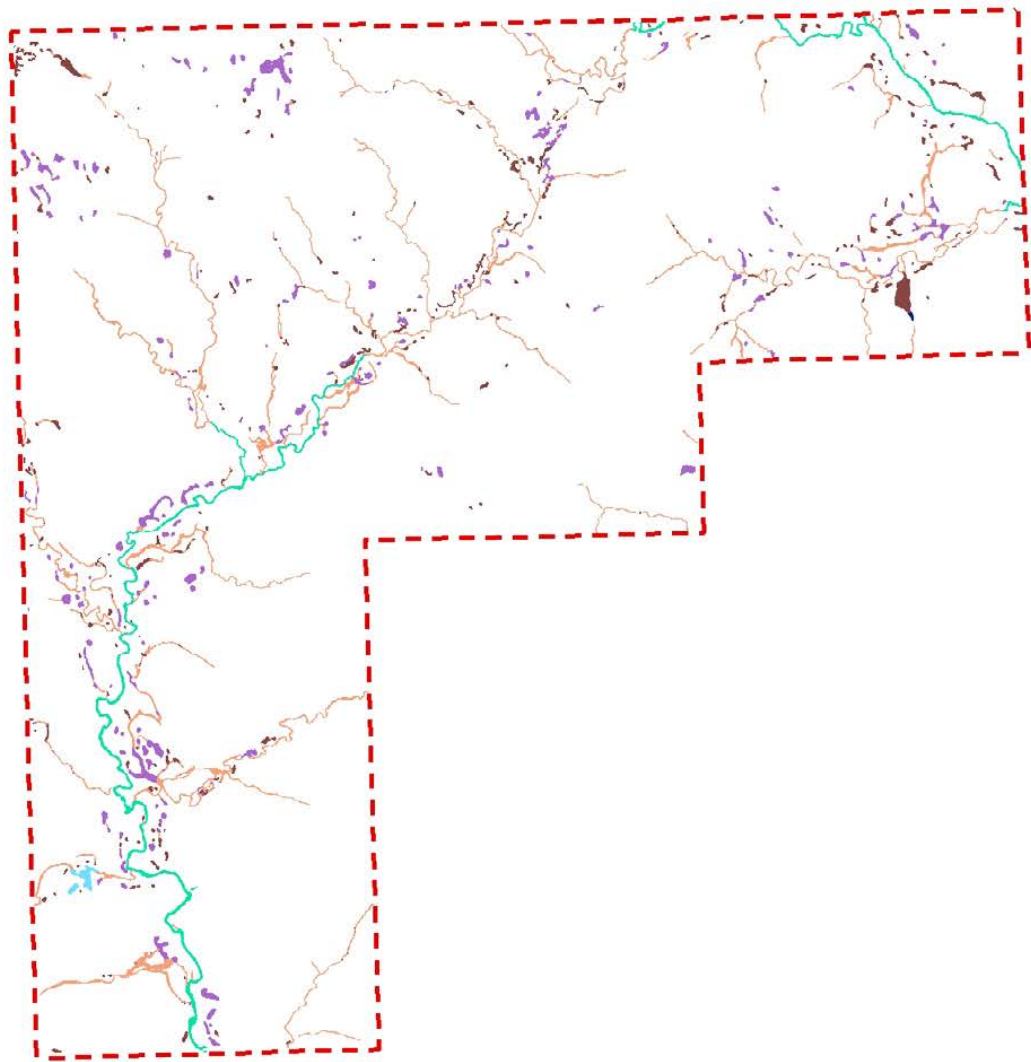
Seasonal wetlands are scattered throughout Sacramento County, most in association with rivers, creeks, and floodplains. These wetlands typically begin to form after the first winter rains and fill as rain continues through the season. They drain primarily via drainage swales during high runoff, or via combination of ground percolation and evaporation. By mid-summer or early fall these features will typically be dry. Depending on water depth and duration, seasonal wetlands can harbor special-status plant and wildlife species. Seasonal wetlands primarily differ from vernal pools in their underlying soils and vegetation communities. Seasonal wetland soils are typically more permeable than the soils associated with vernal pools, such as those of the Laguna Formation on the western plateau. A total of 4.77 acres of seasonal wetlands are located on the Cordova Hills site, and 4.05 acres of seasonal wetlands are located on the Pilatus site. Plant species commonly observed in the seasonal wetlands include Italian ryegrass, waxy mannagrass (*Glyceria declinata*), Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*), hyssop loosestrife (*Lythrum hyssopifolium*), and stalked popcornflower.



Source: ECORP 2010

Exhibit 3.4-2

Wetlands and Waters on the Cordova Hills Site



LEGEND

Pilatus Alternative Site	Other Waters
Vernal Pool	Intermittent Drainage
Seasonal Wetland	Stock Pond
Seasonal Wetland Swale	
Seep	

Basemap: None
X 60273605 034 7/14

0 750 1,500
FEET

NORTH

Source: ECORP 2010

Exhibit 3.4-3

Wetlands and Waters on the Pilatus Site

Seasonal Wetland Swales

Depending on the underlying soils, swales share similar characteristics with either seasonal wetlands or vernal pools. Typically, swales are shallow, linear features that may serve as drainage features into or out of a seasonal wetland or vernal pool. Although common throughout much of the County's wetland landscapes, the wetland functions of a swale are less pronounced than either of the aforementioned wetlands. Shallowness and topography of swales limit the duration of ponded water, thus reducing the expression of typical wetland characteristics. A total of 18.22 acres of seasonal wetland swales are located on the Cordova Hills site, and 6.35 acres of seasonal wetland swales are located on the Pilatus site. Characteristic plant species include Mediterranean barley, stalked popcornflower, white-headed navarretia, hairy hawkbit, and filaree.

Seeps

Seeps are seasonally or perennially wet areas resulting from the discharge of groundwater to the surface. Seeps are present on a hill slope in the southeast of the Cordova Hills site. Seeps are generally characterized by dense cover of low-growing herbaceous plants. Characteristic plant species observed in seeps on the Cordova Hills site include iris-leaved rush (*Juncus xiphioides*), white-tipped clover (*Trifolium variegatum*), cutleaf geranium (*Geranium dissectum*), and common vetch. There is 0.01 acre of seep on the Cordova Hills site and 0.02 acre of seep on the Pilatus site.

Stock Ponds

In rural pasturelands ranchers establish water features, or stock ponds, typically by damming small drainages to form relatively deeper ponds which can hold water for extended periods, often through the summer months. These ponds typically provide a deeper water habitat for some amphibian species. A total of 1.52 acres of stock ponds are located on the Cordova Hills site, and 0.35 acre of stock ponds is located on the Pilatus site.

Drainages

One main intermittent drainage runs north to south through the center of both the Cordova Hills and Pilatus sites and is referred to herein as the central drainage. Other smaller drainages and swales on the Cordova Hills and Pilatus sites, east of the plateau area, drain into this feature. This central drainage is a tributary to Deer Creek, which flows to the Cosumnes River. Intermittent drainages are linear features that have an ordinary high water mark and convey both stormwater and groundwater flows. A total of 16.90 acres of intermittent drainage features are present within the Cordova Hills site, and 3.37 acres of intermittent drainage features are located within the Pilatus site. The intermittent drainage channels are mostly unvegetated due to the scouring effects of flowing water, but hydrophytic vegetation is present on the banks and in areas of sediment accumulation. Plant species observed include toad rush (*Juncus bufonius*), bractless hedgehyssop (*Gratiola ebracteata*), and stalked popcornflower. Upland plants characteristic of the surrounding annual grasslands are also found on the banks of the intermittent drainages.

A second intermittent drainage originates on the Pilatus site approximately 1,300 feet north of Glory Lane and flows roughly through the center of the western plateau portion of the Cordova Hills site. This drainage is within the Laguna Creek watershed and is tributary to Laguna Creek, which flows to the Sacramento River. This tributary has a complex form, is well-connected to its floodplain, and is associated with local vernal pool habitats. A third intermittent drainage, the main branch of Upper Laguna Creek, originates on the Pilatus site

approximately 1.5 miles north of the Cordova Hills site and traverses the extreme northwest corner of the Cordova Hills site for only about 50 feet.

In addition to the intermittent drainages, 0.017 acre of Carson Creek, a perennial stream, is also present on the Cordova Hills site. Carson Creek flows to the Cosumnes River. This creek is mostly unvegetated due to scouring flows, but sparse cover of species such as Indian chickweed (*Mollugo verticillata*) and rough cocklebur (*Xanthium strumarium*) are present on the banks.

3.4.5 REGULATORY FRAMEWORK/APPLICABLE LAWS, REGULATIONS, PLANS, AND POLICIES

State laws and regulations are provided for informational purposes and to assist with NEPA review. USACE has considered applicable state, regional, and local plans and ordinances as a part of the environmental review process for this EIS.

Sacramento County certified an EIR and approved the Proposed Action in January 2013. State, regional, and local plans, policies, laws, and ordinances were considered in the EIR and adopted mitigation measures from the EIR have been incorporated into the Proposed Action.

FEDERAL PLANS, POLICIES, REGULATIONS, AND LAWS

Section 404 of the Clean Water Act

Section 404 of the CWA establishes a requirement for a project applicant to obtain a permit before engaging in any activity that involves any discharge of dredged or fill material into “waters of the U.S.,” including wetlands. Fill material is material placed in waters of the U.S. where the material has the effect of replacing any portion of a water of the U.S. with dry land, or changing the bottom elevation of any portion of a water of the U.S.

Federal Endangered Species Act

USFWS and the National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NMFS) have authority over projects that may result in take of a species listed as threatened or endangered under the Federal Endangered Species Act (ESA) (i.e., a Federally listed species). In general, persons subject to ESA (including private parties) are prohibited from “taking” endangered or threatened fish and wildlife species on private property, and from “taking” endangered or threatened plants in areas under Federal jurisdiction or in violation of state law. Under the ESA, the definition of “take” is to “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.” USFWS has also interpreted the definition of “harm” to include significant habitat modification that could result in take. If a project would result in take of a Federally listed species, either an incidental take permit, under Section 10(a) of the Federal ESA, or a Federal interagency consultation, under Section 7 of the Federal ESA, is required prior to the take. A Section 10(a) permit or a Section 7 Biological Opinion typically requires various types of mitigation to compensate for or to minimize the take.

Section 401 Water Quality Certification

Under Section 401 of the CWA, an applicant for a Section 404 permit must obtain a certificate from the appropriate state agency stating that the intended dredging or filling activity is consistent with the state’s water

quality standards and criteria. In California, the authority to grant water quality certification is delegated by the State Water Resources Control Board to the nine Regional Water Quality Control Boards (RWQCBs).

Migratory Bird Treaty Act

The Migratory Bird Treaty Act, first enacted in 1918, provides for international migratory bird protection and authorizes the Secretary of the Interior to regulate the taking of migratory birds. Migratory Bird Treaty Act provides that it shall be unlawful, except as permitted by regulations, to pursue, take, or kill any migratory bird, or any part, nest or egg of any such bird. The current list of species protected by Migratory Bird Treaty Act can be found in Title 50, CFR Section 10.13. The list includes nearly all birds native to the United States.

Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act of 1940, which has been amended several times, prohibits the take, possession, or commerce of bald eagles and golden eagles, as well as any part, nest, or egg of these species. In the act, take is defined as to "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb." Violations of the act can result in fines, imprisonment, or both.

Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon

The *Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon* (USFWS 2005) was released by USFWS on December 15, 2005. This plan focuses on 33 species of plants and animals that occur exclusively or primarily within vernal pool ecosystems, including the Federally listed vernal pool fairy shrimp and tadpole shrimp. The plan outlines recovery priorities and provides goals, objectives, strategies, and criteria for recovery. One of the overall objectives of the recovery plan is to promote natural ecosystem processes and functions by protecting and conserving intact vernal pools and vernal pool complexes. Habitat protection under the recovery plan includes the protection of the topographic, geographic, and edaphic features that support hydrologically interconnected systems of vernal pools, swales, and other seasonal wetlands within an upland matrix that together form hydrologically and ecologically functional vernal pool complexes.

The majority of the Cordova Hills site is located within the Mather Core Area as identified in the recovery plan. Core areas are the specific sites that USFWS has deemed necessary to recover Federally endangered and threatened vernal pool species (USFWS 2005 page III-5). The Mather Core Area is ranked in Zone 1, meaning that it has the highest priority for species recovery (USFWS 2005:IV-16, IV-22). Protection of Zone 1 core areas has been designated as a Priority 1 action by USFWS biologists because they believe that within each Zone 1 core area, species occurrences and suitable vernal pool habitat must be protected to prevent extinction or irreversible decline of at least one species covered in the recovery plan (USFWS 2005:IV-22). As new data becomes available, it may be used to review the core area boundaries and add new areas of suitable habitat or species occurrences or exclude portions that do not support suitable wetland habitat (USFWS 2005:IV-2).

The preservation goal established by USFWS for the vernal pool habitat in this Core Area is 85–95 percent. However, this preservation goal was established for the entire area, not necessarily on a project-by-project basis. In addition, the general mapping for areas to be preserved under the recovery plan is difficult to accurately apply on a project-by-project basis. The recovery plan is not regulatory in nature; however, it should be taken into consideration when analyzing potential effects on vernal pools and associated biota. This plan is used by the

USFWS to determine recommendations and requirements during endangered species consultation for vernal pool-dependent species.

STATE PLANS, POLICIES, REGULATIONS, AND LAWS

California Endangered Species Act

In accordance with the California Endangered Species Act (CESA) and Section 2081 of the California Fish and Game Code, a permit from the California Department of Fish and Wildlife (CDFW) is required for projects that could result in the take of a wildlife species state-listed as threatened or endangered. Under 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.

Section 1602 of the California Fish and Game Code

All diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake in California that supports wildlife resources are subject to regulation by CDFW under Section 1602 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, or use any material from the streambeds, without first notifying CDFW of such activity and obtaining a final agreement authorizing such activity. “Stream” is defined as a body of water that flows at least periodically or intermittently through a bed or channel having banks and that supports fish or other aquatic life. CDFW’s jurisdiction within altered or artificial waterways is based on the value of those waterways to fish and wildlife. A Streambed Alteration Agreement must be obtained from CDFW for any project that would result in an effect on a river, stream, or lake.

Porter Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act requires that each of the nine RWQCBs prepare and periodically update basin plans for water quality control. Each basin plan sets forth water quality standards for surface water and groundwater and actions to control nonpoint and point sources of pollution to achieve and maintain these standards. Basin plans offer an opportunity to protect wetlands through the establishment of water quality objectives. The RWQCB’s jurisdiction includes Federally protected waters as well as areas that meet the definition of “waters of the state.” Waters of the state is defined as any surface water or groundwater, including saline waters, within the boundaries of the state. The RWQCB has the discretion to take jurisdiction over areas not Federally protected under Section 401 provided they meet the definition of waters of the state. Mitigation requiring no net loss of wetlands functions and values of waters of the state is typically required by the RWQCB.

California Fish and Game Code Sections 3503 (Nesting Birds) and 3503.5 (Protection of Raptors)

Section 3503 of the California Fish and Game Code states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird. Section 3503.5 of the California Fish and Game Code states that it is unlawful to take, possess, or destroy any raptors (i.e., species in the orders Falconiformes and Strigiformes), including their nests or eggs. Typical violations include destruction of active raptor nests as a result of tree removal and failure of nesting attempts, resulting in loss of eggs and/or young, because of disturbance of nesting pairs by nearby human activity.

3.4.6 ANALYSIS METHODOLOGY

Because the Final EIR has already been certified, all Final EIR Mitigation Measures, the Rezone and Tentative Large Lot Parcel Map Conditions of Approval, and the obligations found in the Development Agreement (collectively referred to as the project entitlements) are considered a part of the Proposed Action. Thus, these measures and requirements are considered when analyzing the significance of effects under the Proposed Action. Because the project entitlements were imposed on the Proposed Action by the County as part of its approval process, it is reasonable to assume that if one of the action alternatives were adopted, the County would impose similar conditions during the entitlement of the alternative.

The evaluation of potential effects to biological resources is based on the best information available regarding existing conditions on the Cordova Hills site and the Pilatus site. The Cordova Hills site has been studied extensively. Thus, effects associated with the Proposed Action and the other three action alternatives that are located within the same boundaries are well defined (i.e., Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives). The Pilatus site has not been studied extensively; thus, the effect discussions relating to the Pilatus Alternative are based on the limited amount of information available specific to the Pilatus site, as well as research and documentation that provides information regarding biological resources likely to occur within this site.

THRESHOLDS OF SIGNIFICANCE

The determinations of significance of effects for this analysis are based on professional standards regularly used in environmental review documents in the region. These thresholds encompass the factors taken into account under NEPA to determine the significance of an action in terms of its context and the intensity of its effects. These are also informed by the environmental checklist in Appendix G of the State CEQA Guidelines. The alternatives under consideration were determined to result in a significant effect related to biological resources if they would do any of the following:

- ▶ have a substantial adverse effect on Federally protected waters of the U.S., including wetlands, as defined by Section 404 of the CWA, through direct removal, filling, hydrological interruption, or other means; or
- ▶ have a substantial adverse effect, either directly or through habitat modifications, on any species identified as an endangered, threatened, candidate, or special-status species by USFWS or CDFW.

3.4.7 ENVIRONMENTAL CONSEQUENCES AND MITIGATION MEASURES

EFFECTS ANALYSIS

Effects that would occur under each alternative are identified as follows: NA (No Action), PA (Proposed Action), EDP (Expanded Drainage Preservation), EP (Expanded Preservation), P (Pilatus), and RC (Regional Conservation). The effects associated with each alternative are compared relative to the PA at the end of each effect conclusion (i.e., similar, greater, lesser).

EFFECT 3.4-1 *Loss and Degradation of Jurisdictional Wetlands and Other Waters of the U.S. Implementing the Proposed Action would result in the placement of fill material into jurisdictional waters of the U.S., including wetlands subject to USACE jurisdiction under the Federal CWA.*

Approximately 89.11 acres of jurisdictional waters of the U.S. are present within the Cordova Hills site, and an additional 20.72 acres of jurisdictional waters of the U.S. are present on the Pilatus site. Each alternative differs in the amount and location of affected and preserved water features. Table 3.4-3 provides the total acreage of wetlands directly affected, indirectly affected, and preserved. In addition to on-site wetlands, a number of off-site road improvements would be conducted as a part of all five action alternatives. The wetland acreages associated with these improvements are presented in Table 3.4-4.

Alternative	Total Acres Existing	Total Acres of Direct Effect	Percent of Waters Directly Affected	Total Acres of On-site Avoidance	Percent of Waters Preserved
Proposed Action	89.11	39.79	44	49.32	56
Expanded Drainage Preservation	89.11	18.19	20	70.92	80
Expanded Preservation	89.11	9.38	11	79.72	89
Regional Conservation Alternative	89.11	38.41	43	50.69	57
Pilatus Alternative	109.82	33.17	30	76.65	70
Note: *Under the No Action Alternative, neither the Cordova Hills nor Pilatus sites would be developed and a Section 404 permit for wetland fill would not be required from USACE. No physical changes to these sites would occur under the No Action alternative. Source: Data compiled by AECOM in 2014					

DUE Trigger	Roadway Location	Vernal Pool Effect (acres)	Stock Pond Effect (acres)	Swale, Stream, and Creek Effects (acres)	Roadside Ditch Effect (acres)
Connect	Intersection of Grant Line Road and Chrysanthy Boulevard	0	0	0.024	0
Connect	Intersection of Grant Line and North Loop Road	0.006	0.01	0.003	0
Connect	Intersection of Grant Line Road and University Boulevard	0.026	0	0.003	0
250	Intersection of Sunrise Boulevard and Jackson Highway/SR 16	0	0	0.085	0.014
500	Intersection of Jackson Highway/SR 16 and Grant Line Road	0.004	0.081	0.057	0
850	Intersection of Grant Line Road and Douglas Road	0.031	0	0	0
1,250	Intersection of North Loop Road and Grant Line Road	0	0	0.001	0
1,800	Intersection of North Loop Road and Grant Line Road	0	0	0.001	0
1,800	Intersection of Grant Line Road and Douglas Road	0.014	0	0	0
Subtotals		0.08	0.09	0.17	0.01
Total Off-Site Road Effects on Wetlands				0.36	
Note: DUE = dwelling unit equivalent; SR = State Route Source: Data compiled by AECOM in 2014					

NA

Under the No Action Alternative, the Cordova Hills site would not be developed and no construction disturbances would occur. Therefore, there would **no indirect** or **direct** construction effects to waters of the U.S. [*Lesser*]

Mitigation Measure: No mitigation measures are required.

PA

Under the Proposed Action, approximately 39.79 acres of on-site jurisdictional waters of the U.S. would be permanently filled or disturbed to accommodate the Proposed Action, including 15.64 acres of vernal pools, 6.52 acres of intermittent drainages, 3.06 acres of seasonal wetlands, 13.87 acres of seasonal wetland swales, 0.01 acre of seep, and 0.69 acre of stock ponds. In addition, approximately 0.36 acre of wetlands and waters would be adversely affected as a result of off-site road work. Thus, the total direct effects to waters of the U.S. associated with the Proposed Action would be 40.15 acres, which is approximately 44 percent of all wetlands and waters on-site. The certified Final EIR also estimated that an additional 0.159 acre of intermittent drainage would be temporarily affected by construction activities over the short-term. These temporary effects would occur at road crossings over water features in the avoided areas where temporary grading would occur. These areas would be restored to preexisting conditions following construction of the road crossings.

The Proposed Action includes approximately 539 acres of “Avoided Areas.” The largest of the avoided areas, the western plateau avoided area, comprises a total of approximately 381 acres in the northwestern portion of the Cordova Hills site containing the highest concentration of wetlands. The western plateau area is located within a distinct watershed (the Laguna Creek Watershed) from the remainder of the Cordova Hills site and contains complexes of vernal pools and swales with a high degree of hydrological connectivity within the plateau but very little connectivity to the remainder of the site (there is some stormwater flow off the plateau into swales that connect to the central drainage). The Laguna Creek watershed flows to the Sacramento River while the remainder of the site is in the Carson Creek and Deer Creek watersheds, which flow to the Cosumnes River. Besides being within a separate watershed, the western plateau is also distinct from the remainder of the Cordova Hills site by being contained exclusively on the Laguna Formation geologic unit (a formation well known for supporting high-quality vernal pool habitat), being topographically separated on a plateau that is relatively flat, and having the highest quality and density of vernal pools on the site (ECORP 2013b). In 2009, ECORP conducted a California Rapid Assessment Method (CRAM) analysis of a subset of wetlands at the Cordova Hills site in order to determine their relative habitat quality values. A total of 24 Assessment Areas (AA) were identified, and the AA’s that received the highest scores were located on the western plateau. The average CRAM scores for the western plateau area’s wetlands were 84.7, and the average CRAM scores for the wetlands east of the plateau were 72.8 (out of a possible 100).

The hydrologic connectivity, geology, rare plant surveys, CRAM, and the vernal pool branchiopod surveys point out that the highest quality wetlands within the Cordova Hills site occur in the western plateau area, and that the wetland habitats east of plateau area are much different and of lower value than the habitats located in the western plateau area, therefore the Proposed Action has been designed to focus wetland avoidance in the western plateau area.

Another avoided area is proposed to encompass the central drainage channel and some of the wetlands adjacent and connected to the drainage. This central drainage avoided area comprises approximately 112 acres, including 18 acres in the southwest corner of the proposed University/College Campus Center. An additional 46 acres

would be designated as avoided area along the eastern and southeast boundaries of the Cordova Hills site within the Federal Emergency Management Agency (FEMA) 100-year floodplain of Carson Creek. This area is referred to as the Carson Creek avoided area. Each of the avoided areas would have a minimum 50-foot buffer area between the avoided area boundary and adjacent development. Various edge treatments would be applied in the buffer areas, but all would be a minimum of 50 feet wide (from the avoided area boundary) and include a drainage swale, an 8-foot naturalized planting area, a pedestrian trail, and a second drainage swale (ECORP 2013b). The drainage swales would provide a hydrological barrier from urban runoff/nuisance flows and the naturalized planting would be located on the development side of the edge treatment to reduce potential urban edge effects on wildlife and habitat (ECORP 2013b). The edge treatment for the central drainage avoided area would be 100 feet wide from the avoided area boundary except in a few isolated areas, such as the road crossings.

Of the 89.11 acres of jurisdictional waters within the Cordova Hills site, 49.31 acres would be preserved under the Proposed Action within the designated “Avoided Areas,” which would be placed under a conservation easement. These preserved waters of the U.S. and avoided areas are shown on Exhibit 3.4-4. The acreage of existing, directly affected, and preserved wetland types for the Proposed Action are provided in Table 3.4-5.

Water Type	Existing On-Site	On-Site Direct Effect	On-Site Preservation
Intermittent Drainage	16.90	6.52	10.38
Seasonal Wetland	4.77	3.06	1.71
Seasonal Wetland Swale	18.22	13.87	4.35
Seep	0.01	0.01	-
Vernal Pool	47.51	15.64	31.87
Carson Creek	0.17	-	0.17
Stock Pond	1.52	0.69	0.83
Total	89.11	39.79	49.31
Source: Data compiled by AECOM in 2014			

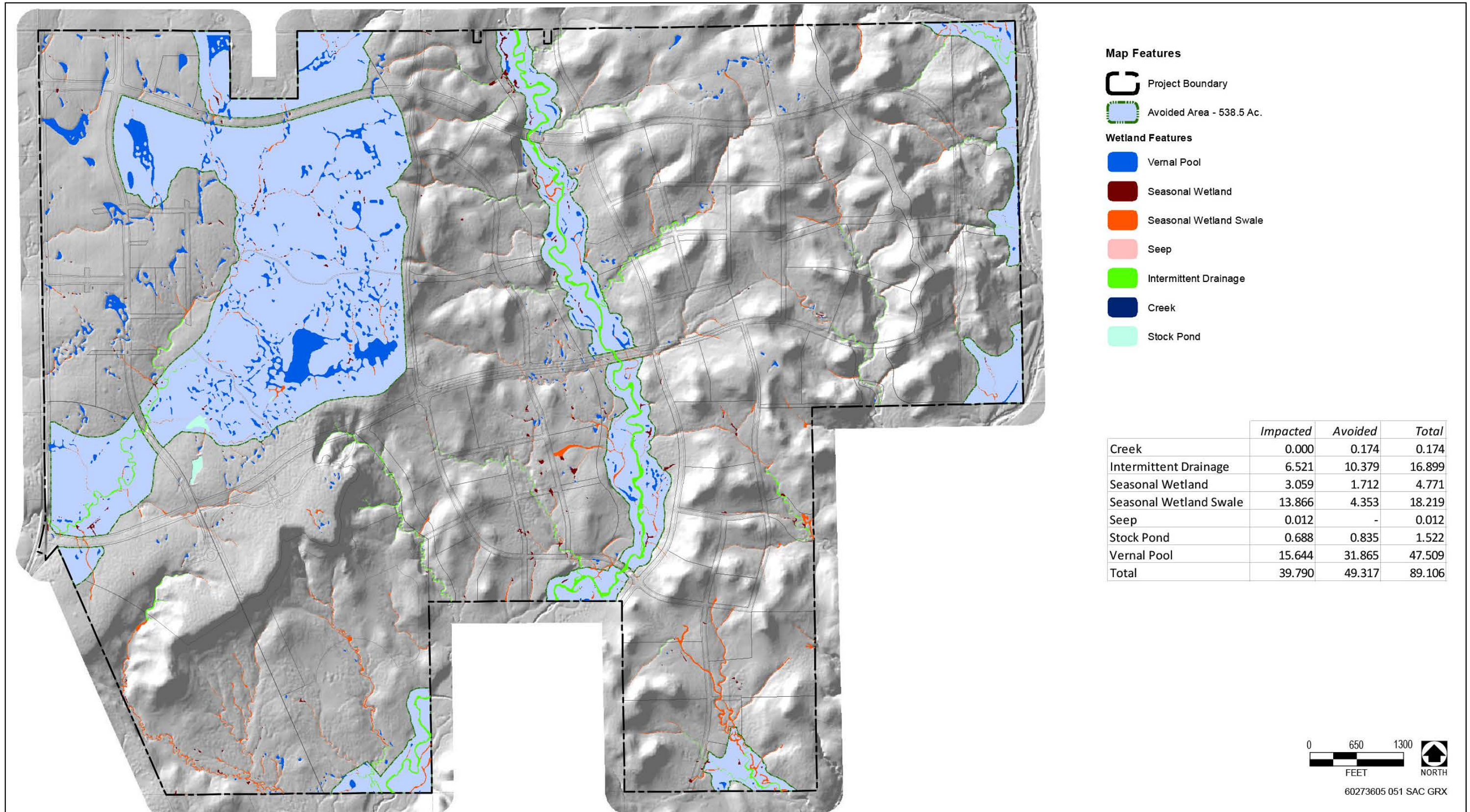
Wetlands and waters could also be indirectly affected under the Proposed Action. Indirect effects can occur when an action has a secondary effect on a water feature. Potential indirect effects include, but are not limited to, changes in hydrology that would affect the normal functions of aquatic resources, discharge of pollutants, or introduction of new nonnative or invasive plant species into the aquatic resource as a result of the Proposed Action. Most of the indirect effects would not result in a quantifiable loss of acreage of waters of the U.S. or in a complete loss of any of their current functions. However, drainage channels that become fragmented (i.e., both upstream and downstream segments filled) and wetlands that would become isolated or that would not retain a sufficient microwatershed to maintain normal hydrologic function can be considered to have a loss of function due to indirect effects of the Proposed Action. No drainage channels would be fragmented as a result of implementing the Proposed Action. A number of seasonal tributaries would be completely filled or filled at their headwaters, but these are all calculated as direct loss of waters of the U.S.

ECORP conducted a watershed analysis (ECORP 2011c) to determine if the avoided areas are sufficient to maintain normal hydrologic function for all wetlands located therein. The watershed analysis combined GIS modeling, using ArcGIS software tools and a Light Detection and Ranging (LiDAR) derived digital elevation model

and shaded elevation curvature model, with field investigations (wetland delineation and piezometer monitoring). Results of the watershed analysis determined the watershed size necessary to sustain normal hydrologic function of seasonal wetlands and vernal pools on the Cordova Hills site. The modeling analysis concluded that 1.30 and 1.40 acres, respectively, of upland watershed area is needed for every acre of seasonal wetland and vernal pool to maintain normal hydrologic function. Based on this analysis, only two wetlands would not have the watershed necessary to maintain normal hydrologic function, and these wetlands (totaling 0.032 acre) were included in the assessment of direct effects for this EIS. The study concluded that the hydrologic function of all other wetlands in the Avoided Area would not be affected by implementation of the Proposed Action. Based on the results of the watershed analysis, all but two of the depressional wetlands retained within the avoided areas would be expected to provide generally the same wetland functions following implementation of the Proposed Action as they do currently because implementation of the Proposed Action would not decrease the wetland-to-watershed ratios below levels necessary to sustain the existing wetlands.

Indirect effects on aquatic habitats besides those related to loss of watershed area or stream fragmentation could result from increased urbanization and population and loss of wetland buffer, including reduction in water quality and altered flows caused by urban runoff, erosion, and siltation; intrusion of humans and domestic animals; litter and dumping into waterways; introduction of invasive plant species that could result in habitat degradation; and changes in management regimes, such as elimination of grazing and implementation of stronger fire suppression policies, that degrade current habitat values. Nuisance flows and runoff from development to the east would not be expected to affect hydrology or water quality of aquatic resources preserved on the western plateau because the western plateau is located within a distinct watershed and is topographically separated from the remainder of the site. However, aquatic resources preserved in the plateau avoided area could be subject to indirect effects on hydrology and water quality from development of the Town Center to the west, but the proposed edge treatments and low impact development features described below would minimize these potential effects.

Substantial grading and creation of impervious surfaces proposed for adjacent uplands could also adversely affect preserved and adjacent wetlands and other waters by altering hydration periods, peak flows, runoff volumes, and runoff durations. While the central intermittent drainage channel would be retained, many intermittent tributaries and seasonal swales directly connected to this central drainage would be filled and the central drainage would be crossed by three Proposed Action roadways and a multi-use trail. As fully described in Section 3.10 "Hydrology and Water Quality" detention/flow duration control/water quality basins and other features have been incorporated into the design of the Proposed Action to avoid hydromodification of the on-site drainage channels and none of the ephemeral or intermittent drainage channels would be converted to perennial drainage. There are a total of eight roadway crossings proposed over preserved aquatic features on the Cordova Hills site; three over the central drainage channel and five over intermittent drainage channels and seasonal wetland swales in the plateau avoided area. Open bottom (i.e., natural substrate) arch culverts would be used at each of the roadway crossings to maintain hydrological connectivity. Small arch culverts approximately 2 to 3 feet in height would be used at the four proposed crossings over small drainage channels and seasonal wetland swales. Large (5 to 10 feet in height), free-span, arch culverts would be used at the four roadway crossings over larger intermittent drainage channels (these consist of three crossings over the central drainage channel and one crossing over the Laguna Creek tributary). The large arch culverts are designed to allow unobstructed flow and are large enough to allow wildlife to cross under the roadways even during high flows. No vernal pools would be crossed by the Proposed Action roadways and North Loop Road was strategically designed to minimize watershed effects by aligning the roadway between the watersheds of individual wetlands. All areas disturbed outside of the roadway rights-of-way during trail construction would be restored to their preconstruction contours.



Source: County of Sacramento 2012

Exhibit 3.4-4

Areas of Wetland and Water Avoidance and Effects – Proposed Action

The main wetland avoided area on the western plateau would also be transected by two 10-foot-wide, multi-use trails. The plateau and central avoided areas would also be surrounded by multiuse trails placed at the outer edges of their boundaries in the recreational buffer. The multiuse trails through the avoided areas have been aligned to avoid direct effects to vernal pools and would only cross linear features (seasonal wetland swales and intermittent drainage channel). Trail crossings over seasonal wetland swale would occur at six locations. Construction of the trails through the wetland preserve could further fragment the remaining habitat and could disrupt or eliminate hydrologic connectivity that is important to support vernal pools and the plant and wildlife species that inhabit the pools without mitigation. However, the trails would be elevated approximately 12 to 24 inches at swale crossings using a boardwalk or truss-style bridge design, as needed depending on the size of the drainage to be crossed, to minimize hydrological disruption. A larger, truss-style bridge design would be used for the crossing over the central drainage avoided area. Ground disturbance would be limited during construction of the boardwalks by limiting the number of footings and the bridges would be designed to fully span the drainages with footings placed outside of the ordinary high water mark in order to maintain unobstructed flow and minimize adverse effects to the drainage. The pedestrian trails would also be routed along wetland watersheds, where possible, to minimize surface flow modifications and all areas disturbed during trail construction would be restored to their preconstruction contours. Grading and excavation would be limited to the surface layers to ensure the restrictive layer is not affected. With these avoidance and minimization measures incorporated into construction design, a maximum of 0.06 acres of waters of the U.S. (0.04 acre of intermittent drainage and 0.02 acre of seasonal wetland swale) would be directly affected at the six trail crossing locations (based on a conservative estimate that direct effects may occur within a 20-foot buffer of the trail alignment).

The trails and roadways would increase access to preserved areas by humans and their pets, which has the potential to degrade preserved habitats through predation on wildlife by domestic animals, human disturbance/harassment, introduction and spread of invasive species, dumping of litter and debris that is harmful to wildlife, and trampling and compaction of soils and vegetation (by people venturing off designated trails and gathering in preserve areas). The proposed East/West Community trail, besides bisecting the main avoided area and central drainage avoided area, would connect to the Carson Creek avoided area at the eastern edge of the Cordova Hills site, increasing human intrusion into Carson Creek.

Many of these indirect effects cannot be quantified because they would not result in a predictable loss of acreage or a full loss of function, but if left unmitigated, they could result in diminished functional capacity of aquatic resources adjacent to, downstream from, or retained on the Cordova Hills site. Additional design features proposed to reduce indirect effects to aquatic resources, besides the road and trail design features described above, include constructing detention basins along outer edges of avoided areas to detain and treat water before discharging it into wetland systems, and using local water quality features such as grassy swales, settling basins, and natural filters to clean surface run-off water before it reaches the natural drainage channels. In addition, cattle grazing would continue as a management strategy in the plateau avoided area to minimize potential adverse effects from changes in vegetation such as increased cover of invasive grass species and buildup of thatch. Trails would be bound on either side by pedestrian fencing, and grazing fences would be installed to keep cattle in and humans out. Interpretive signage would also be installed around the preserves to educate the public about the importance of the natural resources preserved therein and encourage responsible use. The fencing and signage would minimize human disturbance in the avoided areas. Low Impact Development (LID) principles (principles that promote natural movement of stormwater through preservation and recreation of natural landscape features and minimization of impervious surfaces) such as biofiltration swales, bio retention systems, landscaping with native and drought tolerant plants, gutters dispensing to lawns, cobblestone driveways, pervious concrete and

porous asphalt, and preservation of existing terrain and drainage patterns would be incorporated to the greatest extent feasible and when soil conditions permit.

As part of the CEQA EIR certification and project approval process, the project applicant committed to implementing various mitigation measures for the Proposed Action. The mitigation measures that are applicable to this effect that were incorporated into the Proposed Action by the EIR mitigation measures, conditions of approval, and development agreement (project entitlements) are listed below:

- ▶ To compensate for the permanent loss of wetlands, the applicant shall perform one or a combination of the following prior to issuance of building permits, and shall also obtain all applicable permits from the Army Corps of Engineers, the U.S. Fish and Wildlife Service, the Central Valley Regional Water Quality Control Board, and the California Department of Fish and Game:
 - a. Where a Section 404 Permit has been issued by the Army Corps of Engineers, or an application has been made to obtain a Section 404 Permit, the Mitigation and Management Plan required by that permit or proposed to satisfy the requirements of the Corps for granting a permit may be submitted for purposes of achieving a no net-loss of wetlands. The required Plan shall be submitted to the Sacramento County Environmental Coordinator, U.S. Army Corps of Engineers, and U.S. Fish and Wildlife Service for approval prior to its implementation.
 - b. If regulatory permitting processes result in less than a 1:1 compensation ratio for loss of wetlands, the project applicant shall demonstrate that the wetlands which went unmitigated / uncompensated as a result of permitting have been mitigated through other means. Acceptable methods include payment into a mitigation bank or protection of off-site wetlands through the establishment of a permanent conservation subject to the approval of the Environmental Coordinator.
 - c. The project applicant may participate in the South Sacramento Habitat Conservation Plan if it is adopted, and if the project area and activities are covered. The applicant shall prepare project plans in accordance with that Plan and any and all fees or land dedications shall be completed prior to construction. (*Final EIR Mitigation Measure BR-1*)
- ▶ Prior to issuance of building permits, all areas designated within the Specific Plan Area as Avoided shall be placed within a permanent conservation easement, which shall be reviewed and approved by the Environmental Coordinator. At a minimum, the permanent conservation easements must cover all areas which are required to be preserved as part of the Section 404 and Section 401 wetland permits. (*Final EIR Mitigation Measure BR-2*)
- ▶ The project applicant shall prepare an invasive species removal and prevention plan. The plan shall provide methods to remove invasive species from preservation areas and to restore the affected wetland features. The plan shall include methods for the prevention of the introduction of new invasive species from landscapes associated with the development. Minimum components of such a plan shall include: mapping of existing invasive plant populations within the avoided areas, with the map being updated a minimum of every five years; a description of acceptable methods for removing invasive species, examples of which include hand removal or biological controls (e.g. natural parasites); and a prohibition on the use of nonnative plants within either the Avoided Areas or the Recreation-2 areas. The plan shall be incorporated in the Operations and

Management Plan which is a requirement of the Section 404 permit process. (*Final EIR Mitigation Measure BR-9*)

- ▶ The Sacramento County Department of Water Resources shall require an approved drainage study incorporating all the items contained in the latest version of the document “County of Sacramento Department of Water Resources Drainage Development and Hydrology Section, Drainage Study Requirements” and all the requirements listed in the Sacramento County Drainage Improvement Standards, prior to recordation of the large lot map. The study shall describe permanent stormwater quality treatment facilities capable of treating stormwater to the satisfaction of Sacramento County Department of Water Resources groundwater engineering for infiltration into the Mehrten Formation. The study must also identify, to the satisfaction of the Sacramento County Department of Water Resources, hydromodification mitigation measures and flood detention facilities, to be implemented by the Cordova Hills development, in conformance with applicable County ordinances and standards, and state and Federal law. (*Large Lot Tentative Map Condition of Approval*)

As described in Sacramento County’s Final EIR Mitigation Measure BR-1, the project applicant would mitigate for wetland effects per USACE requirements; if the USACE mitigation ratio is less than 1:1, the applicant still would be required to provide suitable mitigation for all effects to wetlands. Also, all avoided areas would be placed within a permanent conservation easement, per Sacramento County Final EIR Mitigation Measure BR-2. Mitigation for the fill and degradation of wetlands and waters would reduce the significance of the effects to jurisdictional waters by offsetting some of the direct effects. However, these measures would not reduce the effect to a less-than-significant level because they do not describe how the substantial direct loss of wetlands and other waters of the U.S. would be compensated to meet the no-net-loss standard. Sacramento County Final EIR Mitigation Measure BR-9 would be implemented to prevent the spread of invasive plant species. This measure would reduce, but not eliminate, the potential for indirect effects to on-site wetlands.

The loss and degradation of USACE jurisdictional vernal pools and other wetland habitats and other waters of the U.S. (e.g., intermittent drainage channels, stock ponds) that would occur with implementation of the Proposed Action constitutes a substantial adverse effect on Federally jurisdictional waters of the U.S., including wetlands, as defined by Section 404 of the CWA. Even with the proposed wetland avoidance areas and incorporation of design features to reduce indirect effects, there would still be a **direct** and **indirect significant** effect without mitigation.

Mitigation Measure: Implement Mitigation Measure 3.10-1: Prepare and Implement a Storm Water Pollution Prevention Plan and Associated Best Management Practices.

Mitigation Measure 3.4-1a: Ensure No Net Loss of Wetlands and Other Waters of the United States and Associated Functions.

Prior to the commencement of construction activities in waters of the U.S., the project applicant shall obtain all necessary permits under Sections 401 and 404 of the CWA. The project applicant shall submit a compensatory mitigation plan to USACE and the Central Valley RWQCB, for review and approval prior to USACE making a permit decision for the proposed action. The compensatory mitigation plan shall identify the amount and type of proposed compensatory mitigation to ensure “no net loss” of aquatic resource functions and services that would be removed, lost, and/or substantially degraded as a result of implementing that phase. It is anticipated that the

mitigation plan will include preservation of existing wetlands, mitigation bank credits, and/or permittee responsible mitigation, and/or a combination thereof, within the watershed to the extent practicable (33 CFR 332.3(a) and (b)).

As part of the Section 404 permitting process, the applicant shall develop and submit a draft wetland mitigation and monitoring plan (MMP) to USACE and the Central Valley Regional Water Quality Control Board for review and approval for the proposed compensatory mitigation. The MMP shall include the objectives, site selection, site protection instrument, baseline information, determination of credits, mitigation work plan, maintenance plan, performance standards, monitoring requirements, long-term management plan, adaptive management plan, and financial assurances, and shall be presented in the format of the USACE Sacramento District's December 30, 2004, *Habitat Mitigation and Monitoring Proposal Guidelines* and USACE requirements found in 33 CFR 332.4(c). Prior to USACE making a permit decision on the Proposed Action, the applicant shall submit, to USACE for review and approval, a Final MMP addressing all comments on the Draft MMP.

A conceptual wetland mitigation plan for the Proposed Action has been developed by ECORP Consulting, on behalf of the project applicant, and is included in Appendix N to this document. The applicant's conceptual wetland mitigation plan is subject to review and approval by the appropriate regulatory agencies. Proposed mitigation in the conceptual wetland mitigation plan includes a combination of on-site and off-site preservation, as well as on-site and off-site wetland restoration and creation. In addition to the four on-site wetland avoided areas, the conceptual mitigation plan proposes wetland preservation at three off-site mitigation properties: the Chester Drive Property, Shehadeh Property, and the Carson Creek Property. The off-site mitigation properties contain approximately 39.18 waters of the U.S. proposed for preservation. A total of approximately 32.84 acres of wetland restoration and creation is also proposed within the three off-site mitigation properties and within the on-site western plateau avoided area. The conceptual mitigation plan has not yet been reviewed and approved by USACE or other regulatory agencies, but is attached to this draft EIS for public review and comment.

- Implementation:** Project applicant.
- Timing:** Before the start of construction activities.
- Enforcement:** U.S. Army Corps of Engineers, Sacramento District.

Mitigation Measure 3.4-1b: Incorporate Measures from the Drainage Master Plan and Implement Best Management Practices.

The wetland MMP shall incorporate measures from the Cordova Hills Drainage Master Plan (MacKay & Soms 2011) designed to minimize indirect effects on water quality and hydrology. The project applicant for all phases shall commit to implement all measures in their drainage plans, to avoid and minimize erosion and runoff into Laguna Creek, Deer Creek, Carson Creek, their tributaries, and all wetlands to remain on-site. Appropriate runoff controls such as storm gates, extended duration detention basins, percolation trenches, overflow collection areas, biofiltration swales, and sediment traps shall be implemented to control nuisance flows, siltation, and the potential discharge of pollutants. See Section 3.10, "Hydrology and Water Quality," for further discussion of the Drainage Master Plan.

A standard set of BMPs shall be applied to construction occurring in areas containing waters of the U.S. and waters of the state. Refer to Section 3.10, "Hydrology and Water Quality," for the details of BMPs to be implemented.

- Implementation:** Project applicant.
- Timing:** Before the start of construction activities.
- Enforcement:** U.S. Army Corps of Engineers, Sacramento District.

Implementation of Mitigation Measures 3.10-1, 3.4-1a, and 3.4-1b would reduce direct and indirect significant effects associated with fill and degradation of jurisdictional habitat under the Proposed Action. However, because a final compensatory mitigation plan has not been approved USACE, a determination cannot be made on whether the proposed compensatory mitigation would reduce these direct and indirect effects to a less than significant level. Therefore, **direct** and **indirect** effects would remain **potentially significant and unavoidable** even with implementation of Sacramento County Mitigation Measures BR-1, BR-2, BR-8, and BR-9 and Mitigation Measures 3.10-1, 3.4-1a, and 3.4-1b.

EDP

The Expanded Drainage Preservation Alternative, has the same site boundary as the Proposed Action, but has a different configuration of avoided areas and different levels of effects to on-site waters of the U.S. Direct effects to waters of the U.S. resulting from off-site improvements would be the same as the Proposed Action, and would result in the discharge of fill material into approximately 0.36 acre of waters of the U.S. for off-site road improvements. The Expanded Drainage Preservation Alternative would include multiuse trails through the central drainage and western plateau avoided areas in the same locations as in the Proposed Action. The Expanded Drainage Preservation Alternative would include a minimum 50-foot buffer between the boundary of the avoided areas and adjacent development. Edge treatments would include a drainage swale, an 8-foot naturalized planting area, a pedestrian trail, and a second drainage swale (ECORP 2013b). The drainage swales would provide a hydrological barrier from urban runoff/nuisance flows and the naturalized planting would be located on the development side of the edge treatment to reduce potential urban edge effects on wildlife and habitat (ECORP 2013b).

Under the Expanded Drainage Preservation Alternative, a substantially larger portion of the on-site drainages would be preserved as compared to the Proposed Action, including preservation of most of the tributary drainages and swales to the intermittent drainage that trends south/southwest through the central portion of the Cordova Hills site, tributaries to Deer Creek in the southeast portion of the Cordova Hills site, and those in the eastern portion of the Cordova Hills site that are tributary to Carson Creek. The western plateau avoided area would be roughly the same configuration under this alternative as under the Proposed Action, except it would incorporate an additional seasonal wetland swale extending to Grant Line Road. The central drainage avoided area and the eastern avoided area would be increased considerably compared to the Proposed Action and additional avoidance areas would be incorporated into the design to preserve existing on-site drainage.

Under the Expanded Drainage Preservation Alternative, approximately 18.19 acres of on-site jurisdictional waters of the U.S. would be permanently filled or disturbed to accommodate development, as compared to 39.79 that would be filled under the Proposed Action (a difference of 21.44 fewer acres filled). A total of 70.92 acres of

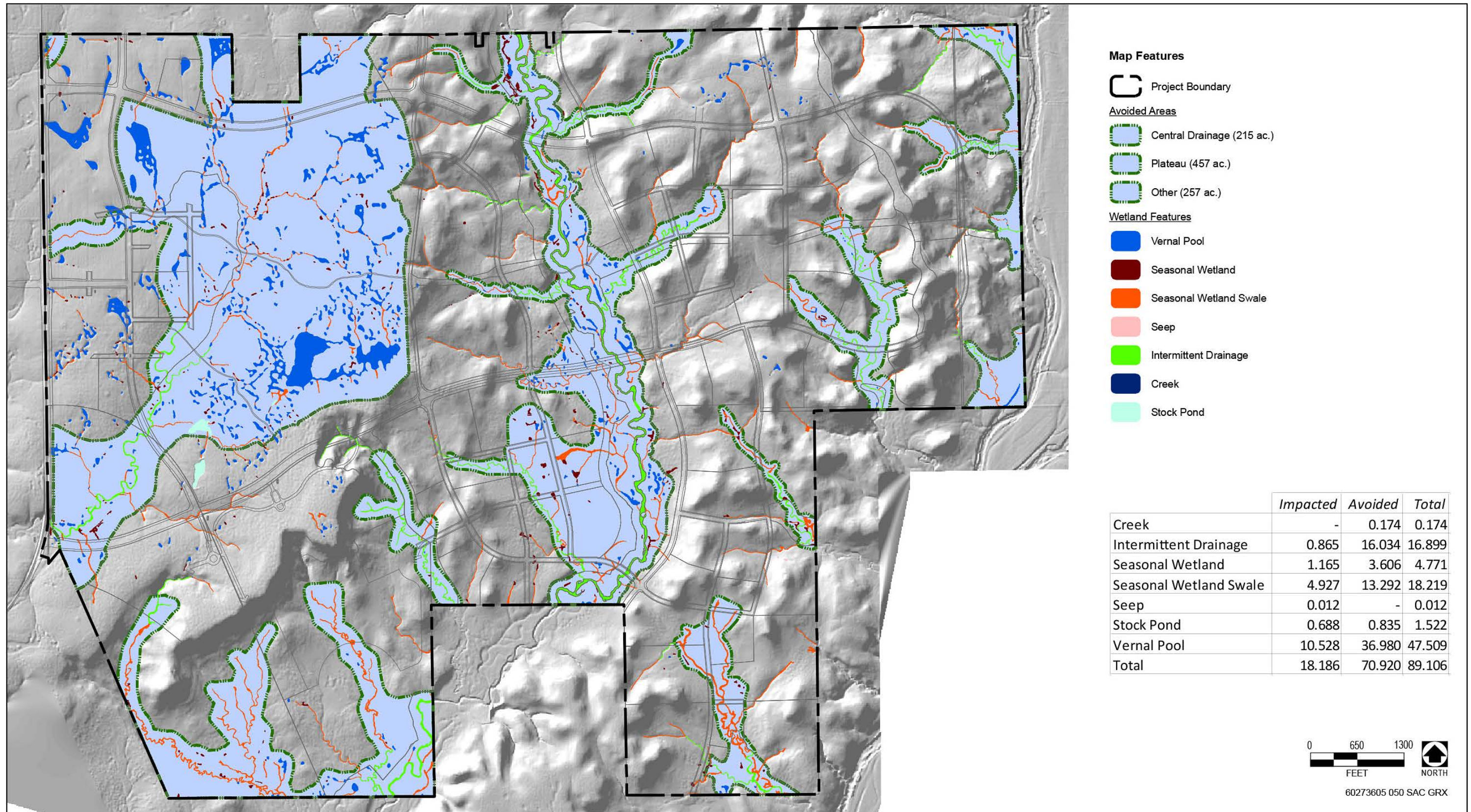
waters of the U.S. would be preserved under this alternative, as compared to 49.48 acres preserved under the Proposed Action. Table 3.4-3, above, provides a side-by-side comparison of preserved versus affected acreage of wetlands and other waters of the U.S. for each alternative. Table 3.4-6 presents direct effects of the Expanded Drainage Preservation Alternative by water type. The Expanded Drainage Preservation Alternative would result in a total of 921 acres of on-site preservation, as compared to 539 acres preserved under the Proposed Action. Exhibit 3.4-5 illustrates the locations of preserved and affected waters of the U.S. on the Cordova Hills site under the Expanded Drainage Preservation Alternative. The loss of waters of the U.S., including wetlands, that would result from implementing this alternative would be a **direct potentially significant** effect, but would be substantially less than the Proposed Action. *[Lesser]*

Water Type	Existing On-Site	Direct Effect	On-Site Preservation
Carson Creek	0.17	0	0.17
Intermittent Drainage	16.90	0.87	16.03
Seasonal Wetland	4.77	1.17	3.61
Seasonal Wetland Swale	18.22	4.93	13.29
Seep	0.01	0.01	0
Stock Pond	1.52	0.69	0.84
Vernal Pool	47.51	10.53	36.98
Total Acreage Affected	89.11	18.19	70.92
Source: Data compiled by AECOM in 2013			

Implementing this alternative would preserve a greater proportion of the existing aquatic resources than the Proposed Action (80 vs. 56 percent, respectively) and would maintain more of the existing on-site hydrological connections to minimize potential indirect effects on hydrological function. In addition, aquatic resources retained along the central drainage would be retained within a larger overall avoided area that would provide a larger buffer area (i.e., greater distance between preserved wetlands and developed land uses) around many of the preserved aquatic resources. However, this alternative would still result in changes to site topography, increased impervious surfaces, and urban development and human population growth would still occur adjacent to waters of the U.S. Therefore, the Expanded Drainage Preservation Alternative would reduce potential indirect effects to waters of the U.S. compared to the Proposed Action, but **indirect** potentially significant effects would still result. *[Similar]*

Mitigation Measure: Implement Mitigation Measure 3.10-1, 3.4-1a, 3.4-1b, and Sacramento County Final EIR Mitigation Measures BR-1, BR-2, BR-8, and BR-9.

Implementation of Mitigation Measures 3.10-1, 3.4-1a, 3.4-1b, and Sacramento County Final EIR Mitigation Measures BR-1, BR-2, BR-8, and BR-9 would reduce direct and indirect significant effects associated with fill and degradation of jurisdictional habitat under the Expanded Drainage Preservation Alternative. However, because a final compensatory mitigation plan has not been approved by USACE, a determination cannot be made on whether the proposed compensatory mitigation would reduce these direct and indirect effects to a less than significant level. Therefore, direct and indirect effects would remain **potentially significant and unavoidable**



Source: ECORP 2014, adapted by AECOM in 2014

Exhibit 3.4-5

Areas of Wetland and Water Avoidance and Direct Effects – Expanded Drainage Preservation Alternative

even with implementation of Sacramento County Mitigation Measures BR-1, BR-2, BR-8, and BR-9 and Mitigation Measures 3.10-1, 3.4-1a, and 3.4-1b.

EP

The Expanded Preservation Alternative has the same site boundary as the Proposed Action, but has a different configuration of avoided areas and different levels of effects to on-site jurisdictional waters of the U.S. Direct effects to waters of the U.S. resulting from off-site improvements would be the same as the Proposed Action, and would result in the discharge of fill material into approximately 0.36 acre of waters of the U.S. for off-site road improvements. Under the Expanded Preservation Alternative, substantially more waters of the U.S. would be preserved as compared to the Proposed Action, including more of the on-site intermittent drainages and swales, and more vernal pools and seasonal wetlands. This alternative would preserve the entire northwestern portion of the Cordova Hills site, which contains the largest concentration of vernal pool and wetland habitat and would expand the central drainage avoided area as well, and preserve more of the on-site tributaries to the central drainage channel, Carson Creek, and Deer Creek. All preserved areas on the Cordova Hills site would have a minimum 50-foot buffer zone from adjacent land uses. Under the Expanded Preservation Alternative, approximately 9.38 acres of on-site jurisdictional waters of the U.S. would be permanently filled or disturbed, 30.41 fewer acres than would be filled under the Proposed Action. A total of 79.72 acres of waters of the U.S. would be preserved under this alternative, as compared to 49.48 acres preserved under the Proposed Action. Table 3.4-7 presents direct effects of the Expanded Preservation Alternative on each water type on the Cordova Hills site. This alternative would result in 1,188 acres of preservation, as compared to 539 acres preserved under the Proposed Action, an increase of 649 acres. Exhibit 3.4-6 illustrates the locations of preserved and affected waters of the U.S. on the Cordova Hills site under the Expanded Preservation Alternative. The loss of waters of the U.S., including wetlands, that would result from implementing this alternative would be a **direct** potentially significant effect, but would be substantially less than the Proposed Action. *[Lesser]*

Table 3.4-7 Acreages and Types of Waters of the U.S. Affected – Expanded Preservation Alternative			
Water Type	Existing On-Site	Direct Effect	On-Site Preservation
Carson Creek	0.17	0.00	0.17
Intermittent Drainage	16.90	0.96	15.94
Seasonal Wetland	4.77	0.93	3.84
Seasonal Wetland Swale	18.22	4.26	13.96
Seep	0.01	0.01	0.00
Stock Pond	1.52	0.00	1.52
Vernal Pool	47.51	3.23	44.28
Total Acreage Affected	89.11	9.38	79.72
Source: Data compiled by AECOM in 2013			

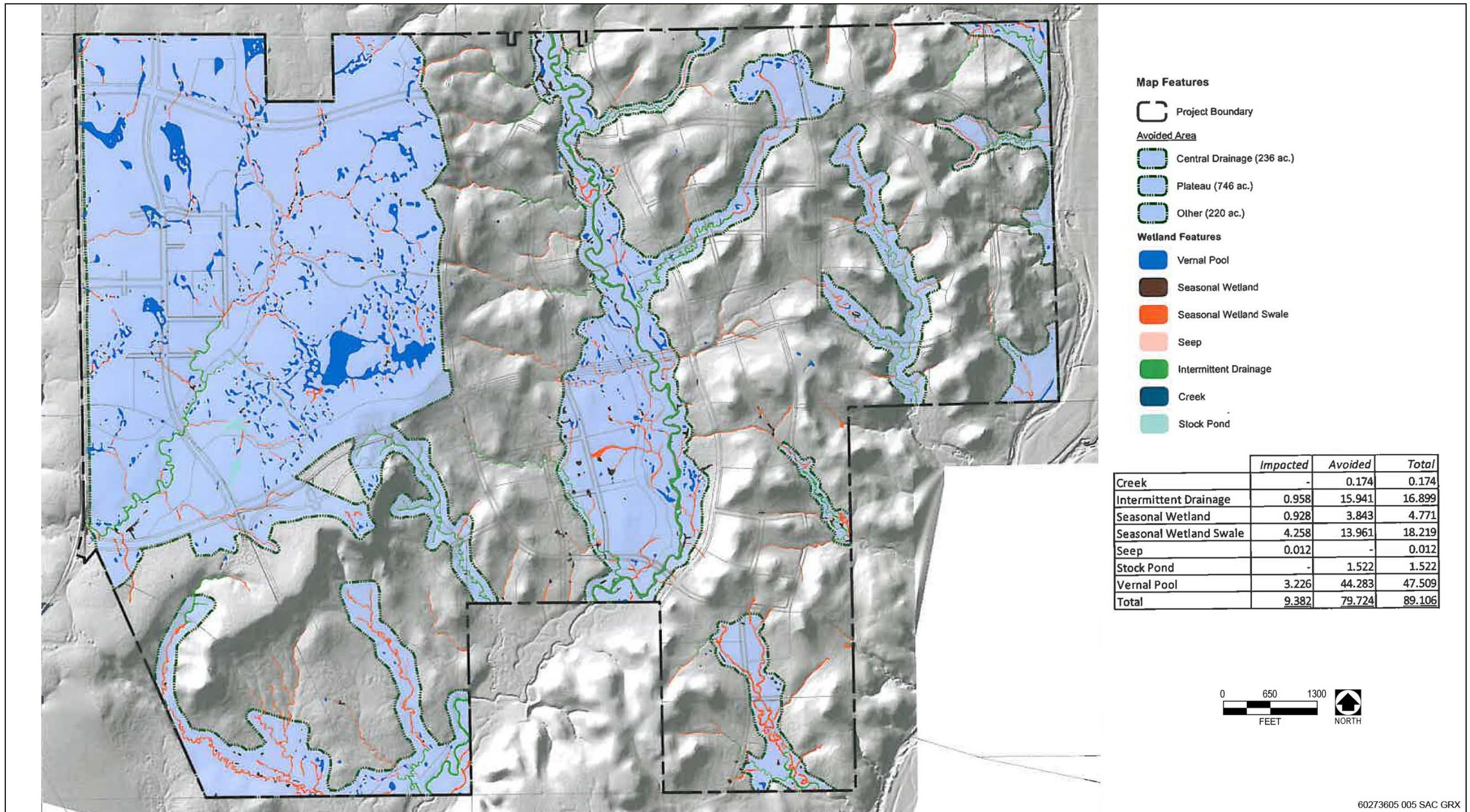
Implementing this alternative would preserve a greater proportion of the existing aquatic resources than the Proposed Action (89 vs. 56 percent respectively) and would maintain more of the existing on-site hydrological connections and microwatershed areas. Indirect effects to aquatic resources in the central drainage and Carson Creek avoided areas would be similar to those discussed above under the Proposed Action because of the development of impervious surfaces, alteration of topography, and human population growth adjacent to

aquatic resources; however, establishment of larger wetland preserved would create a greater buffer around most of the wetlands and other waters in the avoided areas, reduce edge effects and fragmentation, and maintain greater hydrological connectivity between on-site aquatic habitats. Furthermore, the Town Center would not be developed adjacent to the western plateau wetland preserve and there would be no roadways or trails constructed through the western plateau wetland preserve under this alternative, except a single roadway off Grant Line Road that would traverse the southwest tip of the preserve, and so the indirect effects of habitat fragmentation, adjacent impervious surfaces, and intrusion by humans and their pets would be substantially reduced.

Because development would not occur on the western plateau, under this alternative, indirect effects on preserved wetlands in the western plateau avoided area from hydromodification would be unlikely because this area is located within a distinct watershed (the Laguna Creek Watershed) from the remainder of the Cordova Hills site and contains complexes of vernal pools and swales with a high degree of hydrological connectivity within the plateau but very little connectivity to the remainder of the site (there is some stormwater flow off the plateau into swales that connect to the central drainage). Besides being within a separate watershed, the western plateau is also distinct from the remainder of the Cordova Hills site by being contained exclusively on the Laguna Formation geologic unit (a formation well known for supporting high-quality vernal pool habitat), being topographically separated on a plateau that is relatively flat, and having the highest quality and density of vernal pools on the site (ECORP 2013b). Therefore, eliminating development almost entirely from the plateau area and preserving it as a whole unit within the Cordova Hills site would virtually eliminate potential indirect effects on the wetlands preserved therein, except perhaps increased human and pet intrusion from residential development to the east. These measures would substantially reduce but not eliminate disturbance to wetlands on the Cordova Hills site because aquatic resources in the central drainage and Carson Creek avoided areas would be subject to similar indirect effects to those described for the Proposed Action although to a far lesser extent. Therefore, the Expanded Preservation Alternative would result in **indirect** significant effects, but these indirect effects would be substantially less than under the Proposed Action. [*Lesser*]

Mitigation Measure: Implement Mitigation Measures 3.10-1, 3.4-1a, 3.4-1b, and Sacramento County Final EIR Mitigation Measures BR-1, BR-2, BR-8, and BR-9.

Implementation of Mitigation Measures 3.10-1, 3.4-1a, 3.4-1b, and Sacramento County Final EIR Mitigation Measures BR-1, BR-2, BR-8, and BR-9 would reduce direct and indirect significant effects associated with fill and degradation of jurisdictional habitat under the Expanded Preservation Alternative. However, because a final compensatory mitigation plan has not been approved by USACE, a determination cannot be made on whether the proposed compensatory mitigation would reduce these direct and indirect effects to a less than significant level. Therefore, direct and indirect effects would remain **potentially significant and unavoidable** even with implementation of Sacramento County Mitigation Measures BR-1, BR-2, BR-8, and BR-9 and Mitigation Measures 3.10-1, 3.4-1a, and 3.4-1b.



Source: ECORP 2012, adapted by AECOM in 2012

Exhibit 3.4-6

Direct Effects – Expanded Preservation Alternative

The Pilatus Alternative differs from all other alternatives because it adds an additional 882.5 acres of land (the Pilatus site) to the north of the Cordova Hills site, and thereby increases the total acreage from approximately 2,668 to approximately 3,551 acres. Under this alternative, a larger area of the drainage that trends south/southwest through the central portion of the Cordova Hills site would be preserved. This drainage also extends north into the Pilatus site, and it would be preserved there as well. In addition, the western plateau avoided area boundary would be reconfigured and increased in size by approximately 36 acres within the Cordova Hills site. An estimated 962 acres (out of the approximately 3,551-acre Pilatus site) would be preserved under this alternative, as compared to 539 acres preserved (out of the 2,668.5-acre Cordova Hills site) under the Proposed Action. Table 3.4-8 presents direct and indirect effects of the Pilatus Alternative on each water type on the Pilatus site and Exhibit 3.4-7 illustrates the locations of preserved areas and preserved and affected waters of the U.S. for the Pilatus Alternative.

Water Type	Existing On-Site	Direct Effect	On-Site Preservation
Creek	0.17	0	0.17
Intermittent Drainage	20.27	2.56	17.72
Seasonal Wetland	8.82	3.64	5.18
Seasonal Wetland Swale	24.55	9.66	14.89
Seep	0.04	0.04	0
Stock Pond	1.87	0.72	1.15
Vernal Pool	54.10	16.56	37.54
Total Acreage Affected	109.82	33.17	76.65
Source: Data compiled by AECOM in 2014			

There are a total of 109.82 acres of waters of the U.S. within the Pilatus Alternative site boundaries, which includes 89.11 acres on the Cordova Hills site and 20.72 acres on the Pilatus site. Of these, approximately 33.17 acres of jurisdictional waters of the U.S. would be permanently filled, which is approximately 30 percent of all wetlands and waters within the Pilatus site boundaries. This alternative would result in placement of fill material into 7.90 less acres than the Proposed Action.

Although there are fewer acres of direct effects to waters of the U.S. under the Pilatus Alternative overall, approximately 1.50 more acres of vernal pools and seasonal wetlands would be filled and a larger area would be developed. The larger development footprint would result in greater wetland habitat fragmentation and greater potential for indirect effects on a larger landscape level as development would be spread over a larger landscape area and more wetland habitat that is currently surrounded by open space would become surrounded by impervious surfaces, altered topography, and human population (i.e., an additional 882 acres would be converted from AG-80 agricultural land use classification currently used for cattle grazing to mixed use development comprised of residential and commercial land uses). In addition, under this alternative, the avoided areas would be transected by multiple roadways resulting in further habitat fragmentation. Road and trail crossings on the Cordova Hills site under the Pilatus Alternative would be the same as the Proposed Action and several road

crossings of the avoided area on the Pilatus site would be added. Additional indirect effects could result from the introduction of invasive plant species, discharge of pollutants into wetlands and waters, intrusion of humans and domestic animals, or from changes in hydrology. The area of wetlands and waters that could potentially be indirectly affected by the Pilatus Alternative is much higher than the other alternatives due to the larger overall area and greater edge area between preserved habitat and development. Also, under this alternative, the western plateau avoided area boundary was not designed to maintain the minimum microwatershed area necessary to maintain current hydrologic function.

Although there would be 7.90 fewer acres of direct wetland effects under the Pilatus Alternative as compared to the Proposed Action, this alternative would result in greater direct effects to vernal pools and seasonal wetlands in the Mather Core Recovery Area. This alternative also has the highest level of indirect effects to waters of all of the alternatives. **Direct** and **indirect** effects to wetlands and waters under this alternative are considered potentially **significant**, because a substantial amount of wetlands and waters over a large area would be permanently removed and subject to the indirect effects of adjacent development as a result of implementing the Pilatus Alternative. [*Greater*]

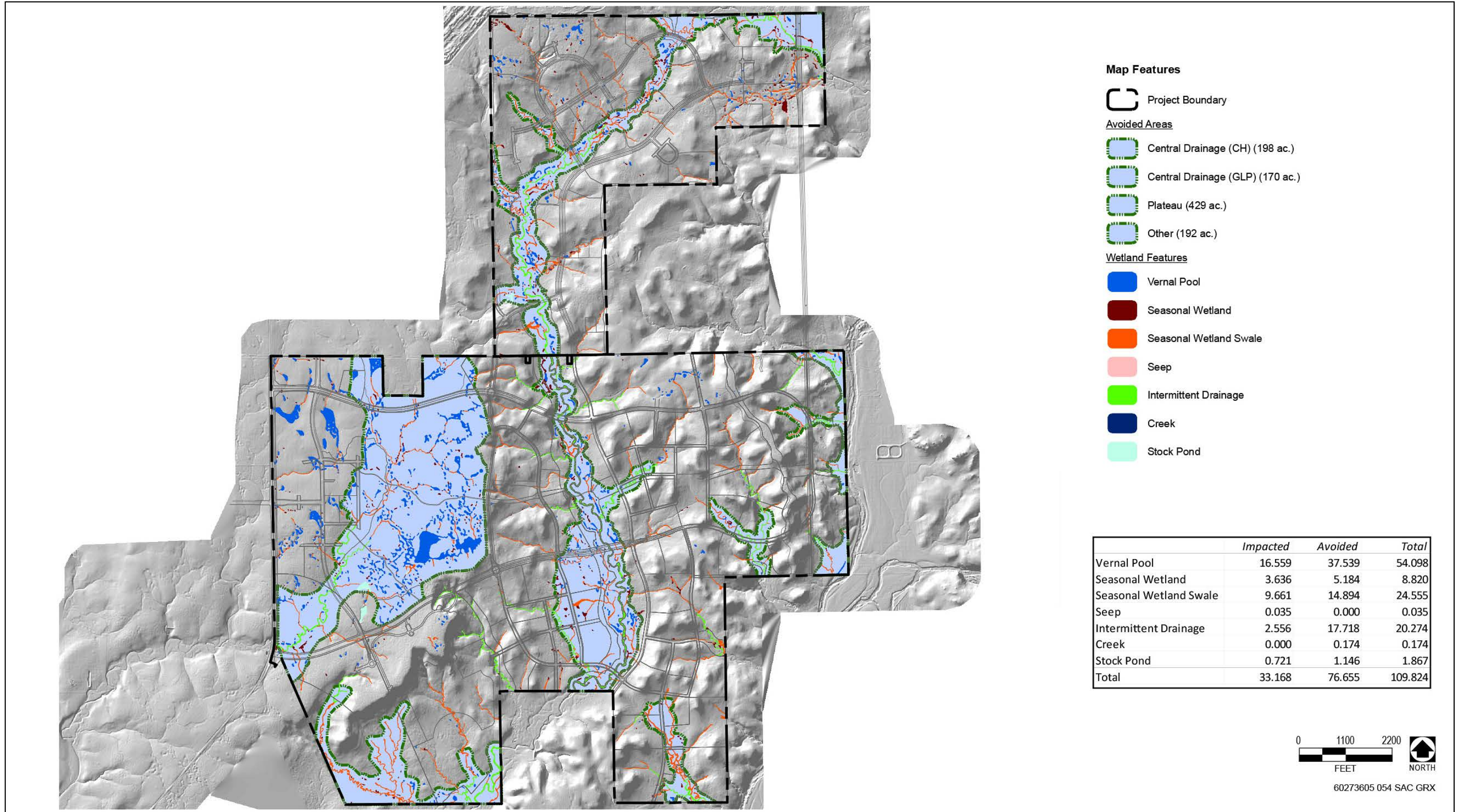
Mitigation Measure: Implement Mitigation Measures 3.4-1 and Sacramento County Final EIR Mitigation Measures BR-1, BR-2, BR-8, and BR-9.

As part of the CEQA EIR certification and project approval process, the project applicant committed to implementing various mitigation measures for the Proposed Action. The mitigation measures that are applicable to this effect that were incorporated into the Proposed Action by the EIR mitigation measures, conditions of approval, and development agreement (project entitlements) are Sacramento County Final EIR Mitigation Measures BR-1, BR-2, BR-8, and BR-9 listed above under Effect 3.4-1.

Implementation of Mitigation Measures 3.10-1, 3.4-1a, 3.4-1b, and Sacramento County Final EIR Mitigation Measures BR-1, BR-2, BR-8, and BR-9 would reduce direct and indirect significant effects associated with fill and degradation of jurisdictional habitat under the Pilatus Alternative. However, because a final compensatory mitigation plan has not been approved by USACE, a determination cannot be made on whether the proposed compensatory mitigation would reduce these direct and indirect effects to a less than significant level. Therefore, direct and indirect effects would remain **potentially significant and unavoidable** even with implementation of Sacramento County Mitigation Measures BR-1, BR-2, BR-8, and BR-9 and Mitigation Measures 3.10-1, 3.4-1a, and 3.4-1b.

RC

The Regional Conservation Alternative was developed to avoid development specifically in the areas that are part of the proposed reserve system identified in the October 28, 2013, *Notice of Preparation* published by the County of Sacramento for the proposed *South Sacramento County Habitat Conservation Plan* (SSHCP). The western plateau avoided area would therefore be reconfigured to a more rectangular shape to be consistent with the proposed SSHCP design. Under this alternative, approximately 38.41 acres of jurisdictional waters of the U.S. would be permanently filled or disturbed, 1.22 acres fewer than would be filled under the Proposed Action and a total of approximately 555 acres would be preserved, as compared to approximately 539 acres of preservation under the Proposed Action. Avoided areas in the central and eastern portions of the Cordova Hills site would remain the same as those contemplated under the Proposed Action. A total of 50.69 acres of waters of the U.S. would be preserved under this alternative, as compared to 49.48 acres preserved under the Proposed Action.



Source: ECORP 2014, adapted by AECOM in 2014

Exhibit 3.4-7

Areas of Wetland and Water Avoidance and Effects – Pilatus Alternative

Table 3.4-9 presents direct and indirect effects of the Regional Conservation Alternative on each water type on the Cordova Hills site and Exhibit 3.4-8 illustrates the locations of preserved areas and preserved and affected waters of the U.S for the Regional Conservation Alternative. The loss of waters of the U.S., including wetlands, that would result from implementing this alternative would be a **direct** potentially significant effect, and would be of similar magnitude as under the Proposed Action. *[Similar]*

Table 3.4-9 Acreages and Types of Wetland Affected – Regional Conservation Alternative			
Water Type	Existing On-Site	Direct Effect	On-Site Preservation
Creek	0.17	0.00	0.17
Intermittent Drainage	16.90	4.62	12.28
Seasonal Wetland	4.77	2.96	1.82
Seasonal Wetland Swale	18.22	13.25	4.97
Seep	0.01	0.01	0.00
Stock Pond	1.52	0.69	0.84
Vernal Pool	47.51	16.89	30.62
Total Acreage Affected	89.11	38.41	50.69
Source: Data compiled by AECOM in 2013			

Indirect effects under the Regional Conservation Alternative would be similar to those discussed under the Proposed Action, but could be of slightly greater magnitude because the configuration of the western plateau avoided area would not preserve quite as much of the microwatershed area for some wetlands. Therefore, the Regional Conservation Alternative would result in **indirect** significant effects similar to the Proposed Action. *[Similar]*

Mitigation Measure: Implement Mitigation Measures 3.10-1, 3.4-1a, 3.4-1b, and Sacramento County Final EIR Mitigation Measures BR-1, BR-2, BR-8, and BR-9.

Implementation of Mitigation Measures 3.10-1, 3.4-1a, 3.4-1b, and Sacramento County Final EIR Mitigation Measures BR-1, BR-2, BR-8, and BR-9 would reduce direct and indirect significant effects associated with fill and degradation of jurisdictional habitat under the Regional Conservation Alternative. However, because a final compensatory mitigation plan has not been approved by USACE, a determination cannot be made on whether the proposed compensatory mitigation would reduce these direct and indirect effects to a less-than-significant level. Therefore, direct and indirect effects would remain potentially significant and unavoidable even with implementation of Sacramento County Mitigation Measures BR-1, BR-2, BR-8, and BR-9 and Mitigation Measures 3.10-1, 3.4-1a, and 3.4-1b.

EFFECT 3.4-2 **Take of Federally listed Species and Loss and Degradation of Habitat for Federally listed Species.**
Implementing the Proposed Action would result in the take of Federally listed branchiopods, as well as the destruction and degradation of habitat for Federally listed branchiopods, take and potential take of Federally listed Orcutt grasses and Potential Loss of Habitat for VELB.

NA

Under the No Action Alternative, the Cordova Hills site would not be developed and no construction disturbances would occur. Therefore, there would **no indirect** or **direct** construction effects to habitat for Federally listed species and no take of Federally listed species. *[Lesser]*

Mitigation Measure: No mitigation measures are required.

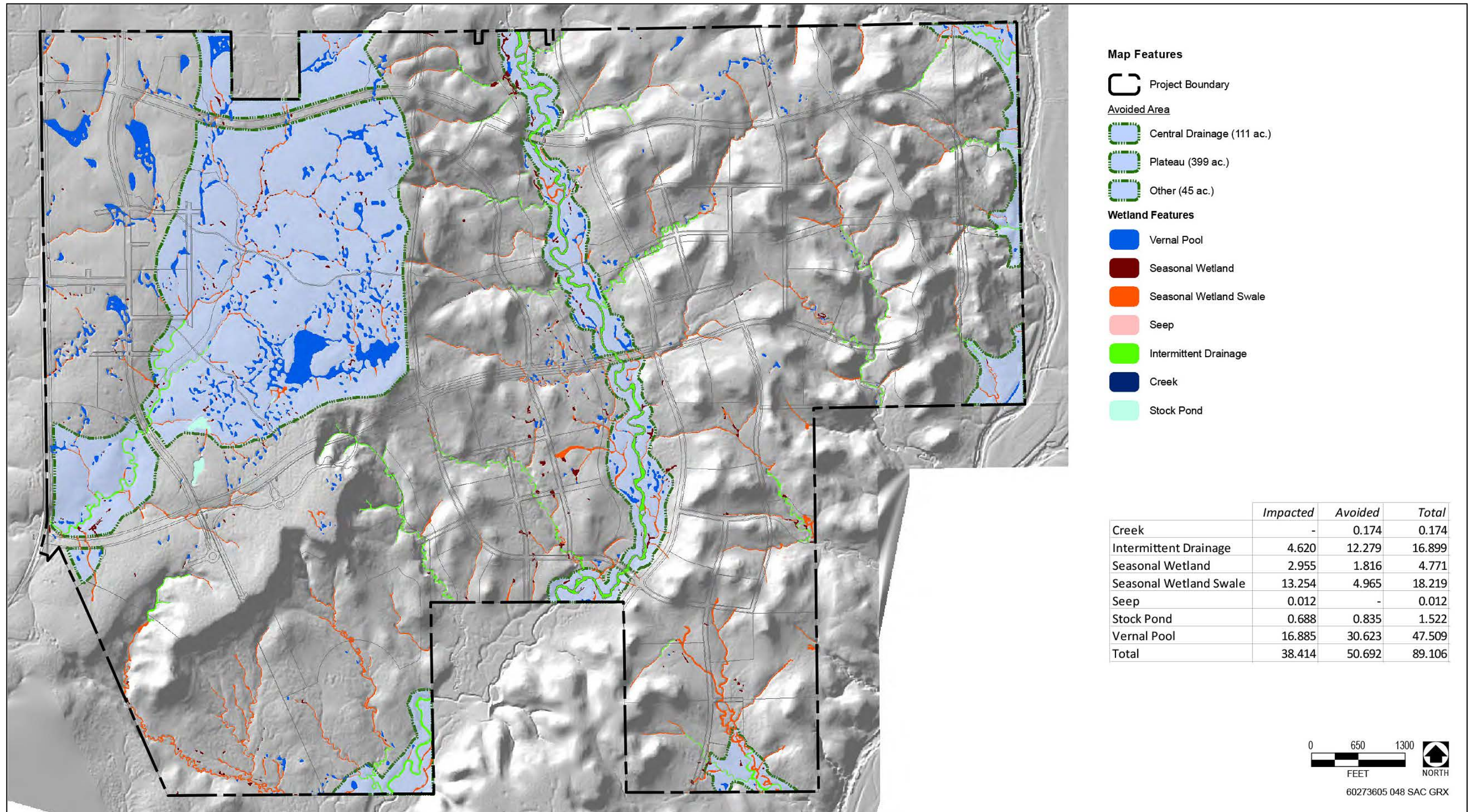
PA

Three Federally listed species are known to occur within the Cordova Hills site. The Federally threatened vernal pool fairy shrimp and the Federally endangered vernal pool tadpole shrimp were both identified on the Cordova Hills site during wet season surveys conducted by ECORP biologists in 2013. One Federally endangered plant species—Sacramento Orcutt grass—was observed on the Cordova Hills site during rare plant surveys conducted by ECORP in 2007 and 2008. The locations where Federally-listed species were found during surveys are shown on Exhibit 3.4-9. Suitable habitat for Federally-listed species is shown on Exhibit 3.4-10. Legenere, a special-status plant species that is not listed under the Federal ESA was also found on the Cordova Hills site and is addressed here with Sacramento Orcutt grass because it occurs in similar habitats and is known to be present on the Cordova Hills site, and would be subject to the same effect mechanisms. These species are associated with vernal pool and similar seasonal wetland habitat types, which are present in the Cordova Hills site. The protection and recovery of all three of these species are addressed in the *Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon* (USFWS 2005). There are no other Federally listed plant species on the Cordova Hills site. There are also no elderberry shrubs on the Cordova Hills site so there is no suitable habitat for VELB. Therefore this species would not be affected by the Proposed Action.

In 2009, ECORP conducted a CRAM analysis of a subset of wetlands at the Cordova Hills site in order to determine their relative habitat quality values. A total of 24 AAs were identified, and the AA's that received the highest scores were located on the western plateau. The average CRAM scores for the western plateau area's wetlands were 84.7, and the average CRAM scores for the wetlands east of the western plateau were 72.8 (out of a possible 100).

The hydrologic connectivity, geology, rare plant surveys, CRAM, and the vernal pool branchiopod surveys point out that the highest quality wetlands within the Cordova Hills site occur in the western plateau area, and that the habitats for listed species in the areas east of the plateau are much different and of lower value than the habitats located in the western plateau.

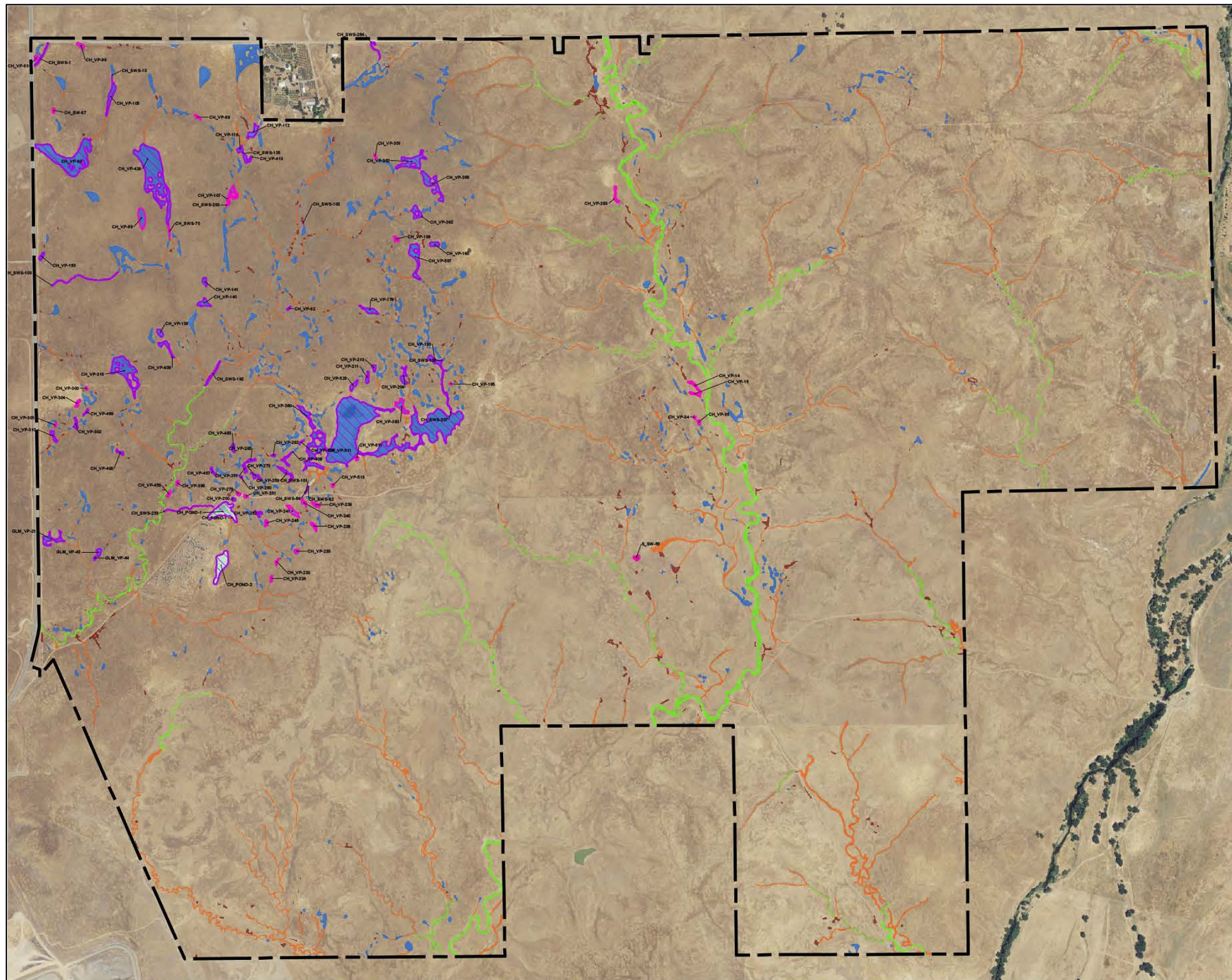
Based on extensive on-site habitat assessments, species surveys results, and applicant coordination with USFWS, it was determined that all aquatic features within the western plateau and a subset of aquatic features within and on the west side of the central drainage avoided area provide suitable habitat for listed vernal pool branchiopods and that aquatic habitats east of the central drainage avoided area are not suitable for listed vernal pool branchiopods (ECORP 2013b). Based on the assessments, a total of 58.85 acres of vernal pools, seasonal wetlands, seasonal wetland swales, stock pond, and intermittent drainage are located within the Cordova Hills site, which are considered suitable habitat for vernal pool fairy shrimp and vernal pool tadpole shrimp. However, Section 7 consultation between USFWS and USACE has not been completed so this determination regarding suitable habitat may not be final. There is a possibility that aquatic habitats east of the central drainage could ultimately be determined suitable for listed vernal pool branchiopods. Therefore, this evaluation of habitat for



Source: ECORP 2012, adapted by AECOM in 2012

Exhibit 3.4-8

Areas of Wetland and Water Avoidance and Effects – Regional Conservation Alternative



Map Features

Project Boundary

Wetlands/Waters

- Vernal Pool
- Seasonal Wetland
- Seasonal Wetland Swale
- Seep
- Intermittent Drainage
- Creek
- Stock Pond

Survey Results

- Branchinecta lynchi* Present
- Lepidurus packardii* Present

Photo Source: NAIP 2012

Service Layer Credits: Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, IPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, 2013

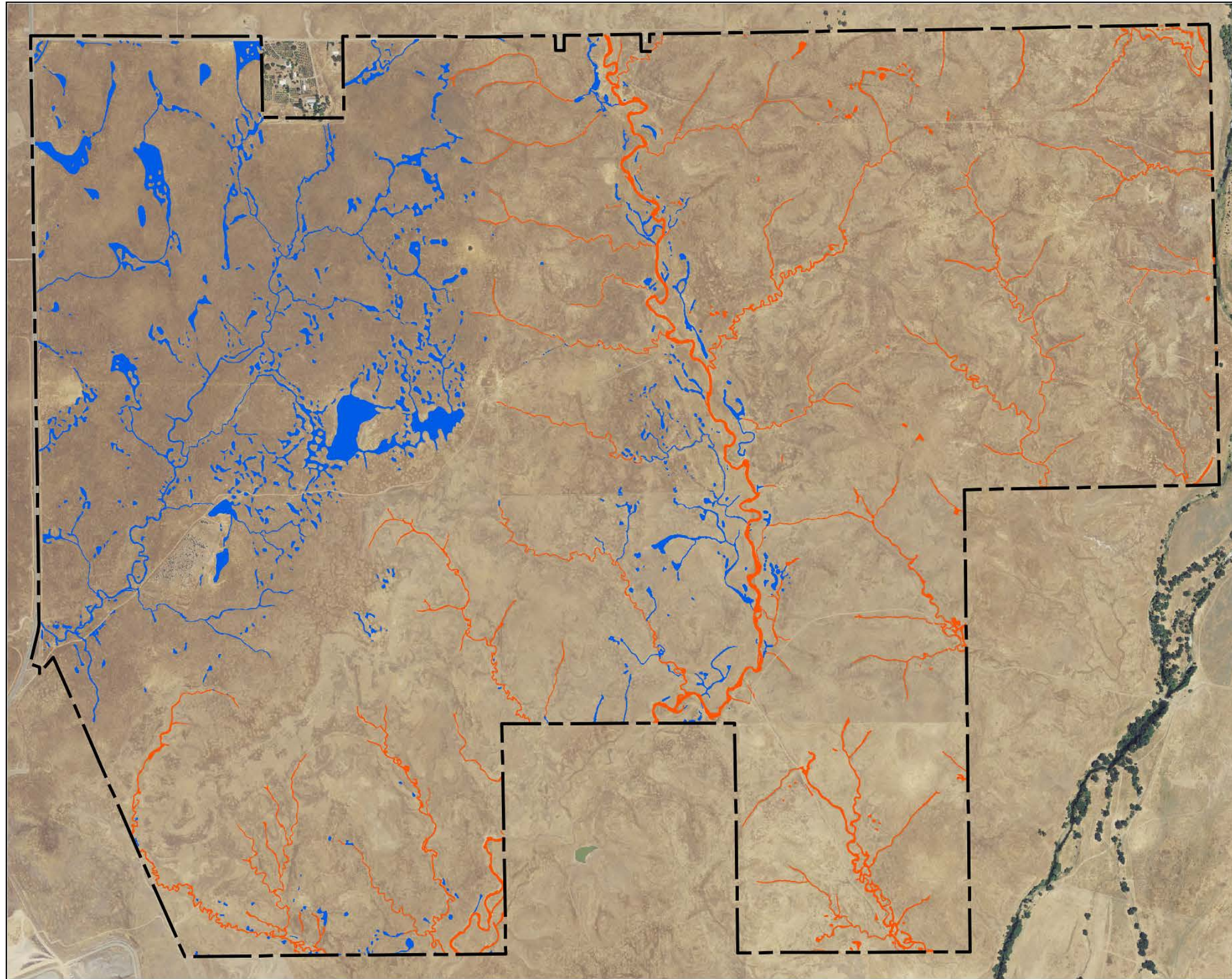


60273605 053 SAC GRX

Source: ECORP 2014

Exhibit 3.4-9

Locations of Federally Listed Species Observations



Map Features




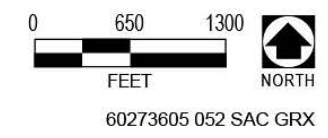
-  Project Boundary
- Vernal Pool Branchiopod Habitat**
-  Assumed Habitat
-  Assumed Not Suitable Habitat

Photo Source: NAIP 2012

Service Layer Credits: Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, IPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, 2013



Source: ECORP 2014

Exhibit 3.4-10

Locations of Suitable Habitat for Federally Listed Species Observed

listed vernal pool branchiopods includes a range of suitable habitat where the low end is the 58.85 acres of vernal pools, seasonal wetlands, seasonal wetland swales, stock ponds, and intermittent drainage located on the west side of the central drainage avoided area and the high end includes all acreage of vernal pools, seasonal wetlands, seasonal wetland swales, stock ponds, and intermittent drainage over the entire Cordova hills site (88.92 acres). Exhibit 3.4-9 shows the location and extent of occupied and suitable versus unsuitable aquatic habitat, as determined based on species surveys and the applicant's site-specific assessment conducted in coordination with USFWS, relative to avoided and developed areas under the Proposed Action.

Assuming 58.85 acres is the extent of suitable habitat, the Proposed Action would result in the direct loss of 22.66 acres of listed vernal pool branchiopods habitat, consisting of 16.20 acres of vernal pools, 2.30 acres of seasonal wetlands, 3.12 acres of seasonal wetland swales, 0.69 acre of stock pond, and 0.34 acre of intermittent drainage and the preservation of 36.19 acres of habitat, consisting of 29.30 acres of vernal pools, 1.71 acres of seasonal wetlands, 3.04 acres of seasonal wetland swales, 1.31 acres of intermittent drainage, and 0.83 acre of stock pond. Thus, approximately 38 percent of all potentially suitable vernal pool habitat would be filled as a result of the implementation of the Proposed Action. If any part of a wetland containing habitat for vernal pool fairy shrimp or vernal pool tadpole shrimp would be filled as a part of the Proposed Action, the entire wetland was considered to be directly affected as part of the analysis of direct effects to Federally-listed species.

If it is later determined that habitat east of the central drainage may also be suitable for listed vernal pool branchiopods, the direct loss of habitat resulting from the Proposed Action would be 17.66 acres of vernal pools, 2.95 acres of seasonal wetlands, 13.50 acres of seasonal wetland swales, 6.11 acres of intermittent drainage, and 0.69 acre of pond. Table 3.4-10 provides a complete summary of the high and low range of total existing, directly affected, and indirectly affected habitat acreage for listed vernal pool branchiopods on the Cordova Hills site under the Proposed Action.

In addition, USFWS generally assumes that all vernal pools within 250 feet of development may be subject to indirect effects, including reduction in water quality and altered hydrology caused by urban runoff, erosion, and siltation; intrusion of humans and domestic animals; litter and dumping; introduction of invasive plant species that could result in habitat degradation; and changes in management regimes, such as elimination of grazing and implementation of stronger fire suppression policies, that degrade current habitat values. Thus, although 52 percent of on-site habitat for vernal pool branchiopods would be preserved, some of these preserved pools on-site could be indirectly affected by adjacent development.

There are a total of 35.28 acres of vernal pools, seasonal wetlands, seasonal wetland swales, intermittent drainage, and stock pond present on the Cordova Hills site within 250 feet of proposed development which may be considered by USFWS to be indirectly affected by the Proposed Action, due to the reduction in habitat quality for listed species, assuming a high-end approach to calculating indirect effects. The low end of the range would include only those aquatic habitats located within and west of the central drainage that were determined during site-specific analyses to be suitable for Federally listed vernal pool branchiopods and that are also within 250 feet of proposed development. The high end of this indirect effect range includes all vernal pools, seasonal wetlands, seasonal wetland swales, stock ponds, and intermittent drainage located on the Cordova Hills site that are within 250 feet of proposed development.

**Table 3.4-10
Acreage of Existing, Directly Affected, and Indirectly Affected Habitat for Listed Vernal Pool
Branchiopods – Proposed Action**

Habitat Type	Existing ¹		Direct Effect		Indirect Effect ²
	High	Low	High	Low	High
Vernal Pool	47.51	45.51	15.64	14.18	21.46
Seasonal Wetland	4.77	4.01	3.06	2.40	1.13
Seasonal Wetland Swale	18.22	6.17	13.87	3.48	2.79
Intermittent Drainage	16.90	1.65	6.52	0.66	9.10
Stock Pond	1.52	1.52	0.69	0.69	0.80
Total	88.92	58.86	39.78	21.41	35.28

Notes:

¹ Acreage of existing suitable habitat is expressed as a range of potential habitat where the high end assumes that all of the listed aquatic habitat types on the Cordova Hills site are suitable to support listed vernal pool branchiopods and the low end assumes only a subset of waters of the U.S. on the Cordova Hills site (based on wet and dry season surveys and other biological assessments) are suitable to support vernal pool branchiopods.

² The high-end acreage of indirect effects assumes every aquatic habitat type listed is occupied by listed vernal pool branchiopods and that all of these habitats within 250 feet of development would be subject to indirect adverse effects as a result of that development. The actual acreage of indirect effects may be determined, through the ESA Section 7 consultation process, to be lower than the maximum effect estimate provided here based on site-specific assessments of hydrology, geology, and topography and the applicant's proposed design features to reduce indirect effects.

Source: ECORP 2014

The final determination of indirect effects would be made during Section 7 consultation with USFWS and would be analyzed in the Biological Opinion. This consultation would include a determination of the extent of habitat for listed species, as well as the extent of indirect effects, after taking into account all avoidance and minimization measures proposed by the applicant, site hydrology and topography, watershed area required to maintain hydrologic function, and existing natural and artificial watershed breaks or other barriers that attenuate the effects of adjacent land uses (e.g., topographic breaks, existing roadways).

The Proposed Action has been designed to reduce indirect effects to aquatic resources that would be preserved on the Cordova Hills site through the use of low impact development features and edge treatments that buffer preserved habitats from the effects of adjacent development. Various edge treatments would be applied, but all would be a minimum of 50 feet (from the avoided area boundary) and include a drainage swale, an 8-foot naturalized planting area, a pedestrian trail, and a second drainage swale (ECORP 2013b). The drainage swales would provide a hydrological barrier from urban runoff/nuisance flows and the naturalized planting would be located on the development side of the edge treatment to reduce potential urban edge effects on wildlife and habitat (ECORP 2013b). The edge treatment for the central drainage avoided area would be 100 feet wide from the avoided area boundary except in a few isolated areas, such as the road crossings.

In addition, there are a maximum of 6 acres of vernal pools, seasonal wetlands, and seasonal wetland swales present off-site within 250 feet of proposed development which may be considered by USFWS to be indirectly affected by the Proposed Action. The actual extent of off-site indirect impacts may be reduced during consultation with USFWS based on the extent of vernal pools, seasonal wetlands, and seasonal wetland swales that provide suitable habitat for listed species, the project applicant's proposed measures to reduce off-site indirect effects,

such as providing a 50-foot buffer from avoided waters with the implementation of edge treatments described above, watershed area required to maintain hydrologic function, natural flow directions, proposed adjacent land use, and existing natural and artificial watershed breaks or other barriers that attenuate the effects of adjacent land uses. For example, the northern boundary of the western plateau is comprised of an existing partially-paved road (Glory Lane) and flow in this area is generally from north to south-southwest. Therefore, no indirect impacts on wetlands north of the western plateau would be expected from implementing the Proposed Action. Similar to on-site indirect effects, the extent of off-site indirect effects would be determined during consultation with USFWS and would be analyzed in the Biological Opinion.

A watershed analysis was conducted by ECORP to define the borders of the avoided area under the Proposed Action such that microwatershed areas for preserved wetland features would not be reduced below the minimum area necessary to maintain normal hydrologic functions. Thus, wetlands that are considered avoided are not anticipated to have inadvertent indirect effects as a result of changes to the hydrology. Furthermore, because the western plateau is located within a distinct watershed and is topographically and hydrologically separated from the remainder of the site, nuisance flows and runoff from development to the east and south would not be expected to affect hydrology or water quality of aquatic resources preserved on the western plateau. Hydrologic regime and water quality of these resources could be adversely affected by nuisance flows and runoff from development of the proposed Town Center on the same topographic plateau, but the proposed edge treatments and low impact development features would minimize these potential effects.

ECORP biologists conducted wet season surveys of approximately 50 percent of the depressional wetlands (vernal pools and seasonal wetlands) and 95 percent of the swales and intermittent drainages on the Cordova Hills site in 2013. Listed vernal pool branchiopods (vernal pool fairy shrimp, vernal pool tadpole shrimp) were identified in a total of 95 out of 944 wetlands and other waters surveyed on the Cordova Hills site. Of these 95 occupied aquatic features, 89 (94 percent) are located on the western plateau. Vernal pool fairy shrimp were found in six depressional wetlands on the western floodplain of the central drainage. Subsequent dry-season surveys were conducted on an additional 41 depressional wetlands located on the eastern portion of the Cordova Hills site outside of the western plateau, but no listed vernal pool branchiopods were found during these surveys. The 41 wetlands surveyed during the dry-season surveys were selected by the project applicant in coordination with the USFWS because they were believed to provide the highest quality habitat for vernal pool branchiopods outside of the western plateau (ECORP 2013a).

For the purposes of this EIS, vernal pool fairy shrimp and vernal pool tadpole shrimp are assumed to be present in between 58.85 acres and 88.92 acres of vernal pools, seasonal wetlands, seasonal wetland swales, stock ponds, and intermittent drainage on the Cordova Hills Site. Therefore, all suitable vernal pool, seasonal wetland, seasonal wetland swale, stock ponds, and intermittent drainage habitat that would be directly and indirectly affected can be assumed to correspond to direct and indirect effects to these two species. The Proposed Action would therefore result in a take of both of these vernal pool branchiopod species. In addition, the Proposed Action would include a substantial amount of permanent habitat loss, as well as habitat degradation due to the indirect effects described previously.

Sacramento Orcutt grass is located within three vernal pools on the western plateau that would be preserved under the Proposed Action. In addition, there would be a minimum buffer of 300 feet around each of these three vernal pools to reduce indirect effects as a result of construction activities. Legenere is located within two vernal pools on the western plateau that would also be preserved and provided a 300-foot buffer. Thus, there would be no

direct or indirect effects to these populations of Sacramento Orcutt grass and legenera. However, the Proposed Action involves a substantial amount of permanent loss of habitat that is suitable for this species, as well as habitat degradation due to indirect effects from habitat fragmentation as large expanses of habitat surrounded by other natural habitats and open space become smaller habitat patches surrounded by urban development and transected by roads and trails.

The *Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon* (USFWS 2005) states that the loss of any habitat occupied by vernal pool branchiopods is counterproductive to their recovery, since the major threat to Federally listed vernal pool branchiopod species is habitat loss and fragmentation. In addition, maintaining genetic diversity of populations of these species is of concern. Take of vernal pool branchiopods can also eliminate a portion of the genetic pool available to that species, thereby eliminating the overall genetic diversity of the species. This is of concern because over time, if the genetic diversity of a species is severely reduced, the chances of the species persisting through unpredictable future environmental conditions are reduced. Under the Proposed Action, a considerable percentage (52 percent) of habitat for vernal pool branchiopods would be preserved. However, implementation of the Proposed Action would result in the preserved habitat being transected by roads and trails and becoming surrounded by urban development rather than other areas of suitable habitat. Thus, although preserved, the overall quality of the habitat would be reduced by edge effects at the preserved habitat-urban interface and the smaller, less connected nature of the preserved habitat. The Cordova Hills site is located mostly within the Mather Core Area, which is within the Southeastern Sacramento Valley vernal pool region for recovery of vernal pool species (see Exhibit 3.4-11). The 52 percent preservation of habitat for vernal pool branchiopods that would occur under the Proposed Action is far less than the recovery plan goal of 85 to 95 percent preservation or all suitable wetland habitat within the Mather Core Area. Thus, the Proposed Action would result in both direct and indirect effects to occupied vernal pool habitat that is within an area considered to be necessary for the recovery of Federally listed vernal pool species. However, only the western plateau area on the Laguna Formation geologic unit seems to be consistent with soil horizon characteristics of “old terrace” restrictive layers and have the habitat qualities that are characteristic of the majority of the Mather Core Area vernal pool habitats. Core area boundaries may be refined by USFWS based on site-specific data on the distribution of suitable habitat and species occurrences (USFWS 2005:IV-2). The site-specific analysis of the extent of the Mather Core Area at the Cordova Hills site (Appendix M of this DEIS) provides site-specific data supporting refinement of the Mather Core Area boundary within the Cordova Hills site.

As part of the CEQA EIR certification and project approval process, the project applicant committed to implementing various mitigation measures for the Proposed Action. The mitigation measures that are applicable to this effect that were incorporated into the project entitlements include Mitigation Measures BR-1 and BR-2 related to compensation for loss of wetlands and preservation of wetlands on site. Measure BR-1 and BR-2 are described under Effect 3.4-1. Additional measures applicable specifically to effects on Federally listed vernal pool branchiopods and Sacramento Orcutt grass are described below:

- ▶ Presence of California linderiella, midvalley fairy shrimp, vernal pool fairy shrimp and vernal pool tadpole shrimp shall be assumed unless determinate surveys that comply with U.S. Fish and Wildlife protocol conclude that the species are absent. If the protocol surveys are performed and all listed crustacean species are absent, Ricksecker’s water scavenger beetle may also be presumed absent, and no further mitigation shall be required for listed vernal pool invertebrates. If species are found, one or a combination of the following shall apply (*Final EIR Mitigation Measure BR-7*):

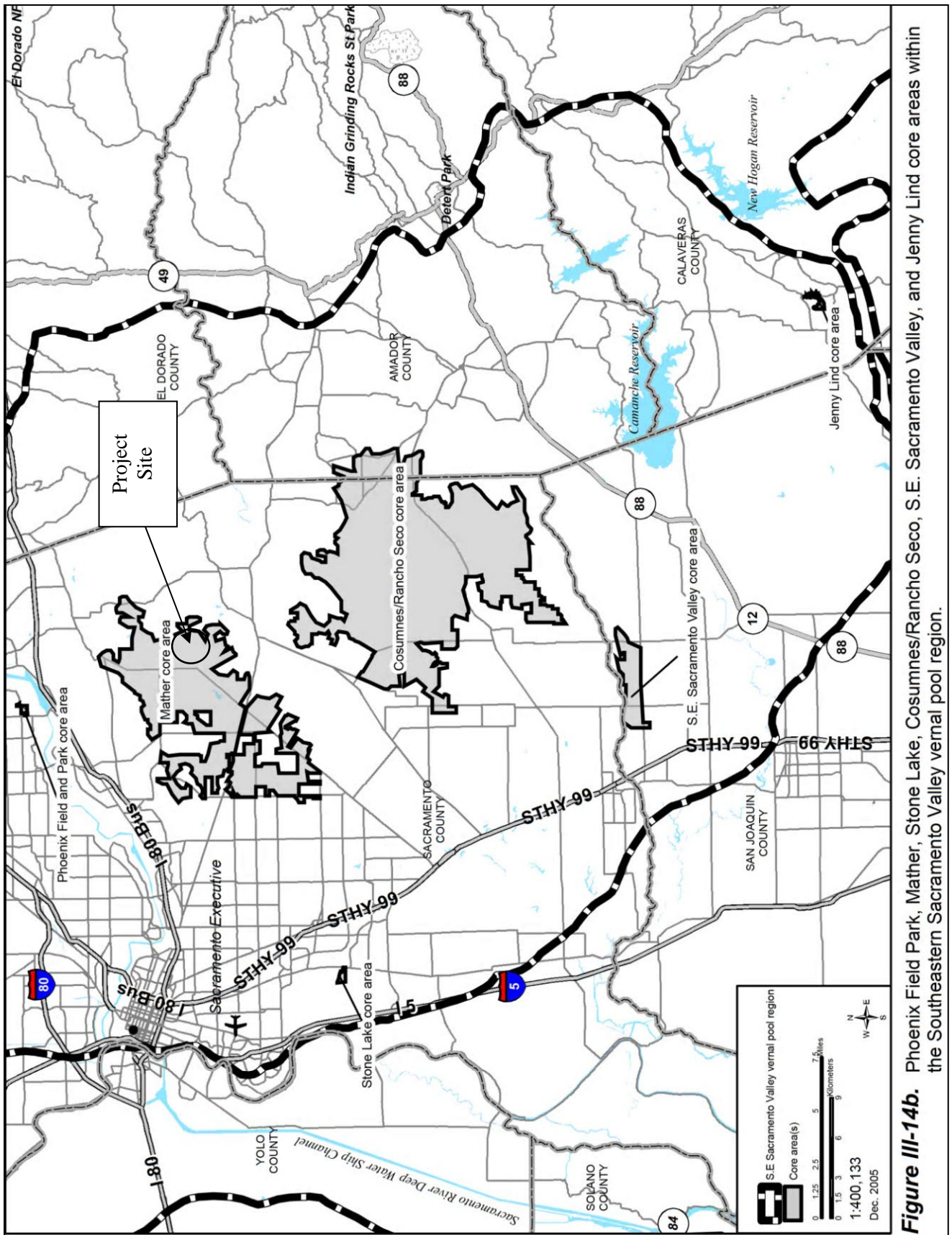


Figure III-14b. Phoenix Field Park, Mather, Stone Lake, Cosumnes/Rancho Seco, S.E. Sacramento Valley, and Jenny Lind core areas within the Southeastern Sacramento Valley vernal pool region.

Source: USFWS 2007

Exhibit 3.4-11

Mather Core Area from Vernal Pool Recovery Plan

- *Total Avoidance: Species are present or assumed to be present.* Unless a smaller buffer is approved through formal consultation with the U.S. Fish and Wildlife Service, construction fencing shall be installed a minimum of 250 feet from all delineated vernal pool margins. All construction activities are prohibited within this buffer area. For all vernal pools where total avoidance is achieved, no further action is required.
- *Compensate for Habitat Removed.* Obtain all applicable permits from the U.S. Fish and Wildlife Service, U.S. Army Corps of Engineers, California Department of Fish and Game, and the Central Valley Regional Water Quality Control Board for any proposed modifications to vernal pools and mitigate for habitat loss in accordance with the Biological Opinion and Section 404 permits obtained for the Project. At a minimum, mitigation ratios shall be consistent with County General Plan Policy, which requires no net loss of wetland resources. Any vernal pool loss not mitigated through the permitting process shall be mitigated for by payment into a mitigation bank or protection of off-site wetlands through the establishment of a permanent conservation easement, subject to the approval of the Division of Environmental Review and Assessment. (*Final EIR Mitigation Measure BR-7*)
- ▶ If construction activities encroach within the 250-foot buffer for vernal pools 358, 363, 370, [*Note: these are the pools occupied by Sacramento Orcutt grass*] 426, and 511 [*Note: pools occupied by legenera*] the applicant shall prepare a pesticide and pollution prevention plan. The plan shall include measures to reduce pollution run-off, pesticide drift, and other similar potential contaminants, to protect surrounding preserve areas from urban contaminants. Measures shall include the implementation of best management practices (e.g. straw wattles, silt fencing, and soil stabilization) for stormwater control. The plan shall be incorporated in the Operations and Management Plan which is a requirement of the Section 404 permit process. (*Final EIR Mitigation Measure BR-8*)
- ▶ The project applicant shall prepare an invasive species removal and prevention plan. The plan shall provide methods to remove invasive species from preservation areas and to restore the affected wetland features. The plan shall include methods for the prevention of the introduction of new invasive species from landscapes associated with the development. Minimum components of such a plan shall include: mapping of existing invasive plant populations within the avoided areas, with the map being updated a minimum of every five years; a description of acceptable methods for removing invasive species, examples of which include hand removal or biological controls (e.g. natural parasites); and a prohibition on the use of non-native plants within either the Avoided Areas or the Recreation-2 areas. The plan shall be incorporated in the Operations and Management Plan which is a requirement of the Section 404 permit process. (*Final EIR Mitigation Measure BR-9*)

As described in Sacramento County's certified Final EIR Mitigation Measures BR-1 and BR-7, the project applicant would be subject to mitigation required by USACE and USFWS, and is required to avoid or compensate, on a no-net-loss basis, loss of all waters, including vernal pools and seasonal wetlands. It is likely that USACE and USFWS would require relatively high mitigation ratios due to the high importance of permanent effects to habitat that is considered vital to the recovery of Federally listed species. The project applicant is also required to place all areas designated as Avoided Areas within a permanent conservation easement, per Sacramento County Final EIR Mitigation Measure BR-2. The Proposed Action also includes measures to prevent adverse effects to vernal pool habitat as a result of invasive plant introductions or indirect effects on vernal pools occupied by Sacramento Orcutt grass or legenera from pesticide or pollution discharges during construction, per

Sacramento County Final EIR Mitigation Measures BR-8 and BR-9. However, these measures would not reduce the effect on listed vernal pool branchiopods to a less-than-significant level because they do not describe how the take of these species or loss of habitat within the Mather Core Area would be compensated.

Because the Proposed Action would preserve the wetlands occupied by Sacramento Orcutt grass and legenere, as well as other wetlands that provide high quality habitat for these species and wetlands that are connected and near occupied habitat, no direct effects on Sacramento Orcutt grass or legenere would occur. However, indirect effects on Sacramento Orcutt grass and legenere could still occur from human intrusion, hydromodification, or pollutant discharge resulting from adjacent residential and road development that degrade the occupied habitat. **Direct** and **indirect** effects to Federally listed species and their habitat under the Proposed Action are considered potentially **significant**, because a substantial direct effect on Federally listed species would occur due to take and a large amount of habitat would be permanently removed or degraded by edge effects from adjacent development as a result of implementing the Proposed Action.

Mitigation Measure: Implement Mitigation Measures 3.10-1, 3.4-1a, and 3.4-1b.

Mitigation Measure 3.4-2a: Prepare and Implement a Monitoring and Adaptive Management Plan for Sacramento Orcutt Grass and Legenere.

The project applicant shall prepare a monitoring plan describing methods to protect existing vernal pools occupied by Sacramento Orcutt grass and legenere during and after construction, a detailed monitoring plan, and reporting requirements. Monitoring of on-site occupied wetlands shall continue for a minimum of 5 years from completion of approved human intervention (including recontouring and grading and road construction) in or adjacent to the western plateau preserve, or until performance standards are met for 2 consecutive years, whichever is longer. The plan shall require maintaining viable plant populations on the Cordova Hills site. The monitoring plan shall include monitoring of wetlands occupied by Sacramento Orcutt grass and legenere to ensure these species are persisting in the preserved wetlands following implementation of the Proposed Action. Monitoring shall include comparison to baseline on-site populations and comparison to nearby reference populations and shall identify performance standards and remedial measures to be implemented if performance standards are not met. Performance standards shall include a requirement that the extent of occupied area and plant density of the preserved populations shall be equal to or greater than baseline and comparable to reference populations in the same year. Changes in populations may be accepted as the result of natural variation if reference populations exhibit similar population changes in the same year. If performance standards are not met in a given year, monitoring shall continue the following year until monitoring has been implemented for at least 5 years and performance standards have been met for 2 consecutive years. Adaptive measures shall include efforts to identify potential causes for any documented population declines, such as habitat degradation from altered hydrology, changes in water quality, or human disturbance (e.g., trampling or riding bikes or motorcycles through occupied wetlands), and actions to correct problems that may be leading to habitat degradation and population declines.

Implementation: Project applicant.

Timing: The appropriate blooming periods in the year prior to the start of construction activities.

Enforcement: U.S. Fish and Wildlife Service and California Department of Fish and Wildlife.

Mitigation Measure 3.4-2b: Provide a Biological Monitor for Construction Activities within 250 Feet of Avoided Areas and Conduct Environmental Training and Awareness Program.

A biological monitor, to be approved by USFWS, shall be present on site during all construction activities within 250 feet of avoided area habitat for Federally listed species, or other distance determined in consultation with USFWS to be appropriate for protection of listed species. Prior to the commencement of construction, the biological monitor shall supervise the installation of fencing around areas where construction personnel shall not be granted access. The biological monitor shall also provide an environmental training and awareness program to all personnel prior to the start of construction activities. The environmental training and awareness program shall cover a description of sensitive species and habitat on the Cordova Hills site, mitigation measures and permit conditions, applicable environmental laws and regulations, and potential consequences for the infringement of these laws and regulations.

Implementation: Project applicant.

Timing: Prior to and during construction activities.

Enforcement: U.S. Fish and Wildlife Service and California Department of Fish and Wildlife.

Mitigation Measure 3.4-2c: Compensate for the Take of Federally Listed Vernal Pool Branchiopods within the Mather Core Area.

The project applicant shall identify mitigation acceptable to USACE, and USFWS for the effects to vernal pools and other seasonal wetland habitats that support or potentially support Federally listed vernal pool invertebrates in such a manner that there will be no net loss of habitat. As described under Mitigation Measure 3.3-1, project applicant shall complete and implement a MMP describing how loss of vernal pool and other wetland habitats are proposed to be offset. Compensatory mitigation shall include, where feasible and practicable, establishment, re-establishment, enhancement, rehabilitation, and/or preservation of in-kind wetland habitats at ratios satisfactory to ensure no net loss of habitat functions and services.

The project applicant shall preserve acreage of suitable vernal pool fairy shrimp and vernal pool tadpole shrimp habitat for each wetted acre of any indirectly affected suitable habitat at a ratio approved by USFWS in the Biological Opinion. This mitigation shall occur before the commencement of any construction activities that may adversely affect listed species, as determined by USFWS in the Biological Opinion.

A conceptual wetland mitigation plan for the Proposed Action has been developed by ECORP Consulting, on behalf of the project applicant, and is included in Appendix N to this document. The applicant's conceptual wetland mitigation plan is subject to review and approval by the appropriate regulatory agencies. Proposed mitigation in the conceptual wetland mitigation plan includes a combination of on-site and off-site preservation, as well as on-site and off-site wetland restoration and creation. In addition to the four on-site wetland avoided areas, the conceptual mitigation plan proposes wetland preservation at three off-site mitigation properties: the Chester Drive Property, Shehadeh Property, and the Carson Creek Property. The off-site mitigation properties contain approximately 39.18 waters of the U.S. proposed for preservation, including 21.84 acres that provide potential habitat for

vernal pool fairy shrimp and vernal pool tadpole shrimp. A total of approximately 32.84 acres of wetland restoration and creation is also proposed within the three off-site mitigation properties and within the on-site western plateau avoided area, some of which may provide habitat for vernal pool branchiopods once established. Impacts to vernal pools would be mitigated within the Mather Core Area under the conceptual mitigation plan, through permittee-responsible off-site mitigation due to the lack of available vernal pool creation credits from an agency-approved mitigation bank within the Mather Core Area. The conceptual mitigation plan has not yet been reviewed and approved by USACE or other regulatory agencies, but is attached to this draft EIS for public review and comment.

Implementation: Project applicant.

Timing: Prior to and during construction activities.

Enforcement: U.S. Fish and Wildlife Service and California Department of Fish and Wildlife.

Mitigation Measure 3.4-2d: Implement Best Management Practices, Monitoring Protocol, and Adaptive Management.

A standard set of BMPs shall be applied when working in areas within 250 feet of on-site preserved or off-site suitable wetland habitat for Federally listed vernal pool species or within any lesser distance deemed by USACE and USFWS to constitute a sufficient buffer. Refer to Section 3.10 “Hydrology and Water Quality” for the details of BMPs to be implemented.

Conservation and minimization measures shall include preparation of supporting documentation describing methods to protect existing on-site vernal pools during and after construction, a detailed monitoring plan, and reporting requirements. Monitoring of on-site preserved wetlands shall continue for a minimum of 5 years from completion of mitigation, or approved human intervention (including recontouring and grading). The monitoring plan shall include monitoring of wetlands occupied by vernal pool fairy shrimp and vernal pool tadpole shrimp to ensure these species are persisting in the preserved wetlands following implementation of the Proposed Action. Monitoring shall include comparison to baseline on-site populations and comparison to nearby reference populations and shall identify performance standards and remedial measures to be implemented if vernal pool fairy shrimp and vernal pool tadpole shrimp populations begin to decline compared to baseline and reference populations based on performance standards. Adaptive measures shall include efforts to identify potential causes for declining population numbers, such as habitat degradation from altered hydrology, changes in water quality, or human disturbance (e.g., trampling or riding bikes or motorcycles through occupied wetlands) and actions to correct problems that may be leading to habitat degradation.

Implementation: Project applicant.

Timing: Prior to the start of construction activities.

Enforcement: U.S. Fish and Wildlife Service and California Department of Fish and Wildlife.

Implementation of Sacramento County Final EIR Mitigation Measures BR-1, BR-2, BR-7, BR-8, and B-9, and Mitigation Measures 3.10-1, 3.4-1a, 3.4-1b, 3.4-2a, 3.4-2b, 3.4-2c, and 3.4-2d would reduce the significant direct

and indirect effects to Sacramento Orcutt grass and legenero to a less-than-significant level. Implementation of these measures would also reduce the significant direct and indirect effects to Federally listed vernal pool branchiopods and their habitat, but not to a less-than-significant level due to the large amount of occupied, high-quality habitat that would be removed by implementing the Proposed Action. Because a final compensatory mitigation plan has not been approved by USACE, a determination cannot be made on whether the proposed compensatory mitigation would reduce these direct and indirect effects to a less than significant level. Therefore, these **direct** and **indirect** effects on vernal pool fairy shrimp and vernal pool tadpole shrimp would remain **potentially significant and unavoidable**.

EDP

The Expanded Drainage Preservation Alternative has the same site boundary as the Proposed Action, but has a different level of effects to Federally listed species and their habitat. There are no elderberry shrubs on the Cordova Hills site so there is no suitable habitat for VELB. Therefore this species would not be affected by implementation of this alternative. As previously stated, three Federally listed species are known to occur within the Cordova Hills site: Sacramento Orcutt grass, vernal pool fairy shrimp, and vernal pool tadpole shrimp. Sacramento Orcutt grass is known to be present within three vernal pools on the Cordova Hills site and it is assumed that the species could spread to other vernal pools that would be preserved on the western plateau in the future, but it is considered to be absent at this time, outside of the three vernal pools where it was found during focused surveys.

The Cordova Hills site contains between 58.86 and 88.92 acres of vernal pools, seasonal wetlands, seasonal wetland swales, intermittent drainage, and stock pond that may be suitable habitat for listed vernal pool branchiopods, depending on whether only those habitats within and west of the central drainage or all of these aquatic habitats are ultimately deemed suitable. The final determination regarding suitability of on-site aquatic habitats for listed vernal pool branchiopods would be made during Section 7 consultation with USFWS and would be analyzed in the Biological Opinion. Table 3.4-11 provides a complete summary of the high and low range of total existing and directly affected, and the high end indirectly affected habitat acreage for listed vernal pool branchiopods on the Cordova Hills site under the Expanded Drainage Preservation Alternative. Exhibits 3.4-9 and 10 show the location and extent of known occupied and suitable versus unsuitable aquatic habitat, as determined based on species surveys and the applicant's site-specific assessment conducted in coordination with USFWS.

The Expanded Drainage Preservation Alternative would preserve more on-site habitat overall, but most of the additional preservation would be along the central drainage avoided area. The western plateau avoided area would be roughly the same configuration under this alternative as under the Proposed Action, except it would incorporate an additional seasonal wetland swale extending to Grant Line Road. Some additional vernal pools and seasonal wetlands that are suitable for vernal pool branchiopods, including a few where vernal pool fairy shrimp have been found, would be preserved on the west side of the central drainage avoided area.

Under the Expanded Drainage Preservation Alternative, between 12.47 and 18.19 acres of suitable habitat for listed vernal pool branchiopods would be removed as compared to between 22.65 and 40.91 acres under the Proposed Action. Thus, approximately 31 percent of all potentially suitable habitats would be lost as a result of implementing this alternative, as compared to 38 percent under the Proposed Action. The direct take and loss of habitat for vernal pool fairy shrimp and vernal pool tadpole shrimp that would result from implementing this alternative would be a **direct significant** effect, but would be less than the Proposed Action. [*Lesser*]

**Table 3.4-11
Acreage of Existing, Directly Affected, and Indirectly Affected Habitat for Listed Vernal Pool
Branchiopods- Expanded Drainage Preservation Alternative**

Habitat Type	Existing ¹		Direct Effect		Indirect Effect ²
	High	Low	High	Low	High
Vernal Pool	47.51	45.51	10.53	9.61	23.16
Seasonal Wetland	4.77	4.01	1.17	0.87	2.37
Seasonal Wetland Swale	18.22	6.17	4.93	1.29	9.47
Intermittent Drainage	16.90	1.65	0.87	0.03	11.73
Stock Pond	1.52	1.52	0.69	0.03	0.80
Total	88.92	58.86	18.17	11.82	47.52

Notes:

¹ Acreage of existing suitable habitat is expressed as a range of potential habitat where the high end assumes that all of the listed aquatic habit types on the Cordova Hills site are suitable to support listed vernal pool branchiopods and the low end assumes only a subset of waters of the U.S. on the Cordova Hills site (based on wet and dry season surveys and other biological assessments) are suitable to support vernal pool branchiopods.

² The high-end acreage of indirect effects assumes every aquatic habitat type listed is occupied by listed vernal pool branchiopods and that all of these habitats within 250 feet of development would be subject to indirect adverse effects as a result of that development. The actual acreage of indirect effects may be determined, through the ESA Section 7 consultation process, to be lower than the maximum effect estimate provided here based on site-specific assessments of hydrology, geology, and topography and the applicant's proposed design features to reduce indirect effects.

Source: ECORP 2014

Indirect effects on listed vernal pool branchiopods and Sacramento Orcutt grass would be similar under this alternative as under the Proposed Action and include reduced water quality and altered hydrology caused by urban runoff, erosion, and siltation; intrusion of humans and domestic animals; and introduction of invasive plant species that could result in habitat degradation. Vernal pools, seasonal wetlands, and seasonal swales within 250 feet of development may be considered subject to these indirect effects. The Expanded Drainage Preservation Alternative, like all of the action alternatives, would include creation of a minimum 50-foot buffer between the avoidance area boundary and development. The 50-foot buffer would incorporate edge treatments meant to reduce potential indirect effects from adjacent development on preserved habitat, as described under the Proposed Action. The final determination of indirect effects would be made during Section 7 consultation with USFWS and would be analyzed in the Biological Opinion. This consultation would include a determination of the extent of habitat for listed species, as well as the extent of indirect effects, after taking into account all avoidance and minimization measures proposed by the project applicant, site hydrology and topography, watershed area required to maintain hydrologic function, and existing natural and artificial watershed breaks or other barriers that attenuate the effects of adjacent land uses (e.g., topographic breaks, existing roadways).

Under the Expanded Drainage Preservation Alternative, approximately 5.21 acres of adjacent off-site wetlands would be within 250 feet of development at full buildout and could be considered indirectly affected by implementation of the Proposed Action. However, the configuration of the western plateau preserve would be roughly the same under this alternative as under the Proposed Action, which was designed to maintain microwatershed areas necessary to maintain normal hydrologic functions. As discussed under the Proposed Action, the western plateau is located within a distinct watershed and is topographically and hydrologically isolated from the remainder of the site, such that nuisance flows and runoff from development to the east and south would not be expected to affect hydrology or water quality of aquatic resources preserved on the western

plateau. Hydrologic regime and water quality of these resources could be adversely affected by nuisance flows and runoff from development of the proposed Town Center on the same topographic plateau and implementation of the Expanded Drainage Preservation Alternative would result in the preserved habitat being transected by roads and trails and becoming surrounded by urban development rather than other areas of suitable habitat. Thus, although preserved, the overall quality of the habitat could be reduced by edge effects at the preserved habitat-urban interface and the smaller, less connected nature of the preserved habitat. The Expanded Drainage Preservation Alternative would incorporate the same proposed edge treatments and low impact development features described for the Proposed Action to minimize potential indirect effects. However, even with the proposed wetland avoidance areas and incorporation of design features to reduce indirect effects, the Expanded Drainage Preservation Alternative would result in potential **indirect significant** effects. *[Similar]*

Mitigation Measure: Implement Mitigation Measure 3.10-1, 3.4-1a, 3.4-1b, 3.4-2a, 3.4-2b, 3.4-2c, 3.4-2d, and Sacramento County Final EIR Mitigation Measures BR-1, BR-2, BR-7, BR-8, and BR-9.

Implementation of Sacramento County Final EIR Mitigation Measures BR-1, BR-2, BR-7, BR-8, and BR-9, and Mitigation Measures 3.10-1, 3.4-1a, 3.4-1b, 3.4-2a, 3.4-2b, 3.4-2c, and 3.4-2d would reduce the direct and indirect effects to Federally listed species and their habitat, but not to a less-than-significant level because substantial take of Federally listed species would still occur and because of the Proposed Action's substantial loss of vernal pool habitat. Because a final compensatory mitigation plan has not been approved by USACE, a determination cannot be made on whether the proposed compensatory mitigation would reduce these direct and indirect effects to a less than significant level. Therefore, these **direct** and **indirect** effects remain **potentially significant and unavoidable**.

EP

Under the Expanded Preservation Alternative, substantially more habitat for vernal pool branchiopods and Sacramento Orcutt grass would be preserved as compared to the Proposed Action. This alternative would preserve nearly the entire western plateau portion of the Cordova Hills site, which contains the largest concentration and highest quality of vernal pool and wetland habitat on the Cordova Hills site (based on the CRAM scores, listed species survey results, size and complexity of vernal pools and vernal pool systems, hydrological connectivity, and location within the Laguna Formation). The total avoided area under this alternative would be 1,188 acres as compared to 539 acres under the Proposed Action. Table 3.4-12 provides a complete summary of the high and low range of total existing, directly affected, and indirectly affected habitat acreage for listed vernal pool branchiopods on the Cordova Hills site under the Expanded Preservation Alternative. Exhibits 3.4-9 and 10 show the location and extent of known occupied and suitable versus unsuitable aquatic habitat, as determined based on species surveys and the project applicant's site-specific assessment conducted in coordination with USFWS.

Under the Expanded Preservation Alternative, between 3.94 and 9.37 acres of suitable habitat for listed vernal pool branchiopods would be removed as compared to between 21.41 and 39.78 acres under the Proposed Action, depending on whether only those habitats west of the central drainage or all of these aquatic habitats are ultimately deemed suitable. The final determination regarding suitability of on-site aquatic habitats for listed vernal pool branchiopods would be made during Section 7 consultation with USFWS and would be analyzed in the Biological Opinion. Thus, approximately 16 percent of all potentially suitable habitats would be lost as a result of implementing this alternative, as compared to 38 percent under the Proposed Action. The direct take and loss of habitat for vernal pool fairy shrimp and vernal pool tadpole shrimp that would result from implementing this alternative would be a **direct significant** effect, but would be substantially less than the Proposed Action. *[Lesser]*

**Table 3.4-12
Acreage of Existing, Directly Affected, and Indirectly Affected Habitat for Listed Vernal Pool
Branchiopods – Expanded Preservation Alternative**

Habitat Type	Existing ¹		Direct Effect		Indirect Effect ²
	High	Low	High	Low	High
Vernal Pool	47.51	45.51	3.23	3.02	17.08
Seasonal Wetland	4.77	4.01	0.93	0.56	2.03
Seasonal Wetland Swale	18.22	6.17	4.26	0.33	8.17
Intermittent Drainage	16.90	1.65	0.96	0.03	11.44
Stock Pond	1.52	1.52	0.00	0.00	0.00
Total	88.92	58.86	9.37	3.94	38.73

Notes:

¹ Acreage of existing suitable habitat is expressed as a range of potential habitat where the high end assumes that all of the listed aquatic habitat types on the Cordova Hills site are suitable to support listed vernal pool branchiopods and the low end assumes only a subset of waters of the U.S. on the Cordova Hills site (based on wet and dry season surveys and other biological assessments) are suitable to support vernal pool branchiopods.

² The high-end acreage of indirect effects assumes every aquatic habitat type listed is occupied by listed vernal pool branchiopods and that all of these habitats within 250 feet of development would be subject to indirect adverse effects as a result of that development. The actual acreage of indirect effects may be determined, through the ESA Section 7 consultation process, to be lower than the maximum effect estimate provided here based on site-specific assessments of hydrology, geology, and topography and the applicant's proposed design features to reduce indirect effects.

Source: ECORP 2014

Establishment of larger wetland preserve areas would create a greater buffer around most of the preserved habitat in the avoided areas, reduce edge effects and fragmentation, and maintain greater hydrological connectivity between on-site aquatic habitats. Furthermore, the Town Center would not be developed adjacent to the western plateau wetland preserve and there would be no roadways or trails constructed through the western plateau wetland preserve under this alternative, except a single roadway off Grant Line Road that would traverse the southwest tip of the preserve, and so the indirect effects of habitat fragmentation, adjacent impervious surfaces, and intrusion by humans and their pets would be substantially reduced.

Additionally, indirect effects on the hydrology of preserved occupied and suitable habitat for Federally listed species on the western plateau avoided area would be unlikely because this area is located within a distinct watershed (the Laguna Creek Watershed) from the remainder of the Cordova Hills site and contains complexes of vernal pools and swales with a high degree of hydrological connectivity within the plateau but very little connectivity to the remainder of the site. Therefore, eliminating development almost entirely from the plateau area and preserving it as a whole unit within the Cordova Hills site would virtually eliminate potential indirect effects on the vernal pool species preserved therein, except perhaps increased human and pet intrusion from residential development to the east. The Expanded Preservation Alternative would incorporate the same proposed edge treatments and low impact development features described for the Proposed Action to minimize potential indirect effects. These measures would substantially reduce but not eliminate disturbance to wetlands on the Cordova Hills site because aquatic resources in the central drainage and Carson Creek avoided areas would be subject to similar indirect effects to those described for the Proposed Action although to a far lesser extent. Therefore, the Expanded Preservation Alternative would result in **indirect significant** effects, but these indirect effects would be substantially less than under the Proposed Action. [*Lesser*]

Mitigation Measure: Implement Mitigation Measure 3.10-1, 3.4-1a, 3.4-1b 3.4-2a, 3.4-2b, 3.4-2c, 3.4-2d, and Sacramento County Final EIR Mitigation Measures BR-1, BR-2, BR-7, BR-8, and BR-9.

Implementation of Sacramento County Final EIR Mitigation Measures BR-1, BR-2, BR-7, BR-8, and BR-9, and Mitigation Measures 3.10-1, 3.4-1a, 3.4-1b, 3.4-2a, 3.4-2b, 3.4-2c, and 3.4-2d would reduce the direct and indirect effects to Federally listed species and their habitat under this alternative, but not to a less-than-significant level because substantial take of Federally listed species would still occur and because of the Proposed Action's substantial loss of vernal pool habitat. Because a final compensatory mitigation plan has not been approved by USACE, a determination cannot be made on whether the proposed compensatory mitigation would reduce these direct and indirect effects to a less than significant level. Therefore, these **direct** and **indirect** effects remain **potentially significant and unavoidable**.

P

Three Federally listed species—vernal pool fairy shrimp, vernal pool tadpole shrimp, and Sacramento Orcutt grass—are known to occur within the Pilatus site. Sacramento Orcutt grass is known to occur within the Pilatus site; both on the Cordova Hills site and the added property to the north, but surveys for special-status plants or wildlife have not been conducted on the Pilatus site. Vernal pool branchiopods are assumed to occur in all suitable habitat on the Pilatus site, and two other Federally listed species that are absent from the Cordova Hills site have a high potential to occur within the Pilatus site. These species are slender Orcutt grass, and VELB. All of the Federally listed species with the potential to occur within the Pilatus site are associated with vernal pool habitat, with the exception of valley elderberry longhorn beetle. Thus, vernal pool habitat and species associated with vernal pool habitat are discussed first and separately from valley elderberry longhorn beetle.

Suitable habitat for vernal pool branchiopods is located throughout the Pilatus site. Under the Pilatus Alternative, between 20.09 and 33.14 acres of suitable habitat for listed vernal pool branchiopods would be removed as compared to between 22.66 and 40.91 acres under the Proposed Action depending on whether only those habitats west of the central drainage or all of these aquatic habitats are ultimately deemed suitable. Table 3.4-13 provides a complete summary of the high and low range of total existing and directly affected, and high range of indirectly affected habitat acreage for listed vernal pool branchiopods on the Cordova Hills and Pilatus sites site under the Pilatus Alternative. The high-range acreage of indirect effects assumes that all potentially suitable aquatic habitats are occupied by vernal pool branchiopods and that all of these wetlands within 250 feet of development would be indirectly affected by development. Exhibits 3.4-9 and 10 show the location and extent of known occupied and suitable versus unsuitable aquatic habitat, as determined based on species surveys and the applicant's site-specific assessment conducted in coordination with USFWS. As discussed for the Proposed Action, the final determination of acreage of existing suitable habitat and direct and indirect effects would be made during Section 7 consultation with USFWS and would be analyzed in the Biological Opinion. This consultation would include a determination of the extent of habitat for listed species, as well as the extent of indirect effects, after taking into account all avoidance and minimization measures proposed by the applicant, site hydrology and topography, watershed area required to maintain hydrologic function, and existing natural and artificial watershed breaks or other barriers that attenuate the effects of adjacent land uses (e.g., topographic breaks, existing roadways).

**Table 3.4-13
Acreage of Existing, Directly Affected, and Indirectly Affected Habitat for Listed Vernal Pool
Branchiopods – Pilatus Alternative**

Habitat Type	Existing ¹		Direct Effect		Indirect Effect ²
	High	Low	High	Low	High
Vernal Pool	54.10	50.87	16.56	14.38	22.02
Seasonal Wetland	8.82	6.36	3.64	1.90	3.69
Seasonal Wetland Swale	24.55	10.85	9.66	3.06	10.07
Intermittent Drainage	20.27	4.22	2.56	0.03	13.37
Stock Pond	1.87	1.87	0.72	0.72	1.11
Total	109.82	74.15	33.14	20.09	50.26

Notes:

¹ Acreage of existing suitable habitat is expressed as a range of potential habitat where the high end assumes that all of the listed aquatic habitat types on the Cordova Hills site are suitable to support listed vernal pool branchiopods and the low end assumes only a subset of waters of the U.S. on the Cordova Hills site (based on wet and dry season surveys and other biological assessments) are suitable to support vernal pool branchiopods.

² The high-end acreage of indirect effects assumes every aquatic habitat type listed is occupied by listed vernal pool branchiopods and that all of these habitats within 250 feet of development would be subject to indirect adverse effects as a result of that development. The actual acreage of indirect effects may be determined, through the ESA Section 7 consultation process, to be lower than the maximum effect estimate provided here based on site-specific assessments of hydrology, geology, and topography and the applicant's proposed design features to reduce indirect effects.

Source: ECORP 2014

Sacramento Orcutt grass is known to occur in four wetlands within the Pilatus site boundaries, as compared to three wetlands within the Cordova Hills site; however, all of the known locations of Sacramento Orcutt grass would be preserved under the Pilatus Alternative and under the Proposed Action. Sacramento Orcutt grass maybe present at additional locations on the Pilatus site to the north and slender Orcutt grass may also be present; protocol surveys of this site have not been conducted. Therefore, implementing this alternative has the potential to result in take of Federally listed Orcutt grasses that would not occur under the Proposed Action and to have a greater extent of indirect effects to these species if they are present in portions of the site not previously surveyed. A protocol-level botanical survey of the Pilatus site would be required to accurately assess direct and indirect effects to Federally listed plant species under this alternative. Furthermore, while this alternative would avoid effects to pools on the Cordova Hills site that contain Sacramento Orcutt grass, same as the Proposed Action, it would result in fill of one of the two vernal pools on the Cordova Hills site known to contain legenera.

This alternative would add 882.5 acres to the land use plan area compared to the Proposed Action. The larger development footprint would result in greater wetland habitat fragmentation and greater potential for indirect effects on listed vernal pool species habitat because development would be spread over a larger landscape area creating more urban/habitat edge as more wetland habitat would become surrounded by impervious surfaces, altered topography, and human population. In addition, under this alternative, the avoided areas would be transected by multiple roadways resulting in further habitat fragmentation. Road and trail crossings on the Cordova Hills site would be the same under this alternative as under the Proposed Action and several road crossings of the avoided area on the Pilatus site would be added.

Similar indirect effects on vernal pool branchiopod and Orcutt grass habitat as discussed under the Proposed Action could result from implementing the Pilatus Alternative. These include the introduction of invasive plant species, discharge of pollutants into wetlands, intrusion of humans and domestic animals, or changes in hydrology. The area of wetland habitats that could potentially be indirectly affected by the Pilatus Alternative is much larger than all other alternatives due to the larger overall action area and greater edge area between preserved habitat and development. The Pilatus site would not be developed as part of the Proposed Action, so all existing wetland and adjacent upland habitats on that site would be retained in their current condition, but would not be placed into a permanent conservation easement.

In addition to potential indirect effects to on-site aquatic habitats, 6.93 acres of off-site aquatic habitats that would be within 250 feet of development following buildout of this alternative may be considered indirectly affected by development under this alternative. As discussed under the Proposed Action, not all of the aquatic habitats within 250 feet are suitable for listed vernal pool branchiopod species and the use of low impact development features and edge treatments that buffer preserved habitats from the effects of adjacent development would ameliorate potential indirect effects of development on adjacent preserved wetlands.

The Pilatus site is located mostly within the Mather Core Area, which is within the Southeastern Sacramento Valley vernal pool region for recovery of vernal pool species. Thus, the Pilatus Alternative would result in both direct and indirect effects to a greater quantity of occupied vernal pool habitat that is within an area considered to be necessary to the recovery of Federally listed vernal pool species.

Because vernal pool fairy shrimp and vernal pool tadpole shrimp are assumed present in all potentially suitable habitat, all vernal pool, seasonal wetland, and seasonal wetland swale habitat that would be directly and indirectly affected can be assumed to correspond to direct and indirect effects to these two species and habitat known to be occupied by these two branchiopod species would be removed under this alternative as it would under the Proposed Action. Therefore the Pilatus Alternative involves take of both of these vernal pool branchiopod species and is assumed to have a greater level of take than the Proposed Action because additional suitable habitat for these species would be filled under this alternative. In addition, the Pilatus Alternative entails permanent habitat loss, and habitat degradation from the indirect effects of habitat fragmentation and edge effects.

VELB is associated with elderberry trees and shrubs. Based on previous surveys, elderberry shrubs do not occur on the Cordova Hills site, but it is unknown if elderberry shrubs are located on the Pilatus site. Thus, a survey of the Pilatus site would be required to accurately assess if effects to VELB would occur.

On the landscape and regional levels, this alternative would have a greater level of effects to vernal pool fairy shrimp, vernal pool tadpole shrimp, and Orcutt grass habitat in the region because development would occur over a larger vernal pool landscape and encompass more of the Mather Core Area resulting in greater overall habitat fragmentation within this important area for this species. This alternative also has the highest level of indirect effects to waters of all of the alternatives. **Direct** and **indirect** effects to wetlands and waters under this alternative are considered **significant** because a substantial amount of vernal pool species habitat over a large area would be permanently removed and subject to the indirect effects of adjacent development as a result of implementing the Pilatus Alternative. *[Greater]*

Mitigation Measure: Implement Mitigation Measures 3.10-1, 3.4-1a, 3.4-1b, 3.4-1c, 3.4-2a, 3.4-2b, 3.4-2c, 3.4-2d, and Sacramento County Final EIR Mitigation Measures BR-1, BR-2, BR-7, BR-8, and BR-9.

Mitigation Measure 3.4-2e: Conduct Botanical Surveys of the Pilatus site and Consult with Appropriate Resource Agencies to Determine whether Additional Mitigation is Required.

If the Pilatus Alternative is implemented, botanical surveys of the Pilatus site shall be conducted during the appropriate blooming periods during a total of 2 years prior to construction. The surveys shall be conducted per the methodology contained in CDFW's publication entitled *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* and the USFWS Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed, and Candidate Plants (USFWS 2000). During these surveys, special-status plant populations shall be mapped and documented using California Native Species Survey Forms. If any special-status plant populations would be directly or indirectly affected, the project applicant shall consult with the appropriate agency (USFWS and/or CDFW) to determine if additional mitigation (such as replanting of the species in another location) is required. During the botanical surveys, it shall be noted if elderberry plants are present in the Pilatus site. USFWS shall be notified if elderberry plants are found, and USFWS may require additional mitigation for valley elderberry longhorn beetle (such as transplanting elderberry shrubs and purchasing VELB credits from a USFWS-approved mitigation bank).

Implementation: Project applicant.

Timing: During the 2 years immediately prior to the start of construction activities.

Enforcement: U.S. Fish and Wildlife Service and California Department of Fish and Wildlife.

Implementation of the Sacramento County Mitigation Measures BR-1, BR-2, BR-7, BR-8, and BR-9, and Mitigation Measures 3.10-1, 3.4-1a, 3.4-1b, 3.4-2a, 3.4-2b, 3.4-2c, 3.4-2d, and 3.4-2e would reduce the direct and indirect significant effects to Federally listed species and sensitive habitat that would result under the Pilatus Alternative, but not to a less-than-significant level because the take of Federally listed species and the loss of high-quality vernal pool habitat that is considered necessary to the recovery of Federally listed species would still occur. Because a compensatory mitigation plan has not been approved by USACE, a determination cannot be made on whether the proposed compensatory mitigation plan would reduce these direct and indirect effects to a less than significant level. Therefore, these **direct** and **indirect** effects would remain **potentially significant and unavoidable**.

EFFECT **Loss and Degradation of Habitat for Special-Status Wildlife Species (Not Federally Listed).**
3.4-3 *Implementing the Proposed Action would result in the loss and degradation of habitat for Swainson's hawk and other raptors, burrowing owl, grasshopper sparrow, loggerhead shrike, western pond turtle, and western spadefoot.*

RC

Under the Regional Conservation Alternative, the western plateau avoided area would be reconfigured to a more rectangular shape to be consistent with the proposed SSHCP design. Avoided areas in the central and eastern portions of the Cordova Hills site would remain the same as those contemplated under the Proposed Action. Under this alternative, a total of approximately 555 acres would be preserved overall, as compared to approximately 539 acres of preservation under the Proposed Action. While this alternative would avoid effects to

pools that contain Sacramento Orcutt grass, same as the Proposed Action, it would result in fill of one of the two on-site vernal pools known to contain legenera.

Under the Regional Conservation Alternative, between 20.39 and 38.39 acres of suitable habitat for listed vernal pool branchiopods would be removed as compared to between 22.66 and 40.91 acres under the Proposed Action depending on whether only those habitats west of the central drainage or all of these aquatic habitats are ultimately deemed suitable. The final determination regarding suitability of on-site aquatic habitats for listed vernal pool branchiopods would be made during Section 7 consultation with USFWS and would be analyzed in the Biological Opinion. Thus, approximately 38 percent of all potentially suitable habitats would be lost as a result of implementing this alternative, as compared to 38 percent under the Proposed Action. Table 3.4-14 provides a complete summary of the high and low range of total existing, directly affected, and indirectly affected habitat acreage for listed vernal pool branchiopods on the Cordova Hills site under the Regional Conservation Alternative. Exhibits 3.4-9 and 10 show the location and extent of known occupied and suitable versus unsuitable aquatic habitat, as determined based on species surveys and the applicant’s site-specific assessment conducted in coordination with USFWS. The direct take and loss of habitat for vernal pool fairy shrimp and vernal pool tadpole shrimp that would result from implementing this alternative would be a **direct significant** effect, and would be similar in magnitude to the Proposed Action. *[Similar]*

Table 3.4-14 Acreage of Existing, Directly Affected, and Indirectly Affected Habitat for Listed Vernal Pool Branchiopods – Regional Conservation Alternative					
Habitat Type	Existing ¹		Direct Effect		Indirect Effect ²
	High	Low	High	Low	High
Vernal Pool	47.51	45.51	16.89	15.42	18.83
Seasonal Wetland	4.77	4.01	2.96	1.10	1.10
Seasonal Wetland Swale	18.22	6.17	13.25	2.97	3.00
Intermittent Drainage	16.90	1.65	4.62	0.10	11.04
Stock Pond	1.52	1.52	0.69	0.80	0.80
Total	88.92	58.86	38.40	20.38	34.76

Notes:

¹ Acreage of existing suitable habitat is expressed as a range of potential habitat where the high end assumes that all of the listed aquatic habitat types on the Cordova Hills site are suitable to support listed vernal pool branchiopods and the low end assumes only a subset of waters of the U.S. on the Cordova Hills site (based on wet and dry season surveys and other biological assessments) are suitable to support vernal pool branchiopods.

² The high-end acreage of indirect effects assumes every aquatic habitat type listed is occupied by listed vernal pool branchiopods and that all of these habitats within 250 feet of development would be subject to indirect adverse effects as a result of that development. The actual acreage of indirect effects may be determined, through the ESA Section 7 consultation process, to be lower than the maximum effect estimate provided here based on site-specific assessments of hydrology, geology, and topography and the project applicant’s proposed design features to reduce indirect effects.

Source: ECORP 2014

Indirect effects on listed vernal pool branchiopods and Sacramento Orcutt grass would be similar under this alternative as under the Proposed Action and include reduced water quality and altered hydrology caused by urban runoff, erosion, and siltation; intrusion of humans and domestic animals; and introduction of invasive plant species that could result in habitat degradation. However, the western plateau preserve would be roughly the same

under this alternative as under the Proposed Action, which was designed to maintain microwatershed areas necessary to maintain normal hydrologic functions. The western plateau is located within a distinct watershed and is topographically and hydrologically isolated from the remainder of the site, such that nuisance flows and runoff from development to the east and south would not be expected to affect hydrology or water quality of aquatic resources preserved on the western plateau. Also, as discussed under the Proposed Action, not all of these aquatic habitats within 250 feet are suitable for listed vernal pool branchiopod species and the use of low impact development features and edge treatments that buffer preserved habitats from the effects of adjacent development would ameliorate potential indirect effects of development on adjacent preserved wetlands.

Nonetheless, hydrologic regime and water quality of preserved vernal pool branchiopod habitat on the western plateau could be adversely affected by nuisance flows and runoff from development of the proposed Town Center on the same topographic plateau and implementation of the Regional Conservation Alternative would result in the preserved habitat being transected by roads and trails and becoming surrounded by urban development rather than other areas of suitable habitat. Thus, although preserved, the overall quality of the habitat would be reduced by edge effects at the preserved habitat-urban interface and the smaller, less connected nature of the preserved habitat. Therefore, the Expanded Drainage Preservation Alternative would result in **indirect significant** effects similar to the Proposed Action. *[Similar]*

Mitigation Measure: Implement Mitigation Measure 3.10-1, 3.4-1, 3.4-2a, 3.4-2b, 3.4-2c, 3.4-2d, and Sacramento County Final EIR Mitigation Measures BR-1, BR-2, BR-7, BR-8, and BR-9.

Implementation of Sacramento County Final EIR Mitigation Measures BR-1, BR-2, BR-7, BR-8, and BR-9, and Mitigation Measures 3.10-1, 3.4-1a, 3.4-1b, 3.4-2a, 3.4-2b, 3.4-2c, and 3.4-2d would reduce the direct and indirect effects to Federally listed species and their habitat that would result under this alternative, but not to a less-than-significant level because substantial take of Federally listed species would still occur and because of the Proposed Action's substantial loss of vernal pool habitat. Because a final compensatory mitigation plan has not been approved by USACE, a determination cannot be made on whether the proposed compensatory mitigation would reduce these direct and indirect effects to a less than significant level. Therefore, these **direct** and **indirect** effects remain **potentially significant and unavoidable**.

NA

Under the No Action Alternative, the Cordova Hills site would not be developed and no construction disturbances would occur. Therefore, there would **no indirect** or **direct** construction effects on special-status species or their habitat. *[Lesser]*

Mitigation Measure: No mitigation measures are required.

PA, RC

Birds

Approximately 2,668 acres of Swainson's hawk foraging are present within the Cordova Hills site. Each alternative differs in the amount and location of foraging habitat removed and preserved. Table 3.4-15 provides the total acreage of on-site foraging habitat that would be directly removed or preserved under each of the five action alternatives. Suitable Swainson's hawk foraging habitat on the Cordova Hills site is also generally suitable foraging habitat for white-tailed kite and suitable nesting and foraging habitat for the ground-nesting species burrowing owl, northern harrier, and grasshopper sparrow. There is one tree on the Cordova Hills site.

**Table 3.4-15
Summary of Swainson's Hawk Foraging Habitat Removed and Preserved by Alternative**

Alternative	Total Acres Existing	Total Acres of Direct Loss	Percent of Habitat Lost	Total Acres of On-Site Preservation	Percent of Habitat Preserved
Proposed Action	2,668	2,253	84	415	16
Expanded Drainage Preservation	2,668	2,170	81	498	19
Expanded Preservation	2,668	1,880	72	757	28
Pilatus	3,550	3,078	87	472	13
Regional Conservation	2,668	2,223	84	433	16

Note: Acreage totals may vary due to rounding.
Source: Data compiled by AECOM in 2014

Construction on the Cordova Hills site could disturb tree nesting raptors in this tree or in trees adjacent to the Cordova Hills site resulting in nest abandonment and mortality of chicks and eggs. The single tree on the Cordova Hills site also provides potentially suitable nesting habitat for loggerhead shrike and the entire site is suitable for foraging by this species. Because the loss of habitat under the Proposed Action and Regional Conservation Alternative are so similar, these two action alternatives are addressed together in this effects discussion.

Implementing the Proposed Action and Regional Conservation Alternative would result in direct removal of approximately 2,253 and 2,223 acres, respectively of foraging habitat for Swainson's hawk, white-tailed kite, and other common raptors; one potential nest tree, and nesting and foraging habitat for burrowing owl, northern harrier, and grasshopper sparrow. Burrowing owl and northern harrier have been observed on the Cordova Hills site and if they are nesting on site, implementing the Proposed Action or Regional Conservation Alternative could result in direct mortality of chicks or eggs, or nest abandonment by the adults, which could also result in loss of chicks or eggs. Grasshopper sparrow and other ground-nesting migratory birds could also be nesting on site and be subject to loss of chicks and eggs.

Implementing the Proposed Action or Regional Conservation Alternatives would not only remove foraging and nesting habitat, it would also fragment the remaining habitat on the Cordova Hills site, which could cause the habitat to become unsuitable for foraging by some raptors. Large raptors generally require large areas of suitable foraging habitat and the loss and fragmentation of large tracts of foraging habitat can reduce local population numbers. Potential indirect effects to burrowing owl and northern harrier include increased nest failure due to disruption of essential breeding and foraging behavior resulting from human disturbances in adjacent developed areas and increased nest predation by wildlife species associated with human development, such as crows and raccoons, as well as domestic cats and dogs. Furthermore, burrowing owls need burrows at all times to survive and displacing individuals from their burrows at any time can result in indirect effects such as predation, increased energetic costs, increased stress, and risks associated with having to find and compete for burrows, all of which can lead to take or reduced reproduction.

Thus, implementing the Proposed Action and Regional Conservation Alternative could result in direct loss of active nests and eventually lead to the permanent displacement of some raptors from the Cordova Hills site. Therefore, the Proposed Action and Regional Conservation Alternative would result in direct and indirect significant effects to Swainson's hawk, western burrowing owl, northern harrier, white-tailed kite, loggerhead

shrike, and grasshopper sparrow. Therefore, **direct** and **indirect** effects on Swainson's hawk, white-tailed kite, loggerhead shrike, burrowing owl, northern harrier, and grasshopper sparrow are potentially significant.

Western Spadefoot

The vernal pools and seasonal wetlands on the Cordova Hills site provide potential habitat for western spadefoot and this species has been observed on the Cordova Hills site. Implementation of the Proposed Action and the Regional Conservation Alternative would permanently remove approximately 19 acres and 20 acres, respectively, of vernal pool and other wetland habitat suitable for western spadefoot. Upland grassland habitat used for aestivation would also be permanently lost because of development. In addition to the direct removal of potential habitat, the Proposed Action and Regional Conservation Alternatives are expected to have indirect effects on potential habitat for western spadefoot through habitat modifications similar to indirect effects on habitat for vernal pool branchiopods (see Effect 3.4-2 for a description of potential indirect effects on vernal pools and other wetland habitats). Indirect effects could also include mortality related to an increase in vehicular traffic on and near the Cordova Hills site, noise and vibration disturbance causing toads to break dormancy, and exposure to herbicides, pesticides, and other toxins. This species could also be injured or killed during construction activities. Therefore, **direct** and **indirect** effects on western spadefoot are potentially significant.

Western Pond Turtle

There is no suitable aquatic habitat for western pond turtle on the Cordova Hills site, but this species may be present in Carson Creek just east of the Cordova Hills site and could potentially use the site as upland nesting habitat. However, habitat used by western pond turtle on the Cordova Hills site is likely to be restricted to the Carson Creek floodplain area, which would be a designated avoided area under the Proposed Action and Regional Conservation Alternative, because the site slopes relatively steeply above the floodplain and pond turtles would not climb the slopes in search of nesting habitat. Furthermore, land use adjacent to the Carson Creek avoided area would be estate residential, which is a relatively low impact land use with only 1 to 4 dwelling units per acre and relatively small areas of impervious surfaces. Therefore, implementing the Proposed Action or Regional Conservation Alternative would have **no effect** on western pond turtle. Because land uses adjacent to Carson Creek would be the same under every action alternative, none of the action alternatives would affect western pond turtle and this species is not discussed further.

Mitigation Measure: Implement Mitigation Measures 3.10-1, 3.4-1a, 3.4-1b, 3.4-2a, 3.4-2b, 3.4-2c, and 3.4-2d.

As part of the CEQA EIR certification and project approval process, the project applicant committed to implementing various mitigation measures for the Proposed Action. The mitigation measures that are applicable to western spadefoot that were incorporated into the project entitlements are Sacramento County Final EIR Mitigation Measures BR-1, BR-2, and BR-7 listed above under Effect 3.4-1 and 3.4-2. Sacramento County Final EIR Mitigation Measures BR-3, BR-4, BR-5 and BR-6 require surveys and additional requirements to avoid or reduce significance effects to avian species protected by the California Endangered Species Act, Migratory Bird Treaty Act, California Fish and Game Code, and other regulations are listed below:

- ▶ If construction, grading, or Project-related improvements are to occur between March 1 and September 15, a focused tree survey for tree-or-ground nesting raptors within 500 feet of the construction site (1/2-mile for Swainson's hawk) and for ground-nesting grasshopper sparrow shall be conducted by a qualified biologist within 14 days prior to the start of construction work (including clearing and grubbing). If active nests are

found, the California Department of Fish and Game shall be contacted to determine appropriate protective measures. If no active nests are found during the focused survey, no further mitigation will be required. (*Final EIR Mitigation Measure BR-3*)

- ▶ Prior to the approval of improvement plans, building permits, or recordation of the final map, whichever occurs first, implement one of the options below to mitigate for the loss of Swainson's hawk foraging habitat on the Cordova Hills site; based on current Project designs this is 2,267 acres. Based on current designs, this can be reduced to 2,231 acres of mitigation if the applicant establishes a permanent conservation easement over the areas designated Agriculture on the eastern and southeastern sides of the site (these are areas outside of the Urban Services Boundary). Foraging habitat preserved shall consist of grassland or similar habitat open habitat, not cropland, because this mitigation measure also offsets impacts to other species that do not use cropland habitat.
 - a. The project proponent shall utilize one or more of the mitigation options (land dedication and/or fee payment) established in Sacramento County's Swainson's Hawk Impact Mitigation Program (Chapter 16.130 of the Sacramento County Code).
 - b. The Project proponent shall, to the satisfaction of the California Department of Fish and Game, prepare and implement a Swainson's hawk mitigation plan that will include preservation of Swainson's hawk foraging habitat.
 - c. Should the County Board of Supervisors adopt a new Swainson's hawk mitigation policy/program (which may include a mitigation fee payable prior to issuance of building permits) prior to the implementation of one of the measures above, the Project proponent may be subject to that program instead. If the design of the primary avoided area on the western plateau (currently 382 acres in size) is increased in size in response to Section 404 wetland permitting requirements, the total amount of mitigation land required may be adjusted downward to reflect this increased avoidance, at the discretion of the Environmental Coordinator. (*Final EIR Mitigation Measure BR-4*)
- ▶ Prior to construction activity (including site improvements, and building construction) focused surveys shall be conducted by a qualified biologist for burrowing owls in the construction area and within 500 feet of the construction area. Surveys shall be conducted no less than 14 days and no more than 30 days prior to commencement of construction activities. Surveys shall be conducted in accordance with "Burrowing Owl Survey Protocol and Mitigation Guidelines" published by The California Burrowing Owl Consortium (April 1993). The following shall also apply:
 - a. If no occupied burrows are found in the survey area, a letter report documenting survey methods and findings shall be submitted to the County and no further mitigation is necessary.
 - b. If an occupied burrow is found the applicant shall contact the Environmental Coordinator and consult with the California Department of Fish and Wildlife (CDFW), prior to construction, to determine if avoidance is possible or if burrow relocation will be required.
 - c. If owls are to remain on-site, a minimum of 6.5 acres of foraging habitat for each occupied burrow needs to be permanently preserved according to California Department of Fish and Game guidelines. In addition, no activity shall take place within 160 feet of an active burrow from September 1 to January 31

(wintering season) or 250 feet from February 1 through August 31 (breeding season). Protective fencing shall be placed, at the distances above, around the active burrows and no activity shall occur within the protected buffer areas. Permanent improvements shall be a minimum of 250 feet from an occupied burrow.

- d. Any impact to active owl burrows, relocation of owls, or mitigation for habitat loss shall be done in accordance with the Fish and Game “Staff Report on Burrowing Owl Mitigation” (October 17, 1995) or the version current at the time of construction. Written evidence from Fish and Game staff shall be provided to Environmental Coordinator attesting to the permission to remove burrows, relocate owls, or mitigate for lost habitat, and shall include a plan to monitor mitigation success. (*Final EIR Mitigation Measure BR-5*)
- If construction occurs between March 1 and July 31 pre-construction surveys for nesting tricolored blackbirds shall be performed by a qualified biologist. Surveys shall include the construction site and areas of appropriate habitat within 300 feet of the construction site. The survey shall occur no longer than 14 days prior to the start of construction work (including clearing, grubbing or grading). The biologist shall supply a brief written report (including date, time of survey, survey method, name of surveyor and survey results) to the Environmental Coordinator prior to ground disturbing activity. If no tricolored blackbird were found during the pre-construction survey, no further mitigation would be required. If an active tricolored blackbird colony is found on-site or within 300 feet of the construction site the project proponent shall do the following:
- a. Consult with the California Department of Fish and Game to determine if project activity will impact the tricolored blackbird colony(s), and implement appropriate avoidance and impact minimization measures if so directed. Provide the Environmental Coordinator with written evidence of the consultation or a contact name and number from the California Department of Fish and Game.
 - b. The applicant may avoid impacts to tricolored blackbird by establishing a 300- foot temporary setback with fencing that prevents any project activity within 300 feet of the colony. A qualified biologist shall verify that setbacks and fencing are adequate and will determine when the colonies are no longer dependent on the nesting habitat (i.e. nestlings have fledged and are no longer using habitat), which will determine when the fencing may be removed. The breeding season typically ends in July. (*Final EIR Mitigation Measure BR-6*)

Implementation of Sacramento County Final EIR Mitigation Measures BR-1, BR-2, BR-3, BR-4, BR-5, BR-6, and BR-9 and Mitigation Measures 3.4-1a, 3.4-1b, 3.4-2a, 3.4-2b, 3.4-2c, 3.4-2d and 3.10-1, would reduce the significant direct and indirect effects to habitat for special-status wildlife species that would result from implementing the Proposed Action or the Regional Conservation Alternative to a **less-than-significant** level. No other mitigation measures were identified to further reduce effects.

EDP

Birds

Under the Expanded Drainage Preservation Alternative, approximately 2,170 acres of foraging habitat for Swainson’s hawk, white-tailed kite, and other common raptors; one potential nest tree for these species and loggerhead shrike; and nesting and foraging habitat for burrowing owl, northern harrier, and grasshopper sparrow

would be removed, as compared to 2,253 acres under the Proposed Action. Therefore, this alternative would preserve 83 more acres of habitat for these species.

Similar to the effects associated with the Proposed Action, construction could result in direct take of individuals, chicks and eggs, and disturb nesting adults causing them to abandon nests. The remaining habitat in preserved areas, which would not be directly removed under the Expanded Drainage Preservation Alternative, would lose some habitat value due to the fragmented nature of the habitat and the reduced connectivity with other suitable habitat in the region, which could cause the habitat to become unsuitable for foraging by some raptors. Potential indirect effects to burrowing owl and northern harrier would be the same as under the Proposed Action. Under this alternative, construction on the Cordova Hills site could disturb tree nesting raptors on or adjacent to the Cordova Hills site resulting in nest abandonment and mortality of chicks and eggs, the same as under the Proposed Action. The larger preservation area would reduce some of these effects, but because the additional preservation would occur primarily along the central drainage avoided area, resulting in a relatively narrow, linear preserve; this area would not provide suitable foraging habitat for Swainson's hawk post development because they require large expanses of open habitat for foraging and forage only incidentally in narrow linear habitats. Thus, implementing the Expanded Drainage Preservation Alternative could eventually lead to the permanent displacement of some raptors from the Cordova Hills site, similar to the Proposed Action. Therefore, the Expanded Drainage Preservation Alternative would result in **direct** and **indirect significant** effects to Swainson's hawk, western burrowing owl, northern harrier, white-tailed kite, loggerhead shrike, and grasshopper sparrow of similar magnitude and intensity as the Proposed Action. *[Similar]*

Western Spadefoot

Implementation of the Expanded Drainage Preservation Alternative would permanently remove approximately 16 acres of vernal pool and other wetland habitat suitable for western spadefoot, as compared to 19 acres under the Proposed Action. Although this alternative would result in greater overall habitat preservation overall, most of the additional preservation would occur along the central drainage avoided area that does not support a lot of suitable habitat for western spadefoot compared to the western plateau area. In addition to the direct removal of potential habitat, the Expanded Drainage Preservation Alternative would have indirect effects on potential habitat for western spadefoot through habitat modifications similar to the Proposed Action. Indirect effects could also include mortality related to an increase in vehicular traffic on and near the Cordova Hills site, noise and vibration disturbance causing toads to break dormancy, and exposure to herbicides, pesticides, and other toxins. This species could also be injured or killed during construction activities. Therefore, **direct** and **indirect** effects on western spadefoot are potentially significant under the Expanded Drainage Preservation Alternative. *[Similar]*

Mitigation Measure: Implement Mitigation Measures 3.10-1, 3.4-1a, 3.4-1c, 3.4-2a, 3.4-2b, 3.4-2c, 3.4-2d, and Sacramento County Final EIR Mitigation Measures BR-1, BR-2, BR-3, BR-4, BR-5, BR-6, and BR-9.

Implementation of Sacramento County Final EIR Mitigation Measures BR-1, BR-2, BR-3, BR-4, BR-5, BR-6, and BR-9 and Mitigation Measures 3.10-1, 3.4-1a, 3.4-1b, 3.4-2a, 3.4-2b, 3.4-2c, and 3.4-2d would reduce the significant direct and indirect effects to special-status wildlife species under the Expanded Drainage Preservation Alternative to a **less-than-significant** level. No other mitigation measures were identified to further reduce effects.

Birds

Under the Expanded Preservation Alternative, approximately 1,880 acres of foraging habitat for Swainson's hawk, white-tailed kite, and other common raptors; one potential nest tree for these species and loggerhead shrike; and nesting and foraging habitat for burrowing owl, northern harrier, and grasshopper sparrow would be removed, as compared to 2,253 acres under the Proposed Action. Therefore, this alternative would preserve 342 more acres of habitat for these species. Because the additional habitat preserved would be added to the western plateau avoided area to create a large, contiguous block, this would result in more preserved habitat that would continue to be suitable for foraging by Swainson's hawks and other large raptors. Additionally, the larger preserve area and elimination of roadways and trails through the western plateau preserve would reduce the adverse effects of human disturbance on ground nesting birds.

Similar to the effects associated with the Proposed Action, construction could result in direct take of individuals, chicks and eggs, and disturb nesting adults causing them to abandon nests. The remaining habitat in preserved areas, which would not be directly affected by these alternatives, loses habitat value due to the fragmented nature of the habitat and the reduced connectivity with other suitable habitat in the region, which could cause the habitat to become unsuitable for foraging by some raptors. Potential indirect effects to burrowing owl and northern would be similar as under the Proposed Action; however, these effects would be substantially reduced by the larger size of the plateau preserve area. Under this alternative, construction on the Cordova Hills site could disturb tree nesting raptors and loggerhead shrike on or adjacent to the Cordova Hills site resulting in nest abandonment and mortality of chicks and eggs, the same as under the Proposed Action. Implementing the Expanded Preservation Alternative would reduce, but not eliminate, the potential for permanent displacement of some raptors from the Cordova Hills site. Therefore, the Expanded Preservation Alternative would result in **direct and indirect significant** effects to Swainson's hawk, western burrowing owl, northern harrier, white-tailed kite, loggerhead shrike, and grasshopper sparrow, but to a lesser extent than under the Proposed Action. [*Lesser*]

Western Spadefoot

Implementation of the Expanded Preservation Alternative would permanently remove approximately 4.15 acres of vernal pool and other wetland habitat suitable for western spadefoot, as compared to 19 acres under the Proposed Action. This alternative would result in greater preservation of the western plateau area that provides the most suitable habitat for western spadefoot on the Cordova Hills site. The Expanded Preservation Alternative would have similar indirect effects on potential habitat for western spadefoot through habitat modifications as the Proposed Action. Indirect effects could also include mortality related to an increase in vehicular traffic on and near the Cordova Hills site, noise and vibration disturbance causing toads to break dormancy, and exposure to herbicides, pesticides, and other toxins. This species could also be injured or killed during construction activities. However, indirect effects would be substantially reduced because a Town Center and other development would not occur on the western side of the plateau, roads and trails would not be constructed through the western plateau avoided area, most of the development adjacent to the western plateau avoided area would be to the east on a topographically and hydrologically separated part of the site. The direct take and loss of habitat for western spadefoot and habitat degradation that would result from implementing this alternative would be a **direct and indirect significant** effect, but would be substantially less than the Proposed Action. [*Lesser*]

Mitigation Measure: Implement Mitigation Measures 3.10-1, 3.4-1a, 3.4-1b, 3.4-2a, 3.4-2b, 3.4-2c, and 3.4-2d and Sacramento County Final EIR Mitigation Measures BR-1, BR-2, BR-3, BR-4, BR-5, BR-6, and BR-9.

Implementation of Sacramento County Final EIR Mitigation Measures BR-1, BR-2, BR-3, BR-4, BR-5, BR-6, and BR-9 and Mitigation Measures 3.10-1, 3.4-1a, 3.4-1b, 3.4-2a, 3.4-2b, 3.4-2c, and 3.4-2d would reduce the significant direct and indirect effects to special-status wildlife species under the Expanded Preservation Alternative to a **less-than-significant** level. No other mitigation measures were identified to further reduce effects.

P

Birds

Under the Pilatus Alternative, approximately 3,078 acres of foraging habitat for Swainson's hawk, white-tailed kite, and other common raptors and nesting and foraging habitat for burrowing owl, northern harrier, loggerhead shrike, and grasshopper sparrow would be removed, as compared to 2,253 acres under the Proposed Action. Therefore, this alternative would remove 825 more acres of habitat for these species. Because this alternative would include development on an additional 882 acres of land that is currently suitable for foraging habitat for Swainson's hawk, but would provide virtually no Swainson's hawk foraging value post development because it would retain only a narrow, linear preserve area surrounded by urban land uses on both sides, this alternative would result in substantially greater loss and disturbance of habitat for special-status birds. Thus, implementing the Pilatus Alternative could eventually lead to the permanent displacement of some raptors from the Cordova Hills and Pilatus sites, but on a greater scale than the Proposed Action.

Similar to the effects associated with the Proposed Action, project construction could result in direct take of individuals, chicks and eggs, and disturb nesting adults causing them to abandon nests. Potential indirect effects to burrowing owl and northern would be similar as under the Proposed Action; however, these effects would be increased by the resulting additional habitat fragmentation and increased areas of urban development in areas that are currently characterized by natural habitats and open space. Under this alternative, construction could disturb tree nesting raptors on or adjacent to the Cordova Hills and Pilatus sites resulting in nest abandonment and mortality of chicks and eggs, the same as under the Proposed Action, but there is greater potential for on-site tree-nesting birds because a limited number of trees and shrubs are present on the Pilatus site in addition to the single tree located on the Cordova Hills site. Therefore, the Pilatus Alternative would result in **direct and indirect significant** effects to Swainson's hawk, western burrowing owl, northern harrier, white-tailed kite, loggerhead shrike, and grasshopper sparrow, but to a greater extent than under the Proposed Action. [*Greater*]

Western Spadefoot

Implementation of the Pilatus Alternative would permanently remove approximately 20 acres of vernal pool and other wetland habitat suitable for western spadefoot, as compared to 19 acres under the Proposed Action. This alternative would result in preservation of an additional 36 acres on the western plateau area that provides the most suitable habitat for western spadefoot on the Cordova Hills and Pilatus sites. However, this alternative would add 882.5 acres to the Proposed Action's land use plan area. The larger development footprint would result in greater wetland habitat fragmentation and greater potential for indirect effects on western spadefoot habitat because development would be spread over a larger landscape area creating more urban/habitat edge as more wetland habitat overall would become surrounded by impervious surfaces, altered topography, and human

population at the larger landscape level. In addition, under this alternative, the avoided areas would be transected by multiple roadways resulting in further habitat fragmentation. Indirect effects could also include mortality related to an increase in vehicular traffic on and near the Cordova Hills and Pilatus sites, noise and vibration disturbance causing toads to break dormancy, and exposure to herbicides, pesticides, and other toxins. This species could also be injured or killed during construction activities. The direct take and loss of habitat for western spadefoot and habitat degradation that would result from implementing this alternative would be a **direct** and **indirect significant** effect, and would be similar in magnitude and intensity as the Proposed Action. *[Similar]*

Mitigation Measure: Implement Mitigation Measures 3.10-1, 3.4-1a, 3.4-1b, 3.4-2a, 3.4-2b, 3.4-2c, and 3.4-2d and Sacramento County Final EIR Mitigation Measures BR-1, BR-2, BR-3, BR-4, BR-5, BR-6, and BR-9.

Implementation of Sacramento County Final EIR Mitigation Measures BR-1, BR-2, BR-3, BR-4, BR-5, BR-6, and BR-9 and Mitigation Measures 3.10-1, 3.4-1a, 3.4-1b, 3.4-2a, 3.4-2b, 3.4-2c, and 3.4-2d would reduce the significant direct and indirect effects to special-status wildlife species under the Pilatus Alternative to a **less-than-significant** level. No other mitigation measures were identified to further reduce effects.

3.4.8 RESIDUAL SIGNIFICANT EFFECTS

The significance of effects to biological resources (jurisdictional waters, Federally listed species and their habitat, and habitat for special-status plants and wildlife) associated with the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives would be reduced with the implementation of the proposed mitigation measures, but could remain potentially significant. Direct and indirect effects to waters of the U.S., including wetlands, Federally listed vernal pool fairy shrimp, vernal pool tadpole shrimp, and Sacramento Orcutt grass could be potentially significant and unavoidable in the absence of additional mitigation measures and an approved wetland mitigation plan. Direct and indirect impacts to other special-status species (not listed under ESA) would be reduced to a **less-than-significant** level with implementation of the mitigation measures proposed in this EIS.

3.4.9 CUMULATIVE EFFECTS

Projects considered in the analysis of cumulative effects on biological resources include those that are approved or reasonably foreseeable projects in the city of Rancho Cordova or Eastern Sacramento County, the Mather Core Area, and the Laguna Creek, Deer Creek, and Carson Creek watersheds. The list of other foreseeable projects is provided as Table 3.0-2 in Section 3.0, "Approach to the Environmental Analysis".

On the Cordova Hills site, approximately 89.11 acres of wetlands and waters are present. Approximately 39.79 acres (45 percent) would be directly affected by implementation of the Proposed Action. Between approximately 39.78 acres and 21.41 acres of these direct affects would occur in vernal pools, seasonal wetlands, seasonal wetland swales, stock ponds, and intermittent drainages that may be habitat for special-status vernal pool invertebrates. The number of acres affected depends on how much of the aquatic habitat on site is ultimately determined suitable for special-status vernal pool invertebrates.

The Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives would remove approximately 18.19, 9.38, and 38.41 acres of existing wetlands (i.e., 20 percent, 11 percent, and 43 percent), respectively. The Pilatus Alternative encompasses a much larger area as compared to the other four action alternatives, and would result in direct effects to 30 percent (i.e., 32.66 acres) of the 109.82 acres of

wetlands and waters on site. An additional 0.36 acres of off-site wetlands and waters would also be directly affected under all five action alternatives. The Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives would directly affect approximately 18.17 to 11.82, 9.37 to 3.94, 32.62 to 19.58 acres, and 38.40 to 20.38 acres (i.e., 20 percent, 11 percent, 30 , and 43 percent) of existing wetlands that may be habitat for special-status vernal pool invertebrates respectively.

All approved and reasonably foreseeable future projects in the city of Rancho Cordova and Eastern Sacramento County would result in a cumulative loss of approximately 411 acres of existing wetlands and waters in the region. It is roughly estimated that over approximately 50 percent of the wetland and water effects associated with all of the approved and regional reasonably foreseeable projects in this region are within the Mather Core area. Thus, if all projects are implemented, they would cumulatively result in a substantial loss of wetlands and waters in both the Mather Core area and the region as a whole. Implementation of all of the cumulative projects would also result in the increased fragmentation of wetlands and waters that are not directly affected by development, thereby reducing their habitat value.

This region supports a substantial amount of vernal pool complexes that provide habitat for Federally listed branchiopod species, as well as Federally listed plant species. Without mitigation, implementation the PA, EDP, EP, RC, and P could result in a cumulatively considerable incremental contribution to the decline of these species in the region. Remaining habitat in the vicinity of proposed development may also be degraded from increased indirect effects related to, introduction of invasive species, and alteration of hydrological patterns and function.

Implementation of all the cumulative projects could also result in the destruction and fragmentation of habitat for other special-status species that occur in this region, such as Swainson's hawk, western spadefoot, western pond turtle, VELB, and a number of other wildlife and plant species. The implementation of all projects in Table 3.0-2, in Section 3.0, "Approach to the Environmental Analysis" would result in the conversion of large, open habitat landscapes surrounded by other open space to smaller patches of habitat surrounded by urban development. The amount of available habitat for these species would be substantially reduced, and the quality of the remaining undeveloped habitat would be degraded.

Thus, even with implementation of the mitigation measures that have been incorporated into the project as Conditions of Approval as part of the EIR certification and project entitlements and additional proposed mitigation measures contained in this EIS, as well as the regional enforcement of environmental regulations and standards by Federal, state, and local resource agencies, implementation of the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, Regional Conservation, and Pilatus Alternatives could potentially contribute substantially to the regional loss and degradation of sensitive habitats and habitat for special-status wildlife and plants in the absence of additional mitigation and an approved wetland mitigation plan.

3.5 GREENHOUSE GAS EMISSIONS

3.5.1 INTRODUCTION

Emissions of greenhouse gases (GHGs) have the potential to adversely affect the environment because such emissions contribute, on a cumulative basis, to global climate change. The proper context for addressing this issue in an EIS is within an assessment of cumulative effects, because although it is unlikely that a single project would contribute significantly to climate change, cumulative emissions from many projects could affect global GHG concentrations and the climate system. Unlike criteria air pollutants and toxic air contaminants (TACs), which are pollutants of localized or regional concern, the location where GHG emissions are generated are not much of a concern. Rather, the total amount and species of GHG emissions ultimately have the most significant effect on climate change.

Cumulative effects are the collective effects of one or more past, present, and future projects that, when combined, result in adverse changes to the environment. In determining the significance of a project's contribution to anticipated adverse future conditions, a lead agency should generally undertake a two-step analysis. The first question is whether the *combined* effects from *both* the project *and* other foreseeable projects would be cumulatively significant. If the agency answers this inquiry in the affirmative, the second question is whether "the project's *incremental* effects are cumulatively considerable" and thus significant in and of themselves.

This section provides background information regarding GHG emissions and climate change and also discusses the regulatory framework on a Federal, state, regional, and local level with respect to GHG emissions. GHG effects associated with the alternatives under consideration are evaluated using local thresholds and criteria, when available. Federal and/or state thresholds are added to provide context of the project's GHG emissions.

3.5.2 AFFECTED ENVIRONMENT

EXISTING CLIMATE

The term climate refers to the accumulation of daily and seasonal weather events over a long period of time, whereas weather is defined as the condition of the atmosphere at any particular time and place (Ahrens 2003). The Cordova Hills and Pilatus sites are located in a climatic zone characterized as dry-summer subtropical or Mediterranean (abbreviated Cs) on the Köppen climate classification system. The Köppen system's classifications are primarily based on annual and monthly averages of temperature and precipitation.

The Sacramento Valley Air Basin (SVAB) is relatively flat, bordered by mountains to the east, west, and north. Air flows into the SVAB through the Carquinez Strait, the only breach in the western mountain barrier, and moves across the Sacramento–San Joaquin Delta, bringing with it pollutants from the heavily populated San Francisco Bay Area. The climate is characterized by hot, dry summers and cool, rainy winters. See Section 3.3, "Air Quality," for a more detailed description of the climate in the SVAB.

ATTRIBUTING CLIMATE CHANGE – THE PHYSICAL SCIENTIFIC BASIS

Certain gases in the earth's atmosphere, classified as GHGs, play a critical role in determining the earth's surface temperature. When high-frequency solar radiation (e.g., visible light) enters the earth's atmosphere from space

(i.e., the sun), a portion of the radiation is absorbed by the earth's surface, and a smaller portion of this radiation is reflected back toward space. The re-radiated energy by the earth is not the same high-frequency solar radiation that was received, but lower frequency infrared radiation (i.e., thermal energy). The frequencies at which bodies emit radiation are proportional to temperature. Therefore, the earth having a much lower temperature than the sun will emit lower frequency (longer wavelength) radiation (i.e., infrared radiation). When infrared radiation comes into contact with GHGs in the atmosphere, a portion of that thermal energy can be absorbed by the GHG molecule and/or re-radiated back toward the earth's surface. Both outcomes result in a "trapping" of heat within the earth's atmosphere. This phenomenon, known as the "greenhouse effect," is responsible for maintaining a habitable climate on Earth. Without the greenhouse effect, Earth would not be able to support life as we know it.

Prominent GHGs contributing to the greenhouse effect are carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), and high global warming potential (high-GWP) GHGs. Though high-GWP gases are typically emitted at lower rates than CO₂, CH₄, and N₂O, they could still have a significant contribution to climate change because they are more effective at absorbing outgoing infrared radiation than CO₂. The concept of CO₂-equivalency (CO₂e) is used to account for the different potentials of GHGs to absorb infrared radiation. This potential, known as the GWP of a GHG, is dependent on the lifetime or persistence of the gas molecule in the atmosphere, its ability to absorb/trap infrared radiation, and the spectrum of light energy (i.e., range of wavelengths and frequencies) absorbed by the gas molecule. Every GHG's GWP is measured relative to CO₂, which has a GWP of 1. High-GWP GHGs include ozone depleting substances (ODSs), chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs) and halons, in addition to their replacements, hydrofluorocarbons (HFCs). Other high-GWP GHGs include perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆). Anthropogenic (i.e., caused by humans) emissions of these GHGs leading to atmospheric levels of GHGs in excess of natural ambient concentrations are responsible for intensifying the greenhouse effect and have led to a trend of unnatural warming of the earth's atmosphere and oceans, with corresponding effects on global circulation patterns and climate (United Nations Intergovernmental Panel on Climate Change [IPCC] 2007:665). Carbon dioxide emissions associated with fossil fuel combustion for energy-related activities are the primary contributors to human-induced climate change (U.S. Environmental Protection Agency [EPA] 2011).

Climate change is a global problem because GHGs are global pollutants, unlike criteria air pollutants and TACs, which are pollutants of regional and local concern. Whereas pollutants with localized air quality effects have relatively short atmospheric lifetimes (about one day), GHGs have long atmospheric lifetimes (one year to several thousand years). GHGs persist in the atmosphere for a long enough time to be dispersed around the globe. Although the exact lifetime of any particular GHG molecule depends on multiple variables and cannot be pinpointed, more CO₂ is currently emitted into the atmosphere than is sequestered. Carbon dioxide sinks, or reservoirs, include vegetation and the ocean, which absorb CO₂ through photosynthesis and dissolution, respectively. These are two of the most common processes of CO₂ sequestration. Of the total annual human-caused CO₂ emissions, approximately 54 percent is sequestered through ocean uptake, northern hemisphere forest regrowth, and other terrestrial sinks within a year, whereas the remaining 46 percent of human-caused CO₂ emissions remain stored in the atmosphere (Seinfeld and Pandis 1998:1091).

Similarly, effects of GHGs are borne globally, as opposed to localized air quality effects of criteria air pollutants and TACs. GHG emissions generated in the United States could contribute to climate change effects in other countries or continents. The quantity of GHGs that it takes to ultimately result in climate change is not precisely known; suffice it to say that the quantity is enormous, and no single project would be expected to measurably contribute to a noticeable incremental change in the global average temperature, or to global, local, or micro-climate.

ATTRIBUTING CLIMATE CHANGE – GREENHOUSE GAS EMISSIONS SOURCES

Emissions of GHGs contributing to global climate change are attributable in large part to human activities associated with the transportation, industrial/manufacturing, utility, residential, commercial and agricultural emissions sectors (California Air Resources Board [ARB] 2010). In California, the transportation sector is the largest emitter of GHGs, followed by electricity generation (ARB 2010).

Emissions of CO₂ are byproducts of fossil fuel combustion. Methane, a highly potent GHG, results from off-gassing (the release of chemicals from nonmetallic substances under ambient or greater pressure conditions) and is largely associated with anaerobic conditions (i.e., lack of oxygen) found in natural resources (e.g., wetlands), agricultural practices, and landfills. Nitrous oxide is also largely attributable to agricultural practices and soil management. Carbon dioxide sinks, or reservoirs, include vegetation and the ocean, which absorb CO₂ through sequestration and dissolution, respectively, two of the most common processes of CO₂ sequestration.

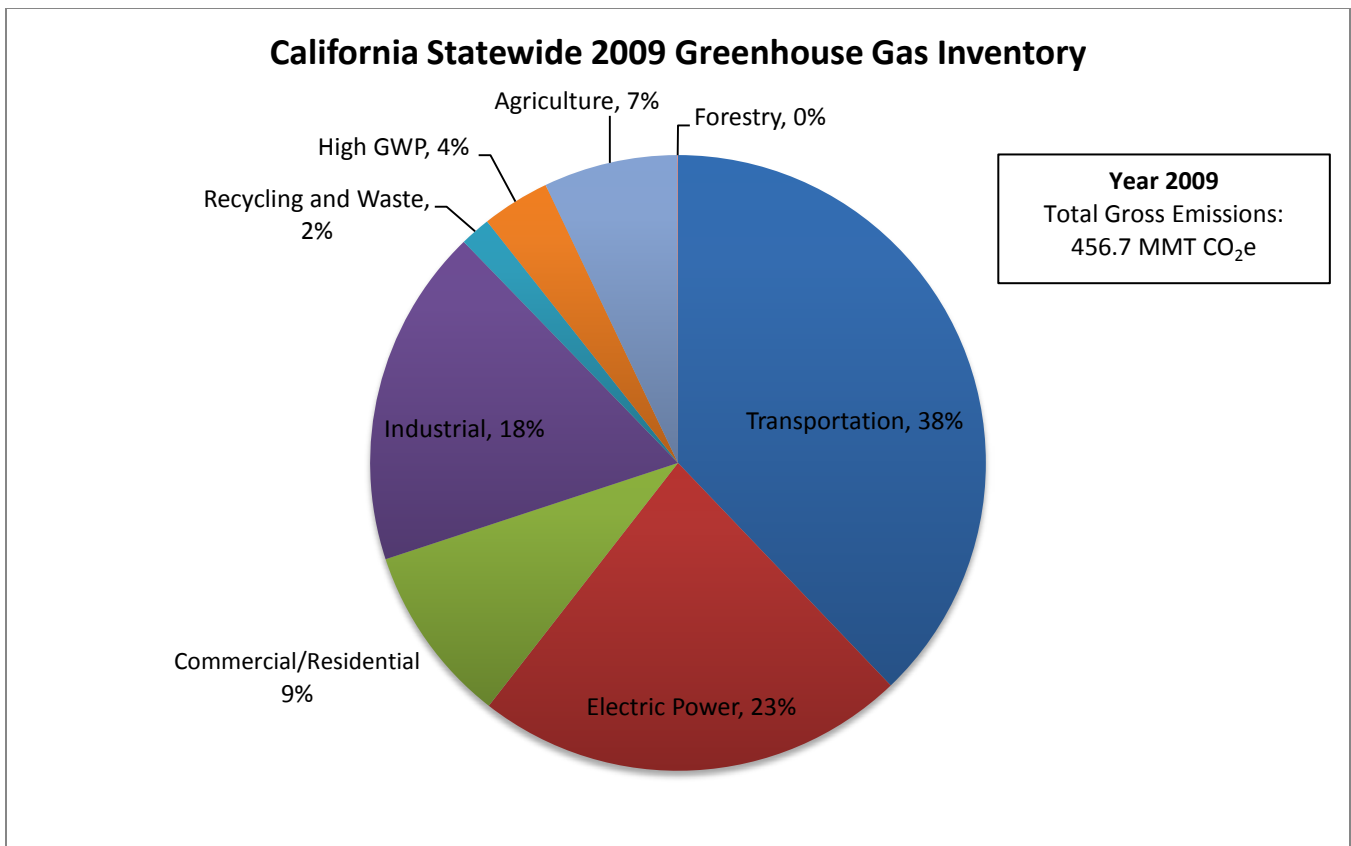
Land use decisions and development projects are not themselves GHG emissions sectors; however, land use decisions can affect the generation rate of GHG emissions from several sectors (e.g., transportation, energy consumption, water, and waste). In addition, activities associated with the long-term operation of development projects can result in direct or indirect GHG emissions. Direct emissions are GHG emissions that are generated at the site of consumption. For example, the use of natural gas for space or water heating generates direct GHG emissions because the natural gas is combusted at the site where the heat is used. Conversely, the use of electricity generates indirect GHG emissions because although the consumer may use the electricity at their home, the generation of that electricity and subsequent GHG emissions (if fossil fuel is used for generation) are likely being generated off-site. The following sections describe the major GHG emission sectors and their associated emissions at the state and local level.

STATE GREENHOUSE GAS INVENTORY

As the second largest emitter of GHG emissions in the United States and twelfth to sixteenth largest in the world, California contributes a significant quantity of GHGs to the atmosphere. (California Energy Commission [CEC] 2006:i). Emissions of CO₂ are byproducts of fossil-fuel combustion and are attributable in large part to human activities associated with the transportation, industry, electricity generation, natural gas consumption, and agriculture (ARB 2011). In California, the transportation sector is the largest emitter of GHGs, followed by electricity generation (ARB 2011) (see Exhibit 3.5-1).

LOCAL INVENTORY

The Cordova Hills and Pilatus sites are located in the unincorporated area of Sacramento County. A GHG emissions inventory was developed for each incorporated city in Sacramento County and the unincorporated area of Sacramento County (County) for the year 2005 (County of Sacramento 2011). The unincorporated County's GHG emissions totaled approximately 4,987,668 metric tons of CO₂e in 2005, or approximately 40 percent of Sacramento County's total GHG emissions (i.e., 12,404,208 MT CO₂e). For the unincorporated Sacramento County, on-road transportation emissions accounted for 41.4 percent of GHG emissions, followed by approximately 20.7 percent and 15.4 percent from residential and commercial/industrial land uses, respectively (County of Sacramento 2011).



Source: ARB 2011

Exhibit 3.5-1

2009 California GHG Emissions by Sector

3.5.3 REGULATORY FRAMEWORK/APPLICABLE LAWS, REGULATIONS, PLANS, AND POLICIES

State laws and regulations are provided for informational purposes and to assist with NEPA review. USACE has considered applicable state, regional, and local plans and ordinances as a part of the environmental review process for this EIS, such as those under the jurisdiction of Sacramento Metropolitan Air Quality Management District (SMAQMD), as NEPA Cooperating Agency for this EIS.

Sacramento County certified an EIR and approved the Proposed Action in January 2013. State, regional, and local plans, policies, laws, and ordinances were considered in the EIR and adopted mitigation measures have been incorporated into the Proposed Action.

FEDERAL PLANS, POLICIES, REGULATIONS, AND LAWS

Supreme Court Ruling on California Clean Air Act Waiver

The EPA is the Federal agency responsible for implementing the Federal Clean Air Act (CAA). The U.S. Supreme Court ruled on April 2, 2007 that CO₂ is an air pollutant as defined under the CAA, and that EPA has the authority to regulate emissions of GHGs. However, there are no Federal regulations or policies regarding GHG emissions applicable to the Proposed Action or alternatives under consideration. See Assembly Bill (AB) 1493 for further information on the California Clean Air Act (CCAA) Waiver.

Energy Independence and Security Act of 2007 and Corporate Average Fuel Economy Standards

The Energy Independence and Security Act of 2007 (EISA) amended the Energy Policy and Conservation Act (EPCA) to further reduce fuel consumption and expand production of renewable fuels. The EISA's most important amendment includes a statutory mandate for the National Highway Traffic Safety Administration (NHTSA) to set passenger car corporate average fuel economy (CAFE) standards for each model year (MY) at the maximum feasible level. This statutory mandate also eliminates the old default CAFE standard of 27.5 miles per gallon (mpg). The EISA requires that CAFE standards for MY 2011-2020 be set sufficiently high to achieve the goal of an industry-wide passenger car and light-duty truck average CAFE standard of 35 mpg. The rule making for this goal, per President Obama's request, has been divided into two separate parts. The first part, which was published in the Federal Register in March 2009, includes CAFE standards for MY 2011 in order to meet the statutory deadline (i.e., March 30, 2009). The second part of the rulemaking applies to MY 2012 and subsequent years. These would be the maximum CAFE standards feasible under the limits of the EPCA and EISA. The NHTSA and the EPA are currently working in coordination to develop a national program targeting MY 2012–2016 passenger cars and light trucks.

U.S. Environmental Protection Agency Proposed Regulations

In response to the mounting issue of climate change, EPA has taken the following actions to regulate, monitor, and potentially reduce GHG emissions.

Proposed Mandatory Greenhouse Gas Reporting Rule

On September 22, 2009, EPA issued a final rule for mandatory reporting of GHGs from large GHG emissions sources in the United States. In general, this national reporting requirement will provide EPA with accurate and timely GHG emissions data from facilities that emit 25,000 metric tons (MT) or more of CO₂ per year. This publically available data will allow the reporters to track their own emissions, compare them to similar facilities, and aid in identifying cost-effective opportunities to reduce emissions in the future. Reporting is at the facility level, except that certain suppliers of fossil fuels and industrial GHG emitters, along with vehicle and engine manufacturers, will report at the corporate level. An estimated 85 percent of the total U.S. GHG emissions, from approximately 10,000 facilities, are covered by this final rule.

Program to Cut Greenhouse Gas Emissions and Improve Fuel Economy for Cars and Trucks

On September 15, 2009, EPA and the U.S. Department of Transportation's NHTSA proposed a new national program that would reduce GHG emissions and improve fuel economy for all new cars and trucks sold in the United States. EPA proposed the first-ever national GHG emissions standards under the CAA, and NHTSA proposed Corporate Average Fuel Economy standards under the Energy Policy and Conservation Act. This proposed national program would allow automobile manufacturers to build a single light-duty national fleet that satisfies all requirements under both Federal programs and the standards of California and other states.

Proposed Endangerment and Cause or Contribute Findings for Greenhouse Gases

On December 7, 2009, EPA adopted its *Proposed Endangerment and Cause or Contribute Findings for Greenhouse Gases* under the CAA (Endangerment Finding). The Endangerment Finding is based on Section 202(a) of the CAA, which states that the EPA Administrator should regulate and develop standards for

“emission[s] of air pollution from any class of classes of new motor vehicles or new motor vehicle engines, which in [its] judgment cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare.” The rule addresses Section 202(a) in two distinct findings. The first addresses whether or not the concentrations of the six key GHGs (i.e., CO₂, CH₄, N₂O, HFCs, perfluorocarbons, and SF₆) in the atmosphere threaten the health and welfare of current and future generations. The second addresses whether or not the combined emissions of GHGs from new motor vehicles and motor vehicle engines contribute to atmospheric concentrations of GHGs and thus to the threat of climate change.

The EPA Administrator found that atmospheric concentrations of GHGs endanger public health and welfare within the meaning of Section 202(a) of the CAA. The EPA Administrator also found that GHG emissions from new motor vehicles and motor vehicle engines are contributing to air pollution, which is endangering public health and welfare.

STATE PLANS, POLICIES, REGULATIONS, AND LAWS

Several statewide initiatives relevant to land use planning are discussed below; however, this does not represent a complete list of climate change-related legislation in California.

Assembly Bill 1493

In 2002, then-Governor Gray Davis signed AB 1493. AB 1493 requires that ARB develop and adopt, by January 1, 2005, regulations that achieve “the maximum feasible reduction of greenhouse gases emitted by passenger vehicles and light-duty trucks and other vehicles determined by ARB to be vehicles whose primary use is noncommercial personal transportation in the state.”

To meet the requirements of AB 1493, in 2004 ARB approved amendments to the California Code of Regulations (CCR) adding GHG emissions standards to California’s existing standards for motor vehicle emissions. Amendments to CCR Title 13, Sections 1900 and 1961 (13 CCR 1900, 1961), and adoption of Section 1961.1 (13 CCR 1961.1) require automobile manufacturers to meet fleet-average GHG emissions limits for all passenger cars, light-duty trucks within various weight criteria, and medium-duty passenger vehicle weight classes (i.e., any medium-duty vehicle with a gross vehicle weight rating less than 10,000 pounds that is designed primarily for the transportation of persons), beginning with the 2009 model year. For passenger cars and light-duty trucks with a loaded vehicle weight (LVW) of 3,750 pounds or less, the GHG emission limits for the 2016 model year are approximately 37 percent lower than the limits for the first year of the regulations, the 2009 model year. For light-duty trucks with LVW of 3,751 pounds to gross vehicle weight (GVW) of 8,500 pounds, as well as medium-duty passenger vehicles, GHG emissions would be reduced approximately 24 percent between 2009 and 2016. These emissions limits were the subject of litigation, but EPA approved a waiver on June 30, 2009 permitting ARB to implement the regulation.

Executive Order S-3-05

Executive Order S-3-05 established total GHG emission targets. Specifically, emissions are to be reduced to the 2000 level by 2010, the 1990 level by 2020, and to 80 percent below the 1990 level by 2050.

The Executive Order directed the Secretary of the California Environmental Protection Agency (CalEPA) to coordinate a multiagency effort to reduce GHG emissions to the target levels. The Secretary must also submit biannual reports to the Governor and State Legislature describing: progress made toward reaching the emission

targets; effects of global warming on California's resources; and mitigation and adaptation plans to combat these effects. To comply with the Executive Order, the Secretary of the CalEPA created the California Climate Action Team (CCAT) made up of members from various state agencies and commission. CCAT released its first report in March 2006. The report proposed to achieve the targets by building on voluntary actions of California businesses, local government and community actions, as well as through state incentive and regulatory programs.

Assembly Bill 32, the California Global Warming Solutions Act of 2006

AB 32 establishes regulatory, reporting, and market mechanisms to achieve quantifiable reductions in GHG emissions and a cap on statewide GHG emissions. AB 32 requires that statewide GHG emissions be reduced to 1990 levels by 2020. This reduction will be accomplished through an enforceable statewide cap on GHG emissions that will be phased in starting in 2012. To effectively implement the cap, AB 32 directs ARB to develop and implement regulations to reduce statewide GHG emissions from stationary sources. AB 32 specifies that regulations adopted in response to AB 1493 should be used to address GHG emissions from vehicles. However, AB 32 also includes language stating that if the AB 1493 regulations cannot be implemented, then ARB should develop new regulations to control vehicle GHG emissions under the authorization of AB 32.

AB 32 requires that ARB adopt a quantified cap on GHG emissions representing 1990 emissions levels and disclose how it arrives at the cap; institute a schedule to meet the emissions cap; and develop tracking, reporting, and enforcement mechanisms to ensure that the state achieves the reductions in GHG emissions necessary to meet the cap. AB 32 also includes guidance to institute emissions reductions in an economically efficient manner and conditions to ensure that businesses and consumers are not unfairly affected by the reductions.

Senate Bill 1368

Senate Bill (SB) 1368 requires the California Public Utilities Commission (CPUC) to establish a GHG performance standard for baseload generation from investor-owned utilities by February 1, 2007. The CEC must establish a similar standard for local publicly owned utilities by June 30, 2007. These standards cannot exceed the GHG emission rate from a baseload combined-cycle natural gas fired plant. The legislation further requires that all electricity provided to California, including imported electricity, must be generated from plants that meet the standards set by the CPUC and CEC.

Executive Order S-1-07

Executive Order S-1-07 establishes a goal that the carbon intensity of transportation fuels sold in California should be reduced by a minimum of 10 percent by 2020. This order also directed ARB to determine if this Low Carbon Fuel Standard (LCFS) could be adopted as a discrete early action measure after meeting the mandates in AB 32. ARB adopted the LCFS on April 23, 2009.

Senate Bill 97

SB 97, signed August 2007, acknowledges that climate change is a prominent environmental issue that requires analysis under CEQA. This bill directs the Governor's Office of Planning and Research (OPR) to prepare, develop, and transmit to the California Natural Resources Agency guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions, as required by CEQA by July 1, 2009. The California Natural Resources Agency adopted those guidelines on December 30, 2009, and the guidelines became effective March 18, 2010.

Senate Bill 375

SB 375 aligns regional transportation planning efforts, regional GHG emission reduction targets, and land use and housing allocation. SB 375 requires Metropolitan Planning Organizations (MPOs) to adopt a Sustainable Communities Strategy (SCS) or Alternative Planning Strategy (APS), which will prescribe land use allocation in that MPO's Regional Transportation Plan (RTP). ARB, in consultation with MPOs, will provide each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in the region for the years 2020 and 2035. These reduction targets will be updated every 8 years, but can be updated every 4 years if advancements in emissions technologies affect the reduction strategies to achieve the targets. ARB is also charged with reviewing each MPO's SCS or APS for consistency with its assigned targets. If MPOs do not meet the GHG emission reduction targets, transportation projects would not be eligible for funding programmed after January 1, 2012.

City or county land use policies (including general plans) are not required to be consistent with the RTP (and associated SCS or APS). However, new provisions of CEQA would incentivize qualified projects that are consistent with an approved SCS or APS, categorized as "transit priority projects." In April 2012, the Sacramento Area Council of Governments (SACOG), which is the applicable MPO in the region, adopted its current metropolitan transportation plan/SCS. The purpose of the SCS is not to present a prescriptive land use map similar to a general or specific plan. Rather, the SCS is a regional planning document that contains land use, housing, and transportation strategies for existing and future development. Implementation of these strategies and measures must be demonstrated to meet regional GHG targets.

In a technical review of the SACOG SCS, ARB confirmed that the SACOG SCS would achieve a 9 percent per capita reduction in GHG emissions in 2020, and a 16 percent per capita reduction in GHG emissions in 2035, which would meet the ARB-established SACOG SCS targets of 7 percent and 16 percent per capita GHG reductions from baseline 2005 levels by 2020 and 2035, respectively (ARB 2012).

Assembly Bill 32, Climate Change Scoping Plan

On December 11, 2008 ARB adopted its *Climate Change Scoping Plan* (Scoping Plan), which functions as a roadmap of ARB's plans to achieve GHG reductions in California required by AB 32 through subsequently enacted regulations (ARB 2009). The Scoping Plan contains the main strategies California will implement to reduce CO₂e emissions by 169 million metric tons (MMT), or approximately 30 percent, from the state's projected 2020 emissions level of 596 MMT of CO₂e under a business-as-usual scenario. (This is a reduction of 42 MMT CO₂e, or almost 10 percent, from 2002–2004 average emissions, but requires the reductions in the face of population and economic growth through 2020). The Scoping Plan also breaks down the amount of GHG emissions reductions ARB recommends for each emissions sector of the state's GHG inventory. The Scoping Plan calls for the largest reductions in GHG emissions to be achieved by implementing the following measures and standards:

- ▶ improved emissions standards for light-duty vehicles (estimated reductions of 31.7 MMT CO₂e),
- ▶ the LCFS (15.0 MMT CO₂e),
- ▶ energy efficiency measures in buildings and appliances and the widespread development of combined heat and power systems (26.3 MMT CO₂e), and

- ▶ a renewable portfolio standard for electricity production (21.3 MMT CO₂e).

In addition, with respect to the Proposed Action and the Alternatives, the Scoping Plan also includes a Medium/Heavy Duty Vehicle reduction measure that is anticipated to achieve approximately 1.4 MMT CO₂e in year 2020 (ARB 2009). ARB has not yet determined what amount of GHG emissions reductions it recommends from local government land use decisions; however, the Scoping Plan does state that successful implementation of the plan relies on local governments' land use planning and urban growth decisions because local governments have primary authority to plan, zone, approve, and permit land development to accommodate population growth and the changing needs of their jurisdictions. ARB further acknowledges that decisions on how land is used will have large effects on the GHG emissions that will result from the transportation, housing, industry, forestry, water, agriculture, electricity, and natural gas emission sectors. The Scoping Plan states that the ultimate assignment to local government operations is to be determined (ARB 2009).

The Scoping Plan expects a reduction of approximately 5.0 MMT CO₂e from local land use changes associated with implementation of SB 375, discussed above (ARB 2009). The Scoping Plan does not include any direct discussion about GHG emissions generated by construction activity.

Addressing Climate Change at the Project Level: California Attorney General's Office

In January 2010, the California Attorney General's Office released a document to assist local agencies with addressing climate change and sustainability at the project level under CEQA. The document provides examples of various measures that may reduce the effects related to climate change at the individual project level. As appropriate, the measures can be included as design features of a project, required as changes to the project, or imposed as mitigation (whether undertaken directly by the project proponent or funded by mitigation fees).

REGIONAL AND LOCAL PLANS, POLICIES, REGULATIONS, AND ORDINANCES

Sacramento Metropolitan Air Quality Management District

SMAQMD regulates local air quality and air quality sources in the study area. In their most recent revision of the *CEQA Guide to Air Quality Assessment*, SMAQMD included a greenhouse gas chapter (Chapter 6) that discusses their approach to evaluating GHG emissions. SMAQMD states that GHG emissions should first be evaluated and addressed on a program-level if possible. For project-level analyses, SMAQMD also includes a list of analysis expectations and methodologies for CEQA practitioners. Specifically for construction emissions, SMAQMD recommends that total construction emissions are amortized over the lifetime of the project to provide a reasonable annual emissions value (SMAQMD 2013). However, the guidance did not establish a numerical threshold, rather stating that any threshold used to evaluate GHG emissions should be linked to the AB 32 Scoping Plan, which is the plan for California to achieve its GHG emission reduction goals. In addition, the Greenhouse Gas Emissions section from CEQA Checklist Form (Appendix G) should be used to evaluate a project's significance with respect to GHG emissions.

Sacramento County Climate Action Plan

In November 2011, Sacramento County adopted their Climate Action Plan (CAP). The CAP is the County's blueprint for achieving their fair share GHG emission reductions pursuant to AB 32 targets. As an initial analysis, the CAP performed an emissions inventory that determined the relative GHG emission contributions from various emissions sectors. For Sacramento County, on-road transportation, residential energy use, and commercial and

industrial energy use were the three largest emission sectors, accounting for 41.4, 20.7, and 15.4 percent, respectively (Sacramento County 2011). At the time of this writing, only the first phase of the CAP has been completed, which focuses on municipal operations and evaluating current programs, investments, and initiatives for reducing GHG emissions. The second phase of the CAP would begin to evaluate community-wide emissions and activities, along with specific cost-effective GHG reduction strategies for the community.

3.5.4 ANALYSIS METHODOLOGY

This analysis relies on site-specific GHG modeling and information provided from Section 3.15, “Traffic and Transportation.”

GHG effects that could result from construction and operational activities related to buildout of the alternatives under consideration were evaluated based on required construction activities for the proposed land uses, schedule of construction, and location of activities. For construction emissions, it was assumed that in a worst-case year, approximately 10 percent of the land uses would be constructed. In reality, the rate of buildout would be highly dependent on market and economic conditions. Nevertheless, construction-related emissions were modeled using this conservative assumption using CalEEMod Version 2013.2.2. Total construction-related GHG emissions resulting from full buildout of the Proposed Action or Alternatives were calculated by multiplying the worst-case year by 10. Operational emissions evaluated in this analysis were obtained from the Cordova Hills Final EIR, which had modeled operational GHG emissions. For criteria air pollutants, this EIS analysis distinguishes between **direct** and **indirect** emissions for the purposes of the General Conformity Rule. However, the General Conformity Rule does not apply to GHG emissions and thus there is no differentiation between **indirect** or **direct** emissions for the purposes of this GHG analysis. Construction and operational emissions were compared with the applicable thresholds described below to determine significance. At the time of this analysis, the applicable air district (SMAQMD) and ARB have not established a specific construction-related GHG threshold of significance. However, SMAQMD has suggested that construction-related GHG emissions could be amortized over the expected lifetime of the project and added to annual operational emissions to be evaluated (SMAQMD 2013). Thus, this analysis amortizes total construction-related GHG emissions and adds them to annual operational emissions for evaluation against the significance thresholds described below.

Because the Final EIR has already been certified, all Final EIR Mitigation Measures, the Rezone and Tentative Large Lot Parcel Map Conditions of Approval, and the obligations found in the Development Agreement (collectively referred to as the project entitlements) are considered a part of the Proposed Action. Thus, these measures and requirements are considered when analyzing the significance of effects under the Proposed Action. Because the project entitlements were imposed on the Proposed Action by the County as part of its approval process, it is reasonable to assume that if one of the action alternatives were adopted, the County would impose similar conditions during the entitlement of the alternative.

THRESHOLDS OF SIGNIFICANCE

The determinations of the significance of effects for this analysis are based on professional standards regularly used in environmental review documents in the region. These thresholds encompass the factors taken into account under NEPA to determine the significance of an action in terms of its context and the intensity of its effects. These are also informed by the environmental checklist in Appendix G of the State CEQA Guidelines. The Proposed Action or alternatives under consideration were determined to result in a significant effect related to GHG emissions if they would do any of the following:

- ▶ generate GHG emissions, either directly or indirectly, that may have a significant effect on the environment; or
- ▶ conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs.

This analysis evaluates the proposed GHG emissions against the April 2011 Sacramento Climate Action Plan’s per capita thresholds of 1.33 MT CO₂e/capita, 7.87 MT CO₂e/capita, and 2.67 MT CO₂e/capita for residential energy, commercial energy, and transportation emissions. These efficiency thresholds focus on the rate of GHG emissions generated per capita rather than the overall emissions. To meet GHG reduction targets while maintaining growth in the state, it is more important to evaluate how GHG-efficient a project is to serve the population’s needs rather than the sheer size of a project.

The Proposed Action and the Alternatives are subject to the actions and requirements of a state and local GHG reduction plan. At the state level, the AB 32 Scoping Plan is the overarching GHG reduction plan for all projects within California. At the local level, Sacramento County has also developed the first phase of its Climate Action Plan, which is focused on existing and potential government operations to reduce GHG emissions within the county (County of Sacramento 2011). Although the Proposed Action is a communitywide development, for which Sacramento County has not yet developed a climate action plan, this analysis evaluates the Proposed Action’s GHG emissions (and emissions of the Alternatives) using the GHG thresholds established in the April 2011 EIR for Sacramento County’s General Plan Update (see Table 3.5-2). For consistency with an applicable GHG reduction plan, this analysis uses consistency of the alternatives under consideration with the AB 32 Scoping Plan, as recommended by SMAQMD. SMAQMD states that any threshold used to evaluate GHG emissions should be linked to the AB 32 Scoping Plan, which is the plan for California to achieve its GHG emission reduction goals. In addition, SMAQMD recommends that the Greenhouse Gas Emissions section from CEQA Checklist Form (Appendix G) should be used to evaluate a project’s significance with respect to GHG emissions.

3.5.5 ENVIRONMENTAL CONSEQUENCES AND MITIGATION MEASURES

EFFECTS ANALYSIS

Effects that would occur under each alternative development scenario are identified as follows: NA (No Action), PA (Proposed Action), EDP (Expanded Drainage Preservation), EP (Expanded Preservation), P (Pilatus), and RC (Regional Conservation). The effects for each alternative are compared relative to the PA at the end of each effect conclusion (i.e., similar, greater, lesser).

EFFECT 3.5-1	Generation of GHGs. <i>The Proposed Action or Alternatives would generate GHG emissions that would exceed the applicable thresholds of significance.</i>
-----------------	--

NA

Under the No Action Alternative, the Cordova Hills and Pilatus sites would not be developed and no construction or operational GHG emissions would occur. Therefore, there would be **no indirect** or **direct** construction or operational effects to GHGs. *[Lesser]*

Mitigation Measure: No mitigation measures are required.

PA

Construction

Construction of the Proposed Action would generate temporary and short-term GHG emissions from various construction activities. The primary source of construction-related GHG emissions would be exhaust emissions from off-road construction equipment, material delivery trucks, haul trucks, and construction worker vehicles. Although construction-related GHG emissions would cease following completion of the Proposed Action, construction emissions could represent a substantial contribution of GHG emissions. Table 3.5-1 presents the Proposed Action's worst-case annual, total, and amortized construction emissions.

Table 3.5-1 Proposed Action Construction Emissions	
Construction Phase	Emissions (MT CO ₂ e/yr)
Site Preparation	81
Grading	194
Building Construction	1,045
Asphalt Paving	97
Architectural Coating	70
Annual Construction Emissions ¹	1,487
Total Construction Emissions ²	14,872
Amortized Construction Emissions ³	595

Notes: MT CO₂e/yr = metric tons of carbon dioxide equivalent per year

¹ Annual construction emissions were modeled assuming a worst-case 10 percent of total Proposed Action land uses would be constructed in a single year.

² Total construction emissions resulting from full buildout of the Proposed Action were calculated by multiplying the worst-case construction year (i.e., 10 percent of the land uses) by 10.

³ Amortized construction emissions were calculated by dividing the total construction emissions by 25 years, which is the recommended lifetime of commercial land uses. Although the Proposed Action would involve commercial land uses and residential land uses, which have a recommended lifetime of 40 years, for the purposes of a conservative analysis, the Proposed Action was assumed to have a lifetime of 25 years.

Source: Modeled by AECOM in 2014; SMAQMD 2013

In addition, pursuant to the recommendations of SMAQMD, the project applicant committed to implementing various construction best management practices for the Proposed Action. The SMAQMD-recommended measures are listed below:

- ▶ Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to no more than 3 minutes (5 minute limit is required by the state airborne toxics control measure [Title 13, sections 2449(d)(3) and 2485 of the California Code of Regulations]). Provide clear signage that posts this requirement for workers at the entrances to the site.

- ▶ Maintain all construction equipment in proper working condition according to manufacturer's specifications. The equipment must be checked by a certified mechanic and determined to be running in proper condition before it is operated.
- ▶ Train equipment operators in proper use of equipment.
- ▶ Use the proper size of equipment for the job.
- ▶ Use equipment with new technologies (repowered engines, electric drive trains).
- ▶ Perform on-site material hauling with trucks equipped with on-road engines (if determined to be less emissive than the off-road engines).
- ▶ Use alternative fuels for generators at construction sites such as propane or solar, or use electrical power.
- ▶ Use an ARB approved low carbon fuel for construction equipment. (NOx emissions from the use of low carbon fuel must be reviewed and increases mitigated.)
- ▶ Encourage and provide carpools, shuttle vans, transit passes and/or secure bicycle parking for construction worker commutes.
- ▶ Reduce electricity use in the construction office by using compact fluorescent bulbs, powering off computers every day, and replacing heating and cooling units with more efficient ones.
- ▶ Recycle or salvage non-hazardous construction and demolition debris (goal of at least 75 percent by weight). Use locally sourced or recycled materials for construction materials (goal of at least 20 percent based on costs for building materials, and based on volume for roadway, parking lot, sidewalk and curb materials). Wood products utilized should be certified through a sustainable forestry program.
- ▶ Minimize the amount of concrete for paved surfaces or use a low carbon concrete option.
- ▶ Produce concrete on-site if determined to be less emissive than transporting ready mix.
- ▶ Use SmartWay certified trucks for deliveries and equipment transport.
- ▶ Develop a plan to efficiently use water for adequate dust control.

As discussed above, amortized construction emissions were added to annual operational emissions to evaluate the projected annual GHG emissions under the Proposed Action. Thus, the construction emissions shown in Table 3.5-1 are evaluated further below.

Operation

Following buildout of the Proposed Action, long-term operational GHG emissions would be generated from a variety of the Proposed Action's day-to-day activities. Operational GHG emissions are categorized as direct and indirect GHG sources. Direct GHG sources are those where the point of activity consumption and generation of GHG emissions occurs in the same place. For example, combustion of natural gas for space and water heating generates GHG emissions at the same location where the water or space heating occurs. Conversely, indirect

GHG sources are those where GHG emissions are generated at another location or another time than where the consumption activity occurs. The most prominent and clear examples of indirect GHG sources are electricity and water consumption. For electricity consumption, the electricity is consumed at a residential or commercial land use; however, the electricity consumed was likely generated at a power plant at a different location and at a different time. For water consumption, the water is also consumed at a residential or commercial location; however, the energy-related (e.g., electricity or natural gas) emissions associated with conveyance, treatment, and distribution of the water were generated at different locations and at different times. Table 3.5-2 presents the Proposed Action’s annual operational emissions.

Table 3.5-2 Proposed Action Annual Operational Emissions				
Emissions Source	Annual Emissions (MT CO ₂ e)	Per Capita Emissions (MT CO ₂ e/capita)	Thresholds of Significance	Exceeds Threshold?
Transportation	80,741	3.28	2.67 ¹	Yes
Residential Energy	30,100	1.18	1.33 ¹	No
Commercial Energy	15,634	0.62	7.87 ²	No
Total Operational Emissions	127,070	-	-	-
Amortized Construction	595	-	-	-

Notes: MT CO₂e = metric tons of carbon dioxide equivalent per year
¹ Threshold is in units of annual MT CO₂e per capita.
² Emissions and threshold is in units of annual MT CO₂e per thousand square feet.
Source: Sacramento County 2013:Table CC-15, modeled by AECOM in 2014; SMAQMD 2013

As shown in Table 3.5-2, the Proposed Action would generate per capita emissions that exceed the per capita thresholds for transportation, but not for residential energy and commercial energy. Therefore, using the Sacramento County Climate Action Plan’s April 2011 thresholds of significance, the Proposed Action’s **direct** and **indirect** GHG emissions would be considered a **significant** adverse effect.

As part of the CEQA EIR certification and project approval process, the project applicant committed to implementing various mitigation measures for the Proposed Action. The mitigation measures that are applicable to this effect that were incorporated into the Proposed Action by the EIR mitigation measures, conditions of approval, and development agreement (project entitlements) are listed below:

- ▶ All amendments to the SPA with the potential to change SPA-wide GHG emissions shall include an analysis which quantifies, to the extent practicable, the effect of the Amendment on SPA-wide greenhouse gas emissions. The Amendment shall not increase SPA-wide greenhouse gas emissions above an average 5.80 metric tons per capita (including emissions from building energy usage and vehicles). If the SPA amendment would require a change in the approved GHG Reduction Plan in order to meet the 5.80 MT CO₂e threshold, then the proponent of the SPA amendment shall consult with the Sacramento County Environmental Coordinator on the revised analysis and shall prepare a revised a GHG Reduction Plan for approval by the County, who will coordinate with SMAQMD. (*Final EIR Mitigation Measure CC-1*)

In addition, the Proposed Action has developed a Greenhouse Gas Reduction Plan that was approved by SMAQMD, which would also be incorporated into the Proposed Action. The full Cordova Hills Greenhouse Gas

Reduction Plan is included in Appendix G. The mitigation measures from the Cordova Hills Greenhouse Gas Reduction Plan that are applicable to this effect are listed below by category:

Bicycle/Pedestrian/Transit Measures

- ▶ SMAQMD 1 (Bike Parking): Each non-residential project shall provide short-term facilities at 1 bike rack/20 vehicle spaces within 50' of primary entrances, and long-term facilities to include one of the following: a bicycle locker, a locked room with facilities with access limited to bicyclists, or a rack in location that is staffed or monitored by video surveillance during operating hours.
- ▶ SMAQMD 4 (Proximity to Bike Path/Bike Lanes): The entire project is located within 1/2 mile of Class I or Class II bike lanes or pedestrian trails. The facilities will be developed as part of a phased project.
- ▶ SMAQMD 5 (Pedestrian Network): The Circulation Section of the SPA designates the street cross sections that require and locate the pedestrian sidewalks and trails. Trails will connect with planned external streets. The project entails over 55.4 miles of pedestrian/bicycle trails connecting the community.
- ▶ SMAQMD 6 (Pedestrian Barriers Minimized): The SPA requires that pedestrian barriers be minimized for each project.
- ▶ SMAQMD 9 (Traffic Calming): All sidewalks are 5' wide, skewed intersections have been avoided, intersections include one of the following: marked crosswalks, count-down signal timers, curb extensions, speed tables, raised crosswalks, raised intersections, median islands, tight corner radii, roundabouts or mini-circles. Streets feature on-street parking, planter strips with street trees, chicanes/chokers. Rolled curbs will be used to allow implementation of LID strategies and in residential neighborhoods.
- ▶ SMAQMD 33 (Transportation Management Association membership): A permanent TMA membership and funding to be provided by Community Facilities District or County Service District or other non-revocable funding mechanism. The TMA will include both commercial and residential properties.
- ▶ SMAQMD 99 (OAG 43) (Transit System): Provide a community transit service to public transit. Headways are proposed to be 15 minutes during peak hours and 30 minutes during all other times of the day. 94 percent of all homes will be within ½ mile of a transit stop (see Figure 8b: Proximity to Transit). Transfers would be minimized and the service would operate such that “timed transfers” are possible when they are necessary.
- ▶ SMAQMD 99 (OAG 42) (Transportation Center): Build or fund a transportation center where various public transportation modes intersect in the Town Center and provide a Park and ride facility in the Buffer Area.

Parking Measures

- ▶ SMAQMD 12 (Parking Reduction Beyond Code): The University will prohibit freshman students from keeping cars on campus. Housing in University Village will require students walk to the campus. Parking for employees will be time restricted. Trip reductions shall be computed in the same manner as above. Maximum achievable trip reduction is 12 percent.

- ▶ SMAQMD 13 (Pedestrian Pathway Through Parking): Each development will provide a parking lot design that includes clearly marked and shaded pedestrian trailways between transit facilities and building entrances as required in Section 6.11.2.2 of the Master Plan.
- ▶ SMAQMD 99 (Shared Parking Strategy): The plan limits parking for all new development to no more than minimum required by code. Up to 50 percent of all parking generated may be accommodated through a shared parking strategy.
- ▶ SMAQMD 99 (Shared Vehicle Program): Provide up to 30 shared vehicles (ZipCars) located on the University Campus to reduce parking requirements for up to 450 vehicles.

Site Design Measures

- ▶ SMAQMD 17 (Orientation Toward Planned Transit, Bikeway, or Pedestrian Corridor): Setback distance between project and existing or planned uses; between project building and planned or existing sidewalks are minimized. Buildings are oriented towards existing or planned street frontage. Primary entrances to building are located along planned or existing public street frontage. Project provides bicycle access to all planned bicycle corridors.
- ▶ SMAQMD 18 (Residential Density): The overall net density of Cordova Hills is 10.4 units/acre.
- ▶ SMAQMD 20 (Neighborhood Electric Vehicle Access): NEVs are permitted on all streets with speed limits <35 mph. If speed limits are >35 mph then there will be a dedicated lane. Allowing NEVs on all streets within Cordova Hills will be required in the SPA/ordinance.
- ▶ SMAQMD 23 (Suburban Mixed-Use): Have at least three of the following on site and/or off-site within ¼ mile: Residential Development, Retail Development, Park, Open Space, or Office.

Building Component Measures

- ▶ SMAQMD 28 (On-Site Renewable Energy System): Project provides at least 20 percent of the residential electricity usage from renewable energy system(s).
- ▶ SMAQMD 99 (Exceed Title 24): Project exceeds the currently adopted Title 24 requirements by 20 percent and Use Energy Efficient Appliances.

Miscellaneous Measures

- ▶ SMAQMD 99 (LEDs): Install light emitting diodes (LEDs) for traffic, street, and other outdoor lighting. Provide traffic lights, street lights and water and wastewater pumps to achieve a 15 percent annual energy reduction below an estimated baseline energy use for this infrastructure.
- ▶ SMAQMD 99 (Limit Outdoor Lighting): Limit the hours of operation of privately owned outdoor lighting by the following: 50 percent of the external luminaires must have fixture-integrated lighting controls that use motion sensors to reduce light levels by at least 50 percent after 15 minutes, and all shared areas have automatic controls that turn off exterior lighting not required, and define light zones with specific uplight and light trespass requirements.

Even though Final EIR Mitigation Measure CC-1 has been incorporated into the Proposed Action, operational GHG emissions would still exceed the CEQ and Sacramento County Climate Action Plan's April 2011 thresholds of significance. This impact would be **significant**. No other mitigation measures were identified to further reduce effects. Therefore, this effect would remain **significant and unavoidable**.

EDP, EP, RC

Construction

The Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives would entail construction of fewer dwelling units and less commercial square footage than the Proposed Action. Although construction-related GHG sources associated with these alternatives would be similar to those described above for the Proposed Action, it is anticipated that because fewer overall dwelling units and square footage of non-residential buildings would be constructed in total, the amortized construction emissions would be less than those shown in Table 3.5-1. However, depending on market and economic conditions, annual construction-related GHG emissions could be similar, less, or more than the annual construction emissions shown in Table 3.5-1 for the Proposed Action. Similar to the Proposed Action, construction-related emissions associated with the Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives would be amortized and evaluated with their respective operational emissions below.

Operation

The Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives would entail development of fewer dwelling units and less commercial square footage than the Proposed Action. Therefore, overall annual operational GHG emissions are anticipated to be less than those shown in Table 3.5-2 for the Proposed Action. However, the proposed development levels under the Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives would not be 83 percent less than the Proposed Action, which is the necessary reduction to reduce emissions below the CEQ threshold of significance. In addition, with respect to the Sacramento County Climate Action Plan's April 2011 per capita thresholds, it is anticipated that even with the reduction in overall residential and commercial land uses, per capita energy and transportation emissions under these alternatives would remain similar to those of the Proposed Action and therefore would continue to exceed the threshold for transportation. In other words, although the overall dwelling units and square footage would be decreased, the land uses would continue to consume energy and generate vehicle miles traveled at a similar rate. Therefore, amortized construction and annual operational GHG emissions associated with the Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives would be considered an **indirect, potentially significant** adverse effect. *[Lesser]*

As part of the CEQA EIR certification and project approval process, various mitigation measures were incorporated into the Proposed Action. Because these mitigation measures were incorporated into the Proposed Action, it is reasonable to assume that they would also be incorporated into the four action alternatives, if any of those alternatives were adopted. The mitigation measures that are applicable to this effect that were incorporated into the Proposed Action by the project entitlements are listed below:

- ▶ All amendments to the SPA with the potential to change SPA-wide GHG emissions shall include an analysis which quantifies, to the extent practicable, the effect of the Amendment on SPA-wide greenhouse gas emissions. The Amendment shall not increase SPA-wide greenhouse gas emissions above an average

5.80 metric tons per capita (including emissions from building energy usage and vehicles). If the SPA amendment would require a change in the approved GHG Reduction Plan in order to meet the 5.80 MT CO₂e threshold, then the proponent of the SPA amendment shall consult with the Sacramento County Environmental Coordinator on the revised analysis and shall prepare a revised a GHG Reduction Plan for approval by the County, who will coordinate with SMAQMD. (*Final EIR Mitigation Measure CC-1*)

Implementation of Final EIR Mitigation Measure CC-1 would limit overall emissions under the Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives to 5.8 MT CO₂e per capita; however, it is anticipated that the per capita transportation emissions would continue to exceed the Sacramento County's Climate Action Plan April 2011 threshold of significance. This impact would be **significant**.

GHG emission effects would be reduced, but not to a less-than-significant level because no other mitigation measures have been identified that would further reduce the amount of operational GHG emissions. Therefore, this effect would remain **significant and unavoidable**.

P

Construction

The Pilatus Alternative would construct more dwelling units and more commercial square footage than the Proposed Action. Although construction-related GHG sources associated with these alternatives would be similar to those described above for the Proposed Action, it is anticipated that because more overall dwelling units and more overall square footage of non-residential buildings would be constructed, total, and thus amortized construction emissions would be more than those shown in Table 3.5-1. Table 3.5-3 presents the Pilatus Alternatives annual construction-related GHG emissions conservatively assuming that 10 percent of the total land uses are constructed in the earliest year of construction. In reality, year-by-year construction emissions would depend on market and economic conditions and therefore the values shown in Table 3.5-3 represent a conservative and worst-case estimate of annual construction emissions.

Operation

The Pilatus Alternative would develop more dwelling units and commercial square footage than the Proposed Action. Therefore, overall annual operational GHG emissions are anticipated to be greater than those shown in Table 3.5-2 for the Proposed Action and would also exceed the transportation per capita threshold. With respect to the Sacramento County Climate Action Plan's April 2011 per capita thresholds, it is anticipated that the Pilatus Alternative would result in similar or greater per capita generation rates for energy (i.e., residential and commercial) and transportation. It is possible that because of the increased residential and commercial development associated with the Pilatus Alternative, the GHG efficiency of transportation could increase. In other words, as the density of the area increases, residents could potentially to drive fewer miles to reach commercial amenities or employment centers, thereby reducing vehicle miles traveled and subsequently GHG emissions per capita. However, at the time of this analysis, it would be speculative to assume reductions in per capita GHG emissions for the Pilatus Alternative. Furthermore, it is not anticipated that the incremental increase in land uses associated with the Pilatus Alternative would reduce per capita transportation emissions by 34 percent, which is the necessary reduction to reduce the per capita transportation emissions under the threshold of significance. Therefore, for the purposes of this analysis, it is assumed that the Pilatus Alternative would generate similar per

capita residential energy, commercial energy, and transportation GHG emissions as those shown in Table 3.5-2 and thus would exceed the applicable thresholds.

Table 3.5-3 Pilatus Alternative Construction Emissions	
Construction Phase	Emissions (MT CO ₂ e/yr)
Site Preparation	81
Grading	194
Building Construction	1,105
Asphalt Paving	97
Architectural Coating	68
Annual Construction Emissions ¹	1,546
Total Construction Emissions ²	15,456
Amortized Construction Emissions ³	618
<p>Notes: MT CO₂e/yr = metric tons of carbon dioxide equivalent per year</p> <p>¹ Annual construction emissions were modeled assuming a worst-case 10 percent of total Proposed Action land uses would be constructed in a single year.</p> <p>² Total construction emissions resulting from full buildout of the Proposed Action were calculated by multiplying the worst-case construction year (i.e., 10 percent of the land uses) by 10.</p> <p>³ Amortized construction emissions were calculated by dividing the total construction emissions by 25 years, which is the recommended lifetime of commercial land uses. Although the Proposed Action would involve commercial land uses and residential land uses, which have a recommended lifetime of 40 years, for the purposes of a conservative analysis, the Proposed Action was assumed to have a lifetime of 25 years.</p> <p>Source: Modeled by AECOM in 2014; SMAQMD 2013</p>	

As part of the CEQA EIR certification and project approval process, various mitigation measures were incorporated into the Proposed Action. Because these mitigation measures were incorporated into the Proposed Action, it is reasonable to assume that they would also be incorporated into the four action alternatives, if any of those alternatives were adopted. The mitigation measures that are applicable to this effect that were incorporated into the Proposed Action by the project entitlements are listed below:

- ▶ All amendments to the SPA with the potential to change SPA-wide GHG emissions shall include an analysis which quantifies, to the extent practicable, the effect of the Amendment on SPA-wide greenhouse gas emissions. The Amendment shall not increase SPA-wide greenhouse gas emissions above an average 5.80 metric tons per capita (including emissions from building energy usage and vehicles). If the SPA amendment would require a change in the approved GHG Reduction Plan in order to meet the 5.80 MT CO₂e threshold, then the proponent of the SPA amendment shall consult with the Sacramento County Environmental Coordinator on the revised analysis and shall prepare a revised a GHG Reduction Plan for approval by the County, who will coordinate with SMAQMD. (*Final EIR Mitigation Measure CC-1*)

Implementation of Final EIR Mitigation Measure CC-1 would limit overall emissions under the Pilatus Alternative to 5.8 MT CO₂e per capita; however, it is anticipated that the per capita transportation emissions would continue to exceed the Sacramento County’s Climate Action Plan April 2011 threshold of significance.

Therefore, amortized construction and annual operational GHG emissions associated with the Pilatus Alternative would be considered an **indirect, potentially significant** adverse effect. *[Greater]*

GHG emission effects would be reduced, but not to a less-than-significant level because no other mitigation measures have been identified that would reduce the amount of operational GHG emissions. Therefore, this effect would remain **significant and unavoidable**.

EFFECT 3.5-2 Consistency with GHG Reduction Plan. *The design and concept of the Proposed Action and Alternatives would be consistent with the AB 32 Scoping Plan.*

NA

Under the No Action Alternative, the Cordova Hills and Pilatus sites would not be developed and no construction disturbances would occur. Therefore, there would **no indirect or direct** construction- and operation-related effects to air quality. *[Lesser]*

Mitigation Measure: No mitigation measures are required.

PA, EDP, EP, P, RC

The Proposed Action along with the Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives would all develop similar land use types on the Cordova Hills and Pilatus sites. All alternatives would include a mix of residential land uses with commercial and retail development to serve the needs of the proposed residents for employment, shopping, and other miscellaneous amenities. In addition, all five action alternatives include community recreation land uses (e.g., parks) that would provide non-vehicular options for recreation as well as a method to safely access other parts of the Cordova Hills and Pilatus sites by walking or biking along trails and dedicated pedestrian and bicycle pathways. Proposed commercial areas would be developed with higher density housing as well as mixed-use development that integrates commercial and residential. These types of developments are consistent with the goals of the AB 32 Scoping Plan to use land use development patterns to reduce vehicle miles traveled. The mixed-use and higher density residential that would be located near commercial land uses would reduce transportation emissions, which generate a majority of the development-related GHG emissions (i.e., 69 percent as shown in Table 3.5-2), in two different ways: first, by eliminating the need to use a vehicle for a trip because walking or biking are feasible options, and second, by making the remaining vehicle trips shorter and reducing vehicle miles traveled. In addition, as cited in the AB 32 Scoping Plan, compact and higher density residential development also helps to reduce energy-related emission associated with heating and cooling energy. The development pattern (i.e., high density development, mixed used, and commercial centers) for the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives could also provide a suitable density to support public transportation linking the Cordova Hills site with the City of Sacramento or other nearby job and activity centers. Furthermore, SACOG, who is responsible for developing the region’s MTP/SCS, determined that the Proposed Action would not likely affect the region’s ability to meet the 2020 target pursuant to SB 375, but could make the 2035 target challenging under the “without university” scenario (McKeever, pers. comm., 2012). Therefore, the design and concept of land uses for the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives would be consistent with the goals of the AB 32 Scoping Plan and thus would help the state achieve the GHG reduction target. The Proposed Action along with

the Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives would be considered consistent with the AB 32 Scoping Plan and this **indirect** effect would be **less than significant**. No **direct** effects would occur. No mitigation measures were identified to further reduce effects. *[Similar]*.

3.5.6 RESIDUAL SIGNIFICANT EFFECTS

Following implementation of Final EIR Mitigation Measure CC-1, per capita transportation emissions associated with the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives would continue to exceed the Sacramento County's April 2011 threshold of significance. Thus, operational GHG emissions would remain **significant and unavoidable**

3.5.7 CUMULATIVE EFFECTS

The discussion of GHG emissions in Section 3.5.5 addresses cumulative effects; GHG emission effects are inherently cumulative.

This page intentionally left blank.

3.6 CULTURAL RESOURCES

3.6.1 INTRODUCTION

This section describes the prehistoric, ethnographic, and historic setting and existing physical and regulatory setting related to archaeological and historic resources as well as addressing potential effects the Proposed Action or Alternatives may have on such resources. This section is based on three separate cultural resource inventories conducted which encompassed the Cordova Hills and Pilatus sites (ECORP Consulting, Inc. [ECORP] 2007a, 2007b, 2008a). This section addresses archaeological and historical resources that could be affected by implementation of each of the alternatives under consideration, and recommends mitigation measures where appropriate to reduce adverse effects.

3.6.2 AFFECTED ENVIRONMENT

Methodology for assessing existing conditions included a records search, a review of previous technical documents, and a field reconnaissance visit was conducted by an AECOM architectural historian.

ARCHAEOLOGY

ECORP conducted three separate cultural resource inventories which documented archaeological surveys that encompassed the Cordova Hills site (ECORP 2007a, 2007b, 2008a), as well as testing and evaluation of identified resources within the Cordova Hills site (ECORP 2008b). ECORP's investigations included an intensive pedestrian survey employing 15-meter (49 feet)-spaced transects of the Cordova Hills site, a records search conducted at the Northwestern Information Center (NWIC) of the California Historical Resources Information System, a search of the Native American Heritage Commission's (NAHC's) sacred lands database, consultation with Native American representatives identified by the NAHC, review of documents regarding archaeology and ethnographic research in the general area of the Cordova Hills site, and subsurface testing and evaluation. Results of the investigation are presented later in this section. Surveys have not been conducted for the Pilatus site.

PREHISTORIC CONTEXT

The archaeological prehistory applies to the Proposed Action and alternatives under consideration, unless otherwise noted. The archaeological prehistory of the Sacramento region is divided into three periods: the Windmill Pattern between approximately 5000 and 2500 Before Present (B.P.), the Berkeley Pattern between approximately 2500 and 1,500-1,000 B.P., and the Augustine Pattern between 1,500-1,000 B.P. to the historic period. Each are discussed below.

The Windmill Pattern (Early Period; ca. 5,000 to 2,500 B.P.) is named after the Windmill site (CA-SAC-107). The pattern is characterized by ventrally extended burials with heads oriented to the west; ventrally extended means lying face down. Many of the burials are found with grave goods including red ocher, a pigment used during ceremonies. Other characteristics of the pattern include large projectile points, rectangular Haliotis beads, Olivella beads, and well made charm stones. This pattern represents the oldest permanent, known occupation in the Sacramento-San Joaquin Delta (Delta) region of central California. Most of the information on the Windmill Pattern has been obtained from burial sites, which are usually located on knolls near or within riverine floodplains. Valley oak parklands were favored locations for occupation. Hunting was apparently the main focus for food-related activities, but salmon were also exploited to a small degree. Milling slabs and manos found in

archaeological assemblages indicate that hard seed processing was also taking place. The use of mortars and pestles was a secondary food processing activity.

The Berkeley Pattern (Middle Period; ca. 2,500 to 1,500 or 1000 B.P.) has dramatic differences when compared to the Windmill Pattern. Burial modes shifted from extended to flexed position. The mortar and pestle dominated the milling-tool kit suggesting a large shift in exploited resources and processing activities. Projectile points were predominantly concave-base or side-notched forms, and obsidian sources also shifted from Napa to Great Basin sources. Shell beads were commonly imported from the coast and made into a variety of elaborate forms; some burials have been found with thousands of beads and other grave paraphernalia. Lithic sources in the Delta region are poor, but local prehistoric groups adapted to this by making a variety of bone tools during this period. Sedentism (the practice of a group being sedentary) also seems to have increased during this period. Despite the numerous changes, several Windmill Pattern traits continued in the southern portion of the Delta region, suggesting that a remnant group of Windmill people was still present and following older traditions. Sites and components dating to this period are often found in the lower Sacramento Valley.

The Augustine Pattern (Late Period; ca. 1,500 or 1,000 B.P. to historic-era) is marked with what archaeologists believe to be an influx of new groups into the Central Valley from the north beginning at approximately 1300 B.P. Changes during this period include changes in artifact assemblages, shifting trade networks, and adoption of different ceremonial affiliations, for example the appearance of banjo-shaped abalone ornaments of the Kuksu cult. Stylistic changes also occurred, including a greater elaboration of utilitarian forms such as dressed mortars. One of the most important changes was a shift in technology from dart and atlatl to the bow and arrow; this is marked by the presence of small side-notched projectile points made of Napa obsidian.

The latter part of the Augustine Pattern saw greater sedentism in the area. Analysis of grave goods also shows greater social stratification and elaborate ceremonialism. Far reaching exchange networks are implied by the presence of shell beads and other exotic items. By this period it is assumed that the ethnographic peoples were already in place and that lifeways during this period were very similar to what was witnessed by Europeans during contact.

ETHNOGRAPHIC CONTEXT

This ethnographic context is adapted from the technical documents prepared by ECORP for the Cordova Hills site (ECORP 2007a, 2007b, 2008a, and 2008b).

The Cordova Hills site is located in the traditional territory of the Nisenan, a Native American people who spoke the Penutian language. Nisenan territory once extended from the city of Oroville to south of the American River and from a few miles west of Lake Tahoe to the Sacramento River. The Nisenan language has three main dialects including Northern Hill, Southern Hill, and Valley Nisenan, as well as three or four subdialects (Kroeber 1976; Placer County 1992; Shipley 1978; Wilson and Towne 1978). Most Valley Nisenan lived in villages comprised of several hundred individuals along the Sacramento River. The grasslands between the Sacramento River and the foothills of the Sierra Nevada mountains were used as foraging grounds for both the Valley and Hill Nisenan but were otherwise uninhabited (Placer County 1992). Families had “ownership” rights to hunting and gathering areas where trespass by non-family members was discouraged (Kroeber 1976; Wilson and Towne 1978). Residences for married couples were generally patrilocal, though couples could choose where they lived (Wilson and Towne 1978).

The Nisenan were organized into “triblets”, which were made up of politically independent primary villages with one or more surrounding subordinate, smaller villages. Tribelets were presided over with chiefs that were essentially hereditary (Kroeber 1976; Wilson and Towne 1978). Villages usually contained family dwellings, acorn granaries, a sweathouse, and a dance house that was owned by the chief. The chief had little authority to act independently but if supported by villagers and the shaman, his word was mandatory (Wilson and Towne 1978).

Subsistence activities focused on gathering acorns, seeds, and other plant resources. Acorn was the staple resource of the Nisenan but they also harvested roots such as wild onion and “Indian potato.” These resources were eaten raw, steamed, baked, or dried and made into flour cakes and stored for the winter (Wilson and Towne 1978). Berries and other fruits and nuts were also gathered. Deer, rabbit, and large predators such as mountain lion and wildcat were among the animals that were hunted. Bears were ceremonially hunted. The Nisenan also fished a variety of fish. Game was prepared by roasting, baking, or drying. Salt was obtained from a spring near the modern city of Rocklin (Wilson and Towne 1978). Wild garlic was used as soap/shampoo and wild carrots were used for medicinal purposes (Littlejohn 1928).

Deer hunting was usually conducted as communal drives which involved several villages working cooperatively. Snares, deadfalls, and decoys were also used for hunting animals. Fish were caught using hooks, harpoons, nets, weirs, traps, poisoning, and by hand (Wilson and Towne 1978).

Nisenan were involved in a trade network that extended from the coast to the east side of the Sierra Nevada mountains. Items from the coast included shell beads, salmon, salt, and digger pine nuts were traded from further inland including bows and arrows, deer skins, sugar pine nuts, and obsidian (Wilson and Towne 1978).

The Spanish arrived on the central California coast by 1769. By 1776 the Spanish had explored neighboring Miwok territory and by 1808 Gabriel Moraga crossed into Nisenan territory. The Nisenan do not appear to have entered the mission system established by the Spanish but they were greatly affected by introduced diseases. An epidemic, likely malaria, entered the Sacramento Valley in 1833 and killed approximately 75 percent of the Native American population. The discovery of gold at Sutter’s Mill near the Nisenan village off *Colluma*, modern day Coloma, brought thousands of Europeans to the area, which led to widespread killing and massive disruption of traditional Nisenan culture (Wilson and Towne 1978).

HISTORICAL CONTEXT

This historical context is largely adapted from the technical documents prepared by ECORP for the Cordova Hills site (ECORP 2007a, 2007b, 2008a, 2008b and 2011) with some additional text prepared by AECOM.

Nineteenth Century Development

Although the Spanish had made forays into the Central Valley since about 1769, it was not until 1808 that captain Gabriel Moraga explored and named the Sacramento area (Lawson 2002). The Spanish took little interest in the area and did not establish any missions or settlements in the Central Valley. California became part of Mexico in 1821 when Mexico achieved its independence from Spain. In 1827, American trapper Jedediah Smith traveled along the Sacramento River and into the San Joaquin Valley to meet other trappers of his company who were camped there, but no permanent settlements were established by the fur trappers (Thompson & West 1880).

John Sutter, a European immigrant, built a fort at the confluence of the Sacramento and American Rivers in 1839 and petitioned the Mexican governor of Alta (upper) California for a land grant, which he received in 1841. Sutter built a flour mill and grew wheat near the fort (Bidwell 1971). Gold was discovered in the flume of Sutter's lumber mill at Coloma on the south Fork of the American River in January 1848 (Marshall 1971). The town of Sacramento was laid out in the fall of 1848 and developed as a supply center for gold miners (Gudde 1969). Alta California was ceded to the United States by Mexico as a result of the Treaty of Guadalupe Hidalgo in 1848. California became a state in 1850 as a result of the major increase in population that resulted from the gold rush of 1849 (Old Sacramento Foundation, Inc. 2001; Lawson 2002).

The Cordova Hills and Pilatus sites are roughly 2 miles southeast of the Rancho Rio de los Americanos and are adjacent to the Omuchumnes land grant to the south. The Omuchumnes land grant was issued by the Mexican governor of Alta California to Jared (Joaquin) Sheldon in 1844 (Avina 1976). Sheldon built a hotel, stage stop, and grist mill at Sloughhouse on Deer Creek on his land grant in 1850. Sheldon was killed in a dispute with miners in 1851 (Roots Web 2007a and 2007b). The Rio de los Americanos land grant consisted of about 35,000 acres south of the American River and was issued by the Mexican governor of Alta California to William Leidesdorff in 1844 (Avina 1976). Leidesdorff was a San Francisco merchant who died in 1848. Joseph L. Folsom, a former U.S. Army captain who came to San Francisco during the gold rush, purchased the Rio de los Americanos land grant from Leidesdorff's estate. Folsom founded the town of Granite City on the land grant. It was renamed Folsom after his death in 1855 (Gudde 1969). The Sacramento Valley Railroad (SVR) was completed from Sacramento to Folsom in 1856 (Folsom, El Dorado & Sacramento Historical Railroad Association [FEDSHRA] 2007). It facilitated shipment of goods from Sacramento to the mining areas to the east. The SVR was acquired by the Southern Pacific Railroad which extended the line to Placerville in 1866 (Peak & Associates 1992). From the mid 1800s to the mid 1900s, the area surrounding the Cordova Hills and Pilatus sites was used primarily for grazing and mining.

Twentieth Century Development

Little development occurred in the study area and the area continued to be used for grazing into the mid-1900s. Dredge mining, however, remained one of the area's primary industries. The most notable company operating in the area was the Natomas Company. The Natomas Company was first organized as the Natoma Water and Mining Company by A.P. Catlin. The company was created for the purpose of appropriating water from the American River for manufacturing, mining, chemical, agricultural, and domestic uses. By 1853, it had constructed a dam on the American River and established a main trunk canal and 50 miles of branch ditches that would support miners in 13 company-designated sections, including Prairie City, which was located northeast of the Cordova Hills area (McGowan and Peak 1994:7). The Natomas Company stopped its mining operations in 1962 (Hoover et al. 1990:290).

The mining operations left some of the area north of the Cordova Hills and Pilatus sites unusable for residential or commercial development. Aerojet General Corporation (Aerojet), which was created in 1942, saw the land as a prime location for the company to develop as a missile and rocket engine testing facility. In 1950, Aerojet purchased 7,200 acres and began construction on its testing facility (Dorman 1995:IX-19). Aerojet quickly acquired over 18,000 acres of land north and west of the Cordova Hills and Pilatus sites (Lindstrom & Wells 1989).

Pacific Gas and Electric Company

Pacific Gas and Electric Company (PG&E) incorporated in San Francisco in 1905. The company began as the merger of two power holding companies, the San Francisco Gas and Electric Corporation and the California Gas and Electric Corporation. San Francisco Gas and Electric owned steam-power generating facilities that complemented California Gas and Electric's hydroelectric resources by picking up the slack during peak periods and when winter freeze or summer drought reduced the flow of water through the company's turbines in the Sierra Nevada (The New York Times 1905:15; San Francisco Chronicle 1905:7; 1906:2). By 1930, PG&E had become one of the state's largest land owners, one of the nation's largest hydroelectric producers, and a major supplier of natural gas for home and industry (The Los Angeles Times 2001). A PG&E transmission line with six steel lattice towers crosses the Cordova Hills site.

CULTURAL RESOURCES IDENTIFIED IN THE CORDOVA HILLS SITE

The following section describes known cultural resources in the Cordova Hills site, and their significance findings. ECORP's investigations resulted in the identification of six cultural resources in the Cordova Hills site, including one previously identified archaeological resource (ECORP 2007a) and five newly identified resources.

- ▶ CA-SAC-334, a prehistoric bedrock milling station (previously identified);
- ▶ CA-SAC-1032H (EC-07-01), several mounds associated with historic-era mining;
- ▶ CA-SAC-1033/H (EC-07-02), a multi-component site containing a prehistoric bedrock milling feature and an historic-era well;
- ▶ CA-SAC-1034H (EC-07-07), an historic-era windmill and foundation;
- ▶ CA-SC-1045H (EC-07-21), an historic-era refuse scatter (ECORP 2007a, 2007b, 2008b); and
- ▶ an approximately 1-mile-long portion of a PG&E transmission line that includes six steel lattice towers.

ECORP archaeologists evaluated the archaeological resources listed above to determine if the resources met significance criteria for listing in the National Register of Historic Places (NRHP) or the California Register of Historical Resources (CRHR), and therefore were historic properties (properties determined to be eligible for listing on the NRHP) or historical resources (properties determined to be eligible for listing on the CRHR) requiring further consideration. The evaluation found that the resources did not contain subsurface archaeological deposits or contained any data that might make the resources eligible for the NRHP or for the CRHR. ECORP recommended that the resources were not historic properties/historical resources and were ineligible for listing on the NRHP or on the CRHR; therefore they did not need further consideration (ECORP 2008b).

The transmission line within the Cordova Hills site and a segment outside the Cordova Hills site was also evaluated by ECORP cultural resource specialists. The transmission line was constructed by PG&E in the early 1940s and was upgraded in 1963, 1975, and 1983. It was determined that the PG&E transmission line was not eligible for the NRHP or the CRHR because it did not meet the NRHP/CRHR criteria and lacked integrity (ECORP 2011:5). Therefore, it did not need further consideration.

In addition, the ECORP investigations identified the following five isolated finds:

- ▶ P-34-1888, two prehistoric chert flakes;
- ▶ P-34-1889, a brown glass bottle;
- ▶ P-34-1955, a car chassis;
- ▶ P-34-2162, two, likely historic-era pits; and
- ▶ P-34-2163, an historic-era water tank (ECORP 2007a and 2008b).

ECORP concluded that the isolated finds did not meet any significance criteria for listing on the NRHP (ECORP 2008b).

The U.S. Army Corps of Engineers, which is the Federal lead agency regarding compliance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, sent a letter to the acting State Historic Preservation Officer (SHPO) seeking concurrence with the recommendation that the resources and isolated finds were not eligible for listing on the NRHP. In October 2012, SHPO sent a letter concurring with the recommendations of ineligibility (Appendix H). Therefore, there are no historic properties located on the Cordova Hills site. As previously stated, a cultural resources survey has not been conducted for the Pilatus site.

3.6.3 REGULATORY FRAMEWORK/APPLICABLE LAWS, REGULATIONS, PLANS, AND POLICIES

State laws and regulations are provided for informational purposes and to assist with NEPA review. USACE has considered applicable state, regional, and local plans and ordinances as a part of the environmental review process for this EIS.

Sacramento County certified an EIR and approved the Proposed Action in January 2013. State, regional, and local plans, policies, laws, and ordinances were considered in the EIR and adopted mitigation measures have been incorporated into the Proposed Action.

FEDERAL PLANS, POLICIES, REGULATIONS, AND LAWS

National Historic Preservation Act of 1966

The NHPA established the Advisory Council on Historic Preservation (ACHP), authorized the Secretary of the Interior to maintain a NRHP, directed the Secretary to approve state historic preservation programs that provided for a SHPO, established a National Historic Preservation Fund program, and codified the National Historic Landmarks program.

Section 106 of the NHPA requires that Federal agencies take into account the effects of their actions (referred to as “undertakings” under Section 106) on properties that may be eligible for or listed on the NRHP, and afford the ACHP a reasonable opportunity to comment. To determine if an undertaking could affect NRHP-eligible properties, all cultural sites (including archaeological, historical and architectural properties) that could be affected by the undertaking must be inventoried and evaluated for inclusion in the NRHP. The Proposed Action and alternatives under consideration are subject to Section 106 of the NHPA, because implementation would be a Federal action with the potential to affect NRHP-eligible properties. USACE is the Federal lead agency responsible for compliance with Section 106 of the NHPA. The requirement under NEPA to identify and assess

effects on cultural resources may be fulfilled through compliance with Section 106 of the NHPA. The Section 106 requirements for the Proposed Action have been completed and a letter from SHPO dated October 2012 provides concurrence with USACE finding that no historic properties would be adversely affected by the Proposed Action (Appendix H).

Section 106 of the National Historic Preservation Act of 1966

Section 106 of the NHPA and its implementing regulations (Title 36 Code of Federal Regulations [CFR], Part 800 [36 CFR 800], as amended in 1999) requires Federal agencies to consider the effects of their undertakings, or those they fund or permit, on properties that may be eligible for listing, or that are listed in the NRHP.

The regulations implementing Section 106 call for considerable consultation with SHPO, Native American tribes, and interested members of the public throughout the process. The four principle steps are as follows:

1. Initiate the Section 106 process, including a plan for public involvement (36 CFR 800.3).
2. Identify historic properties, consisting of those resources within an Area of Potential Effect (APE) that are eligible for inclusion in the NRHP (36 CFR 800.4).
3. Assess the effects of the undertaking to historic properties in the APE (36 CFR 800.5).
4. Resolve adverse effects (36 CFR Part 800.6).

Adverse effects on historic properties often are resolved through preparation of a memorandum of agreement (MOA) or a programmatic agreement developed in consultation between the lead Federal agency, the SHPO, Native American tribes, and interested members of the public. The ACHP is also invited to participate. For the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives, an agreement document is not necessary because no historic properties would be adversely affected. However, cultural resources surveys have not been conducted for the Pilatus site.

National Register of Historic Places Evaluation Criteria

The NRHP is a register maintained by the Secretary of the Interior of districts, sites, buildings, structures, and objects of significance in American history, architecture, archaeology, engineering, and culture. A property may be listed in the NRHP if it meets criteria for evaluation defined in 36 CFR 60.4:

- A. That are associated with events that have made a significant contribution to the broad patterns of our history; or
- B. That are associated with the lives of persons significant in our past; or
- C. That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- D. That have yielded, or are likely to yield, information important in prehistory or history.

In addition to meeting one of the four criteria, eligible properties must also retain integrity to be considered eligible for listing in the NRHP. Integrity is defined as the ability of a historic property to convey its significance by retaining the physical characteristics that existed during the property's period of significance. The NRHP uses seven aspects of integrity to measure integrity: integrity of location, design, setting, materials, workmanship, feeling, and association. An eligible property will likely retain several if not most aspects of integrity.

Under Section 106 of the NHPA, only cultural resources that have been determined to be eligible for listing on the NRHP or which are listed on the NRHP need to be considered when evaluating an action's effects on cultural resources.

American Indian Religious Freedom Act

The American Indian Religious Freedom Act established Federal policy to protect and preserve the inherent rights of freedom for Native groups to believe, express, and exercise their traditional religions. These rights included, but are not limited to, access to sites, use and possession of sacred objects, and the freedom to worship through ceremonials and traditional rites. The American Indian Religious Freedom Act would be applicable to the Proposed Action or alternatives under consideration if actions would result in limiting the expression of Native American beliefs or restrict access to sites important to religious practice.

STATE PLANS, POLICIES, REGULATIONS, AND LAWS

California Public Resources Code

Section 5097 of the California Public Resources Code (PRC) addresses archaeological resources. Archaeological resources that are not "historical resources" may be "unique archaeological resources" as defined in PRC Section 21083.2, which also generally provides that "non-unique archaeological resources" do not receive any protection under the CEQA. PRC Section 21083.2, subdivision (g), defines "unique archaeological resource" as an archaeological artifact, object, or site that does not merely add to the current body of knowledge, but has a high probability of meeting any of the criteria identified in this section. If an archaeological resource is neither a unique archaeological nor a historical resource, the effects of a project on that resource would not be considered a significant effect on the physical environment. It is sufficient that the resource and the effects on it be noted in the EIR, but the resource need not be considered further in the CEQA process.

Additional sections of the PRC that are applicable to the alternatives under consideration are as follows:

- ▶ **Section 5097.5:** Provides that any unauthorized removal or destruction of archaeological or paleontological resources on sites located on public lands is a misdemeanor. As used in this section, "public lands" means lands owned by, or under the jurisdiction of, the State, or any city, county, district, authority, or public corporation, or any agency thereof.
- ▶ **Section 5097.98:** Prohibits obtaining or possessing Native American artifacts or human remains taken from a grave or cairn, and sets penalties for such acts.

An EIR was certified for the Proposed Action, therefore, the requirements of the PRC are applicable to the Proposed Action and are provided herein for informational purposes.

California Health and Safety Code

The Proposed Action and Alternatives are subject to the provisions of the California Health and Safety Code with respect to the discovery of human remains. California Health and Safety Code Section 7050.5 states, “Every person who knowingly mutilates or disinters, wantonly disturbs, or willfully removes any human remains in or from any location other than a dedicated cemetery without authority of law is guilty of a misdemeanor, except as provided in Section 5097.99 of the Public Resources Code.” California PRC Section 5097.98, as amended by Assembly Bill 2641, states:

- (a) Whenever the commission receives notification of a discovery of Native American human remains from a county coroner pursuant to subdivision (c) of Section 7050.5 of the Health and Safety Code, it shall immediately notify those persons it believes to be most likely descended from the deceased Native American. The descendants may, with the permission of the owner of the land, or his or her authorized representative, inspect the site of the discovery of the Native American human remains and may recommend to the owner or the person responsible for the excavation work means for treatment or disposition, with appropriate dignity, of the human remains and any associated grave goods. The descendants shall complete their inspection and make recommendations or preferences for treatment within 48 hours of being granted access to the site.
- (b) Upon the discovery of Native American remains, the landowner shall ensure that the immediate vicinity, according to generally accepted cultural or archaeological standards or practices, where the Native American human remains are located, is not damaged or disturbed by further development activity until the landowner has discussed and conferred, as prescribed in this section, with the most likely descendants regarding their recommendations, if applicable, taking into account the possibility of multiple human remains. The landowner shall discuss and confer with the descendants on all reasonable options regarding the descendants’ preferences for treatment.

3.6.4 ANALYSIS METHODOLOGY

The methods used to evaluate effects on cultural resources resulting from implementation of the Proposed Action and alternatives under consideration included efforts to identify potentially significant cultural resources in the Cordova Hills site, application of Federal criteria for determining the significance of identified cultural resources, and the application of Federal criteria for determining the significance of effects on cultural resources that have been found to be eligible for listing in the NRHP or California criteria for listing in the CRHR.

Methodology for assessing existing conditions included a records search, a review of previous technical documents, and a field reconnaissance visit of the Cordova Hills site. A qualitative analysis of potential effects to cultural resources on the Pilatus site was used because a complete, detailed cultural resources inventory and evaluation was not completed previously by the project applicant for the Pilatus site.

Direct effects on historic properties could occur if construction activities or operations would physically damage or destroy all or part of a historic property (i.e., a cultural resource listed on or determined to be eligible for listing on the NRHP). Indirect effects on historic properties could occur if visual or atmospheric elements would be introduced near an historic property which would degrade the historic property in a manner that would affect the qualities of the property that made the historic property eligible for the NRHP. Visual and atmospheric elements

could include structures or smoke from manufacturing that could obscure the view of the historic property or take away from the integrity of its setting (i.e., how the area looked when the historic property was made).

Because the Final EIR has already been certified, all Final EIR Mitigation Measures, the Rezone and Tentative Large Lot Parcel Map Conditions of Approval, and the obligations found in the Development Agreement (collectively referred to as the project entitlements) are considered a part of the Proposed Action. Thus, these measures and requirements are considered when analyzing the significance of effects under the Proposed Action. Because the project entitlements were imposed on the Proposed Action by the County as part of its approval process, it is reasonable to assume that if one of the action alternatives were adopted, the County would impose similar conditions during the entitlement of the alternative.

THRESHOLDS OF SIGNIFICANCE

The determinations of the significance of effects for this analysis are based on professional standards regularly used in environmental review documents in the region. These thresholds encompass the factors taken into account under NEPA to determine the significance of an action in terms of its context and the intensity of its effects. These are also informed by the environmental checklist in Appendix G of the State CEQA Guidelines.

This section also assesses effects on cultural resources that meet the eligibility criteria for listing in the NRHP. When evaluating the significance of effects under NEPA, the NHPA Section 106 criteria for assessing adverse effects were applied. According to 36 CFR Part 800.5, an undertaking would have an adverse effect on historic properties if the effect alters the characteristics that qualify a property for inclusion in the NRHP.

To assess the potential historic and archeological effects associated with implementation of the alternatives under consideration, it was determined whether prehistoric or historic archaeological sites, structures, or objects listed in or eligible for listing in the NRHP would be subjected to any of the following:

- ▶ physical destruction of or damage to all or part of the property;
- ▶ alteration of the property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation, and provision of handicapped access, that is not consistent with the Secretary of the Interior's Standards for the Treatment of Historic Properties (36 CFR 68) and applicable guidelines;
- ▶ removal of the property from its historic location;
- ▶ change in the character of the property's use or of physical features within the property's setting that contribute to its historic significance;
- ▶ introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features;
- ▶ neglect of the property that causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe or Native Hawaiian organization; and
- ▶ transfer, lease, or sale of the property out of Federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance.

Additionally, the alternatives under consideration were determined to result in a significant effect related to cultural resources if they would do any of the following:

- ▶ cause a substantial adverse change in the significance of a unique archaeological resource or an historical resource; or
- ▶ disturb any human remains, including those interred outside of formal cemeteries.

Under Section 106, adverse effects are effects that damage the qualities that make an historic property eligible for the NRHP, or the ability of that property to convey the significance that makes it eligible.

3.6.5 ENVIRONMENTAL CONSEQUENCES AND MITIGATION MEASURES

EFFECTS ANALYSIS

Effects that would occur under each alternative development scenario are identified as follows: NA (No Action), PA (Proposed Action), EDP (Expanded Drainage Preservation), EP (Expanded Preservation), P (Pilatus), and RC (Regional Conservation). The effects for each alternative are compared relative to the PA at the end of each effect conclusion (i.e., similar, greater, lesser).

EFFECT 3.6-1 Potential Destruction of or Damage to Known Archaeological Sites or Human Remains Caused by Ground-Disturbing Actions Such as Grading, Trenching, and On-Site Aggregate Processing.
Implementation of the Proposed Action and Alternatives includes ground-disturbing activities with the potential to damage or destroy archaeological and human remains.

NA

Under the No Action Alternative, no ground disturbance would occur. Thus, there would be **no indirect** or **direct** effects to identified historic properties, including archaeological sites, human remains, and features of the built environment. [*Lesser*]

Mitigation Measures: No mitigation measures are required.

PA, EDP, EP, RC

The cultural resources investigations conducted for the Cordova Hills site did not identify any cultural resources that are eligible for listing on the NRHP including archaeological sites, human remains, and features of the built environment. Therefore, implementation of the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives would result in **no indirect** or **direct** adverse effects on known historic properties. [*Similar*]

Mitigation Measures: No mitigation measures are required.

P

No cultural resources investigations have been conducted for the Pilatus site. Therefore, it is presently unknown as to whether or not cultural resources that are eligible for listing on the NRHP including archaeological sites,

human remains, and features of the built environment, are present. If such resources are present, implementation of the Pilatus Alternative could result in damage to or destruction of such resources. This would be a **direct, significant** adverse effect. **No indirect** effects would occur. [*Potentially Greater*]

Mitigation Measure 3.6-1: Conduct a Cultural Resources Inventory for Archaeological Resources in Compliance with Section 106 on the Pilatus Site and Implement any Recommendations for Any Additional Investigations and Required Monitoring.

The project applicant shall retain a qualified professional archaeologist to perform an archaeological survey on the Pilatus site which shall consist of conducting a records search at the North Central Information Center of the California Historical Resources Information System, contacting the Native American Heritage Commission (NAHC) and identified Native Americans, conducting an on-site pedestrian field survey of the Pilatus site, and preparing a cultural resources inventory report. The cultural resources inventory report shall include the qualifications of the preparers, a description of the methods used in the investigation, a cultural setting of the site, a discussion of the results of the survey, descriptions of any identified cultural resources, a NRHP/CRHR evaluation of identified resources, and recommendations for any additional investigations. The cultural resources inventory report shall also provide an identification of any locations within the site that are considered to be sensitive for the presence of buried archaeological resources and identification of any areas that should be monitored by an archaeologist during ground-disturbing activities. The archaeological inventory shall adhere to the standards required for compliance with Section 106 of the NHPA as described 36 CFR Part 800.4.

Implementation of Mitigation Measure 3.6-1 would reduce adverse effects to significant archaeological resources under the Pilatus Alternative (if any are present) to a **less-than-significant** level because a survey would be performed. Effect 3.6-2 describes actions to be taken if resources are identified, including monitoring of ground-disturbing activities in areas that are sensitive for cultural resources would occur, and avoidance, preservation in place, or a treatment plan would be implemented if cultural resources were discovered. No other mitigation measures were identified that would further reduce these effects.

EFFECT 3.6-2 **Potential Destruction of or Damage to As-Yet-Unidentified Archaeological Sites or Human Remains Caused by Ground-Disturbing Activities.** *Implementation of the Proposed Action or Alternatives includes ground-disturbing activities with the potential to damage or destroy as-yet-undiscovered archaeological and human remains.*

NA

Under the No Action Alternative, no ground disturbance would occur. Thus, there would be **no indirect** or **direct** effects to unidentified historic properties, including archaeological sites, human remains, or features of the built environment. [*Lesser*]

Mitigation Measures: No mitigation measures are required.

PA

Although no documented significant (i.e., eligible for listing on the NRHP) archeological resources, human remains or features of the built environment are known to be present within the Cordova Hills site, buried or

otherwise obscured and undocumented significant prehistoric and historic-era archeological resources or human burials may be present within the Cordova Hills site. Given that major water courses are lacking within the Cordova Hills site, it is unlikely that major prehistoric occupation sites or burials are present because these types of resources are most frequently encountered in association with major water courses; although resources could be present along Carson Creek, the Proposed Action includes avoided areas on the portion of the Cordova Hills site nearest Carson Creek. Nevertheless, despite the relatively low sensitivity of the Cordova Hills site for the presence of these types of resources, it is possible that they can be present. However it is more likely that archaeological resources associated with specific tasks, such as grinding stones or lithic debris scatters, may be encountered on the Cordova Hills site. These latter types of resources may contribute to an understanding of the prehistoric use of the region but are not typically found to be eligible for listing on the NRHP. Buried archaeological resources could be inadvertently disturbed or destroyed by construction activities such as grading, trenching, on-site aggregate processing, and other ground-disturbing activities.

As part of the CEQA EIR certification and project approval process, the project applicant committed to implementing various mitigation measures for the Proposed Action. The mitigation measures that are applicable to this effect that were incorporated into the Proposed Action by the EIR mitigation measures, conditions of approval, and development agreement (project entitlements) are listed below:

- ▶ If subsurface deposits believed to be cultural or human in origin are discovered during construction, then all work must halt within a 200-foot radius of the discovery. A qualified professional archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards for prehistoric and historic archaeology, shall be retained at the Applicant's expense to evaluate the significance of the find. If it is determined due to the types of deposits discovered that a Native American monitor is required, the Guidelines for Monitors/Consultants of Native American Cultural, Religious, and Burial Sites as established by the Native American Heritage Commission shall be followed, and the monitor shall be retained at the Applicant's expense. Work cannot continue within the 200-foot radius of the discovery site until the archaeologist conducts sufficient research and data collection to make a determination that the resource is either 1) not cultural in origin; or 2) not potentially eligible for listing on the National Register of Historic Places or California Register of Historical Resources. If a potentially-eligible resource is encountered, then the archaeologist, the Environmental Coordinator, and project proponent shall arrange for either 1) total avoidance of the resource, if possible; or 2) test excavations or total data recovery as mitigation. The determination shall be formally documented in writing and submitted to the Environmental Coordinator as verification that the provisions of CEQA for managing unanticipated discoveries have been met. In addition, pursuant to Section 5097.97 of the State Public Resources Code and Section 7050.5 of the State Health and Safety Code, in the event of the discovery of human remains, all work is to stop and the County Coroner shall be immediately notified. If the remains are determined to be Native American, guidelines of the Native American Heritage Commission shall be adhered to in the treatment and disposition of the remains (*Final EIR Mitigation Measure CR-1*).

In addition to the mitigation measure from the CEQA EIR, the project applicant shall also implement the mitigation measures listed below.

Mitigation Measure: Implement Mitigation Measure 3.6-1.

Mitigation Measure 3.6-2: Monitor Ground-Disturbing Activities in Areas Determined to be Highly Sensitive for Containing Prehistoric and/or Historic-Era Cultural Materials and Human Remains.

The project applicant shall retain a qualified professional archaeologist to monitor all ground-disturbing activities at locations within or adjacent to identified archaeological sites and at locations identified as sensitive for buried archaeological resources within the site. Archaeological site locations and locations considered to be sensitive for the presence of buried archaeological resources shall be identified in the cultural resources inventory report that will be prepared as required by Mitigation Measure 3.6-1. If physical remains of prehistoric occupation (e.g., midden soils, unusual amounts of shell, artifacts, bone) or historic-era remains (e.g., building or structure traces, concentrations of early-historic-era refuse) are encountered, ground-disturbing activities in the vicinity of the find shall cease and Mitigation Measure 3.6-3 shall be implemented.

Implementation: Project applicant.

Timing: During ground-disturbing activities.

Enforcement: USACE in consultation with the State Historic Preservation Officer.

Mitigation Measure 3.6-3: Stop Ground-Disturbing Activities in the Vicinity of Cultural Materials, Consult with a Qualified Professional Archaeologist, and Implement a Treatment Plan if Necessary.

If previously unknown cultural resource materials (e.g. flaked or ground stone, unusual amounts of shell, animal bone, bottle glass, ceramics, or structure/building remains) or human remains are found during construction activities, ground disturbances within 100 feet of the find shall be halted by the project applicant and USACE shall be immediately notified regarding the discovery. A qualified professional archaeologist shall be retained by the project applicant to determine the nature and potential significance of the find.

USACE will then initiate consultation with SHPO and/or Native American Tribes, as required. If it is determined by USACE and SHPO that the resource is eligible for listing the NRHP, the applicant shall work with USACE and SHPO to develop a treatment plan and/or Memorandum of Agreement to address how the adverse effects would be mitigated.

If human remains are encountered, the Sacramento County Coroner shall be notified immediately upon their discovery. If the coroner determines that the remains are those of a Native American, he or she shall contact the NAHC in accordance California Health and Safety Code Section 7050[c]. Following the coroner's findings, the property owner, contractor, or project applicants of all phases, an archaeologist, and the NAHC-designated Most Likely Descendant (MLD) shall determine the ultimate treatment and disposition of the remains and take appropriate steps to ensure that additional human interments are not disturbed. The responsibilities for acting upon notification of a discovery of Native American human remains are identified in California PRC Section 5097.9.

Implementation: Project applicant.

Timing: During ground-disturbing activities.

Enforcement: USACE in consultation with the State Historic Preservation Officer.

Under the Proposed Action, the likelihood of encountering as-yet undiscovered resources in the Cordova Hills site is a possibility. Because Final EIR Mitigation Measure CR-1 has been incorporated into the Proposed Action, if such a resource were encountered and it appeared to be eligible for listing on the NRHP or CRHR, then adverse effects under the Proposed Action would be reduced. Implementation of Mitigation Measure 3.6-2 requires that an on-site monitor be present in sensitive areas during ground-disturbing activities. Implementation of Mitigation Measure 3.6-3 requires consultation with SHPO and NAHC and development of a treatment plan or MOA to address the resource. Therefore, **direct** adverse effects under the Proposed Action would be **less than significant** because a monitor would be present during ground-disturbing activities in sensitive areas and if resources were encountered, they would be avoided or a treatment plan would be implemented using techniques outlined in State CEQA Guidelines California Code of Regulations (CCR) Section 15126.4(b) (e.g., preservation, data recovery, recordation) or measures outlined in 36 CFR 800.6. **No indirect** effects would occur. No mitigation measures were identified to further reduce these effects.

EDP, EP, RC

Although no documented significant (i.e., eligible for listing on the NRHP) archeological resources, human remains, or features of the built environment are known to be present within the Cordova Hills site, buried or otherwise obscured and undocumented “significant” prehistoric and historic-era archeological resources or human burials may be present within the Cordova Hills site. Given that major water courses are lacking within the Cordova Hills site, it is unlikely that major prehistoric occupation sites or burials are present because these types of resources are most frequently encountered in association with major water courses; although resources could be present along Carson Creek, these alternatives include avoided areas on the portion of the Cordova Hills site nearest Carson Creek. Nevertheless, despite the relatively low sensitivity of the Cordova Hills site for the presence of these types of resources, it is possible that they can be present. However it is more likely that archaeological resources associated with specific tasks, such as grinding stones or lithic debris scatters, may be encountered in the Cordova Hills site. These latter types of resources may contribute to an understanding of the prehistoric use of the region but are not typically found to be eligible for listing on the NRHP. Buried archaeological resources could be affected by construction activities such as grading, trenching, on-site aggregate processing, and other ground-disturbing activities. Therefore, construction activities under the Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives could have a **direct** and **potentially significant** adverse effect on presently undocumented significant historic properties or human remains. **No indirect** adverse effects would occur. *[Lesser]*

As part of the CEQA EIR certification and project approval process, various mitigation measures were incorporated into the project entitlements. Because these mitigation measures were incorporated into the Proposed Action, it is reasonable to assume that they would also be incorporated into the four action alternatives, if any of those alternatives were adopted. The mitigation measures that are applicable to this effect that were incorporated into the Proposed Action by the project entitlements are listed below:

- ▶ If subsurface deposits believed to be cultural or human in origin are discovered during construction, then all work must halt within a 200-foot radius of the discovery. A qualified professional archaeologist, meeting the Secretary of the Interior’s Professional Qualification Standards for prehistoric and historic archaeology, shall be retained at the Applicant’s expense to evaluate the significance of the find. If it is determined due to the

types of deposits discovered that a Native American monitor is required, the Guidelines for Monitors/Consultants of Native American Cultural, Religious, and Burial Sites as established by the Native American Heritage Commission shall be followed, and the monitor shall be retained at the Applicant's expense. Work cannot continue within the 200-foot radius of the discovery site until the archaeologist conducts sufficient research and data collection to make a determination that the resource is either 1) not cultural in origin; or 2) not potentially eligible for listing on the National Register of Historic Places or California Register of Historical Resources. If a potentially-eligible resource is encountered, then the archaeologist, the Environmental Coordinator, and project proponent shall arrange for either 1) total avoidance of the resource, if possible; or 2) test excavations or total data recovery as mitigation. The determination shall be formally documented in writing and submitted to the Environmental Coordinator as verification that the provisions of CEQA for managing unanticipated discoveries have been met. In addition, pursuant to Section 5097.97 of the State Public Resources Code and Section 7050.5 of the State Health and Safety Code, in the event of the discovery of human remains, all work is to stop and the County Coroner shall be immediately notified. If the remains are determined to be Native American, guidelines of the Native American Heritage Commission shall be adhered to in the treatment and disposition of the remains (*Final EIR Mitigation Measure CR-1*).

In addition to the mitigation measure from the CEQA EIR, the project applicant shall also implement the mitigation measure listed below.

Mitigation Measure: Implement Mitigation Measures 3.6-1 and 3.6-2.

The likelihood of encountering as-yet undiscovered resources in the Cordova Hills site is a possibility. If such a resource were encountered, and it appeared to be eligible for listing on the NRHP or CRHR, then potentially significant adverse effects under the Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives would be reduced to a **less-than-significant** level by implementing Final EIR Mitigation Measure CR-1 and Mitigation Measure 3.6-2, which require a monitor to be present in sensitive areas and implementation of avoidance, preservation in place, or a treatment plan if resources are encountered using techniques outlined in State CEQA Guidelines CCR Section 15126.4(b) (e.g., preservation, data recovery, recordation) or measures outlined in 36 CFR 800.6. No mitigation measures were identified to further reduce these effects.

P

No cultural resources investigations have been conducted for the Pilatus site. There is a potential that cultural resources that are eligible for listing on the NRHP including archaeological sites, human remains, and features of the built environment, are present. If such resources are present, implementation of the Pilatus Alternative could result in inadvertent damage to or destruction of such resources. This would be a **direct, potentially significant** adverse effect. **No indirect** effects would occur. [*Potentially Greater*]

Mitigation Measure: Implement Mitigation Measures 3.6-1 and 3.6-2

The likelihood of encountering as-yet undiscovered resources in the Pilatus site is a possibility. If such a resource were encountered, and it appeared to be eligible for listing on the NRHP or CRHR, then potentially significant adverse effects under the Pilatus Alternative would be reduced to a **less-than-significant** level by implementing Mitigation Measures 3.6-1, 3.6-2 and 3.6-3, which require a site-specific survey to be performed, a monitor to be present in sensitive areas, and implementation of avoidance, preservation in place, or a treatment plan if resources

are encountered using techniques outlined in State CEQA Guidelines CCR Section 15126.4(b) (e.g., preservation, data recovery, recordation) or measures outlined in 36 CFR 800.6. No mitigation measures were identified to further reduce these effects.

3.6.6 RESIDUAL SIGNIFICANT EFFECTS

Effects from the inadvertent damage or destruction of cultural resources in the Cordova Hills or Pilatus sites would be less than significant with implementation of Mitigation Measures 3.6-1, 3.6-2, 3.6-3, and Final EIR Mitigation Measure CR-1. Therefore, implementation of the Proposed Action or Alternatives would not result in any residual significant effects on cultural resources.

3.6.7 CUMULATIVE EFFECTS

Cultural resources in the region (city of Rancho Cordova, eastern Sacramento County) generally consist of prehistoric sites, isolated artifacts, mining features, and structures from rocket testing facilities. During the 19th and 20th centuries, intensive mining in the region likely resulted in the destruction or disturbance of prehistoric sites, as well as earlier, smaller-scale mining sites. Since this period, the creation and enforcement of various regulations protecting cultural resources have substantially reduced the rate and intensity of these effects; however, even with these regulations, cultural resources are still degraded or destroyed as development in the region proceeds.

There are no known historic properties or archaeological resources within the Cordova Hills site, therefore the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives would not result in significant effects to historic properties or known archaeological resources. Although undiscovered cultural resources may underlie the Cordova Hills site, Mitigation Measures 3.6-2 and 3.6-3, along with Final EIR Mitigation Measure CR-1, would reduce the effects from the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives on as-yet-undiscovered cultural resources to a less-than-significant level. Because a cultural resources survey has not been conducted on the Pilatus site, there is a potential that significant (i.e., eligible for listing on the NRHP) prehistoric or historic-era archeological resources or human burials are present. However, implementation of Mitigation Measures 3.6-1, 3.6-2, and 3.6-3 would reduce the potential adverse effects to cultural resources under the Pilatus Alternative to a less-than-significant level. It is unknown whether the sites of other foreseeable projects contain historic resources, or whether the other foreseeable projects would implement appropriate mitigation to reduce effects on any resources that might be present. Furthermore, even after mitigation is implemented at the other foreseeable projects, it may be impossible to avoid the historic resource, and a substantial adverse change in the significance of the historical resource (such as damaging or destroying the qualities that make it significant) could result. Therefore, the other foreseeable projects could result in significant adverse effects to cultural resources in and of themselves. However, because all of the cultural resources effects of the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives would be reduced to a less-than-significant level, implementing one of these alternatives would not result in a cumulatively considerable contribution to a significant cumulative effect on historic or archaeological resources.

This page intentionally left blank.

3.7 ENVIRONMENTAL JUSTICE

3.7.1 INTRODUCTION

Under NEPA, an analysis of Federal actions that have the potential to result in disproportionately high and adverse effects on minority and low-income populations is required pursuant to Executive Order (EO) 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* (59 Federal Register 8 [FR] 7629). Under EO 12898, demographic information is used to determine whether minority populations or low-income populations are present in the areas potentially affected by the alternatives under consideration. If so, a determination must be made as to whether implementation of the alternatives under consideration may cause disproportionately high and adverse human health or environmental effects on those populations.

This section describes the potentially affected environmental justice populations, as well as potential environmental consequences, as they pertain to implementing the alternatives under consideration. Section 3.13, “Socioeconomics,” analyzes effects on social and economic characteristics.

3.7.2 AFFECTED ENVIRONMENT

The affected environment for environmental justice includes discussion of race, ethnic origin, and economic status of affected groups. For purposes of this analysis, the definitions of minority individuals and minority and low-income populations was provided in the Council on Environmental Quality’s (CEQ’s) *Guidance for Agencies on Key Terms in Executive 14 Order 12898* (CEQ 1997).

A minority population is present within a study area under either of the following conditions (CEQ 1997:25):

- ▶ The minority population percentage of the affected area is meaningfully greater than the affected area’s general population.
- ▶ The minority population percentage of the affected area exceeds 50 percent.

Low-income populations are identified based upon poverty thresholds provided by the U.S. Census Bureau and are identified in one of the following ways (CEQ 1997:25):

- ▶ The population percentage below the poverty level is meaningfully greater than that of the population percentage in the general population.
- ▶ The population percentage below the poverty level in the affected area exceeds 50 percent.

Significant concentrations of minority or low-income individuals are sometimes referred to as environmental justice populations. Historically minority and low-income populations have suffered a greater share of the adverse environmental and health effects of industry and development relative to the benefits.

For the purposes of this analysis, the “affected area” for identifying environmental justice effects was determined to be areas that could be affected by construction or operation of the alternatives under consideration. To represent this area, the environmental justice setting data is presented at a local, regional, and countywide level. The local level represents the geographic extent in which project-specific effects on proximate and adjacent populations

could occur. The Cordova Hills and Pilatus sites are contained within U.S. Census Bureau Census Tract (CT) 86 in Sacramento County. CT 86 is located in a rural, unincorporated area of Sacramento County. Approximately 81 percent of the population within CT 86 is located within the Rancho Murieta Census Designated Place (CDP). CDPs are delineated to provide data for settled concentrations of population that are identifiable by name but, like the community of Rancho Murieta, are not incorporated. By evaluating CT 86, the environmental justice analysis focuses on the smallest geographic area where U.S. Census data is available and can be applied to assessing effects specific to the populations in the vicinity of the Cordova Hills and Pilatus sites rather than the region as a whole.

For comparative purposes, and to evaluate population demographics of those areas potentially affected by more region-wide effects, the Rancho Cordova Census-County Division (CCD) has been evaluated. CCDs are geographic statistical subdivisions of counties established cooperatively by the Census Bureau and officials of state and local governments and are designed to represent broader community areas focused on employment centers. The Rancho Cordova CCD includes the city of Rancho Cordova and portions of the unincorporated communities of Carmichael, Gold River, Mather, La Riviera, and Rosemont. In addition, to provide a basis for comparison of both the localized and regional study areas, environmental justice demographic data is also provided for Sacramento County and the State of California.

MINORITY POPULATIONS

The CEQ defines minority individuals as persons from any of the following U.S. Census categories for race: Black/African American, Asian, Native Hawaiian or Other Pacific Islander, and American Indian or Alaska Native. Additionally, for the purposes of this analysis, minority individuals also include all other nonwhite racial categories that were added in the most recent census, such as “some other race” and “two or more races.” The CEQ also mandates that persons identified through the U.S. Census as ethnically Hispanic, regardless of race, should be included in minority counts (CEQ 1997:25).

Table 3.7-1 presents racial and ethnic characteristics for CT 86, the Rancho Murieta CDP, the Rancho Cordova CCD, Sacramento County, and the State of California. These data are from the 2010 decennial census, as the 2010 census is the most recently completed dataset that provides racial and ethnic heritage data at the local, regional, and state-wide level.

Geographic Area	White	Black/ African American	American Indian and Alaska Native	Asian	Native Hawaiian/ Pacific Islander	Some Other Race	Two or More Races	Hispanic (any race)
CT 86	86.2	2.8	0.8	3.3	0.2	3.1	3.6	10.4
Rancho Murieta CDP ¹	88.8	2.4	0.6	2.9	0.1	1.5	3.8	7.7
Rancho Cordova CCD	61.7	9.9	1.0	12.0	0.8	7.5	7.1	18.3
Sacramento County	57.5	10.4	1.0	14.3	1.0	9.3	6.6	21.6
State of California	57.6	6.2	1.0	13.0	1.0	17.0	4.9	37.6

Notes: CCD = Census-County Division; CDP = Census-Designated Place
¹ The Rancho Murieta CDP is located within CT 86.
 Source: U.S. Census Bureau 2010

As shown, no minority populations recognized by the U.S. Census Bureau are greater than 50 percent or are proportionally larger than in the state as a whole. The Rancho Cordova CCD had a higher proportion of residents identified as White (61.7 percent), while proportion of White residents in Sacramento County (57.5 percent) was essentially the same as the state average (57.6 percent). In general, the Rancho Cordova CCD and Sacramento County had a higher proportion of African-American populations than the state. The Hispanic population represented the largest non-white population within the Rancho Cordova CCD (18.3 percent) and Sacramento County (21.3 percent); however, these percentages are lower than the state average (37.6 percent). The proportions of residents responding as being American Indian, Asian, Pacific Islander, and “some other race” within the Rancho Cordova CCD and Sacramento County are generally consistent with the state. However, the proportions of residents responding as “two or more races” are higher statewide.

The population of individuals identifying themselves as White in CT 86 and the Rancho Murieta CDP, which is located within CT 86 (86.2 percent and 88.8, respectively), was greater than the Rancho Cordova CCD, Sacramento County, and the state as a whole. The African-American population and Asian population were substantially less than the surrounding communities and the state’s population. People identifying themselves as Hispanic represented the largest non-white group within CT 86 and the Rancho Murieta CDP, accounting for approximately 10.4 percent and 7.7 percent, respectively, of the total population. However, this percentage is substantially lower than the average Rancho Cordova CCD, County, state populations (18.3 percent, 21.6 percent, and 37.6 percent, respectively) identified as Hispanic.

LOW-INCOME POPULATIONS

Persons living with income below the poverty level are identified as “low-income,” according to the annual statistical poverty thresholds established by the U.S. Census Bureau. Income thresholds that vary by family size and composition to determine which families are living in poverty. Poverty thresholds do not vary geographically but are updated annually for inflation using the Consumer Price Index. According to the U.S. Census Bureau, the poverty threshold in 2011 was \$11,484 for an individual and \$22,891 for a family of four (U.S. Census Bureau 2011a).

Table 3.7-2 presents the median household income, per capita income, and proportion of individuals living below the poverty threshold for CT 86, the Rancho Cordova CCD, Sacramento County, and the State of California. Data in Table 3.7-2 were obtained from the U.S. Census Bureau 2007-2011 American Community Survey (ACS). Estimates from the ACS are all “period” estimates that represent data collected over a period of time (as opposed to “point-in-time” estimates, such as the decennial census, that approximate the characteristics of an area on a specific date). The primary advantage of using multiyear estimates in this analysis of low-income populations is the increased statistical reliability of the data for less populated areas and small population subgroups.

As shown in Table 3.7-2, the median household income for the Rancho Cordova CCD and Sacramento County (\$59,742 and \$56,563, respectively) was slightly less than the statewide median household income (\$60,632) in 2011. Similarly, the per capita income for Rancho Cordova CCD and Sacramento County (\$28,081 and \$27,190, respectively) is slightly less than the statewide median household income (\$29,647). CT 86 and the Rancho Murieta CDP had median household incomes (\$98,854 and \$101,878, respectively) and the per capita incomes of CT 86 and the Rancho Murieta CDP (\$34,854 and \$31,289, respectively) were substantially greater than the Rancho Cordova CCD, Sacramento County, and the statewide median household incomes and per capita incomes. This difference can be accounted for in part because patterns of household income in Sacramento County vary by

**Table 3.7-2
Median Household Income, Per Capita Income, and Poverty Levels for the Affected Area, 2011**

Geographic Area	Median Income	Per Capita Income	Percent of Population Below Poverty Level
CT 86	\$98,854	\$50,203	3.4
Rancho Murieta CDP ¹	\$101,878	\$52,821	3.7
Rancho Cordova CCD	\$59,742	\$28,081	14.4
Sacramento County	\$56,563	\$27,180	14.9
State of California	\$60,632	\$29,674	14.4

Notes: CCD = Census-County Division; CDP = Census Designated Place

¹ The Rancho Murieta CDP is located within CT 86.

Source: U.S. Census Bureau 2011b

geography. The highest income communities, including Rancho Murieta as well as Folsom, Gold River, and Wilton, had incomes that were twice or more than the lowest income communities, such as Parkway-South, Foothill Farms, and the City of Sacramento (County of Sacramento 2009:5-8).

The percentage of the population below the poverty level in CT 86, the Rancho Murieta CDP, the Rancho Cordova CCD, and Sacramento County does not exceed 50 percent and is not meaningfully greater than of the percentage of the general population in the state (i.e., areas where poverty levels are twice as much as the state [28.8 percent]). In 2011, the percentage of population at income levels below the poverty threshold in Sacramento County (14.9 percent) was slightly higher than the statewide average of 14.4 percent, while the Rancho Cordova CCD had the same poverty rate (14.4 percent) as the statewide poverty threshold. The populations below poverty thresholds in the CT 86 and the Rancho Murieta CDP (3.4 percent and 3.7 percent, respectively) were substantially lower than the Rancho Cordova CCD, county, and state. This difference is a result of the variation in poverty rates among communities in Sacramento County. Poverty rates in higher income communities, including Rancho Murieta, Folsom, Gold River, and Wilton, were 2 percent or less, while poverty rates among the lowest income communities in the region, such as Parkway-South, Foothill Farms, and the City of Sacramento, were 19 percent or more (County of Sacramento 2009:5-9).

3.7.3 REGULATORY FRAMEWORK/APPLICABLE LAWS, REGULATIONS, PLANS, AND POLICIES

State laws and regulations are provided for informational purposes and to assist with NEPA review. USACE has considered applicable state, regional, and local plans and ordinances as a part of the environmental review process for this EIS.

Sacramento County certified an EIR and approved the Proposed Action in January 2013. State, regional, and local plans, policies, laws, and ordinances were considered in the EIR and adopted mitigation measures have been incorporated into the Proposed Action.

FEDERAL PLANS, POLICIES, REGULATIONS, AND LAWS

National Environmental Policy Act, Section 1502

Provisions in NEPA found in Section 1502.16(c) of the Code of Federal Regulations (CFR) (40 CFR 1502.16[c]) require Federal agencies to identify potential conflicts between a proposed action and the related plans and policies of Federal, state, and local agencies and Native American tribes. This requirement helps Federal agencies identify potential conflicts that may cause adverse effects on the social and economic environment of a study area because many agencies' and tribes' plans and policies are designed to protect the people residing within their jurisdictions and/or the local economy they depend upon for their economic livelihoods (NEPAnet 2008).

Council on Environmental Quality

The CEQ *Regulations for Implementing the Procedural Provisions of NEPA* (40 CFR 1500–1508) provide guidance related to social and economic effect assessments by noting that the “human environment” assessed under NEPA is to be “interpreted comprehensively” to include “the natural and physical environment and the relationship of people with that environment” (40 CFR 1508.14). Furthermore, these regulations require agencies to assess “aesthetic, historic, cultural, economic, social, or health” effects, whether direct, indirect, or cumulative (40 CFR 1508.8).

Executive Order 12898

In 1994, President Clinton issued Executive Order 12898 regarding environmental justice. This order requires agencies to identify and address disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations and low-income populations in the United States. Two documents provide some measure of guidance to agencies required to implement this executive order: *Environmental Justice: Guidance under the National Environmental Policy Act* (CEQ 1997) and *Final Guidance for Incorporating Environmental Justice Concerns in EPA's NEPA Compliance Analysis* (U.S. Environmental Protection Agency [EPA] 1998). Both serve as guides for incorporating environmental justice goals into preparation of environmental impact statements under NEPA. These documents provide specific guidelines for determining whether there would be any environmental justice issues associated with a proposed Federal action.

STATE PLANS, POLICIES, REGULATIONS, AND LAWS

California Government Code Section 65040.12

The State of California defines environmental justice in Section 65040.12 of the California Government Code. Therein, environmental justice is defined as “the fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies.” Section 65040.12 requires the Governor's Office of Planning and Research to take the following actions:

- ▶ Consult with the Secretaries of the California Environmental Protection Agency, the Resources Agency, and the Business, Transportation and Housing Agency, the Working Group on Environmental Justice established pursuant to Section 72002 of the California Public Resources Code, any other appropriate State agencies, and all other interested members of the public and private sectors in this state.

- ▶ Coordinate the office’s efforts and share information regarding environmental justice programs with the CEQ, the EPA, the General Accounting Office, the Office of Management and Budget, and other Federal agencies.
- ▶ Review and evaluate any information from Federal agencies that is obtained as a result of their respective regulatory activities under Federal EO 12898, and from the Working Group on Environmental Justice established pursuant to Section 72002 of the California Public Resources Code.

Section 65040.12 also requires the Governor’s Office of Planning and Research to establish guidelines for addressing environmental justice issues in city and county general plans, including planning methods for the equitable distribution of public facilities and services, industrial land uses, and the promotion of more livable communities.

California Environmental Protection Agency Intra-Agency Environmental Justice Strategy

Pursuant to California Public Resources Code (PRC) sections 71110-71113, the California Environmental Protection Agency (CalEPA) has developed the intra-agency (agency-wide) strategy to identify and address any gaps in existing programs, policies, and activities that may impede the achievement of environmental justice. The strategy is the overarching environmental justice vision document and it sets forth the CalEPA’s environmental justice vision, mission, core values, goals, and objectives. The goals of the intra-agency strategy consist of (CalEPA 2004):

- ▶ ensuring meaningful public participation and promote community capacity-building to allow communities to effectively participate in environmental decision-making processes;
- ▶ integrating environmental justice into the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies;
- ▶ improving research and data collection to promote and address environmental justice related to the health and environment of communities of color and low-income populations; and
- ▶ ensuring effective cross-media coordination and accountability in addressing environmental justice issues.

California Resources Agency Environmental Justice Policy

All departments, boards, commissions, conservancies, and special programs of the California Resources Agency must consider environmental justice in their decision-making process if their actions have an effect on the environment, environmental laws, or policies. Such actions that require environmental justice consideration may include adopting regulations, enforcing environmental laws or regulations, making discretionary decisions or taking actions that affect the environment, or providing funding for activities affecting the environment.

The California Resources Agency defines “environmental justice” in a manner consistent with the State of California as “the fair treatment of people of all races, cultures and income with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies.” The agency states that its environmental justice policy is that the fair treatment of all people shall be considered during the planning, decision making, development, and implementation of its programs. The agency intends for its policy “to ensure that the public, including minority and low-income populations, are informed of opportunities to participate in the development and implementation of all Resources Agency programs, policies and activities, and that they are not

discriminated against, treated unfairly, or caused to experience disproportionately high and adverse human health or environmental effects from environmental decisions,” (California Resources Agency 2013).

3.7.4 ANALYSIS METHODOLOGY

As discussed above, the “affected area” can be described in terms of U.S. Census Bureau CT 86, the Rancho Murieta CDP, and the Rancho Cordova CCD, which together represent the local and regional areas that could potentially be affected by construction or operation of the alternatives under consideration. In addition, data compiled for Sacramento County and the state allows for a comparison of the demographic characteristics of local and regional areas to a larger reference area. For the purposes of an environmental justice screening, racial and ethnic characteristics were obtained from the U.S. Census Bureau 2010 decennial census and income characteristics and poverty status were obtained from the U.S. Census Bureau 2007-2011 ACS.

According to CEQ and EPA guidelines, the first step in conducting an environmental justice analysis is to define minority and low-income populations. Based on these guidelines, a minority population is present if (1) the minority population of the affected area exceeds 50 percent, or (2) if the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis. By the same rule, a low-income population exists if the affected area consists of 50 percent or more of the population has a household income below the poverty threshold, as defined by the U.S. Census Bureau, or if the percentage of people living in households below the poverty threshold in the affected area is substantially greater than the poverty percentage of the general population or other appropriate unit of geographic analysis.

The second step of an environmental justice analysis requires a determination of whether a “high and adverse” effect would occur. The CEQ guidance indicates that when determining whether the effects are high and adverse, agencies are to consider whether the risks or rates of effect “are significant (as employed by NEPA) or above generally accepted norms.”

The final step requires a determination as to whether the effect on the minority or low-income population is “disproportionately high and adverse.” Although none of the published guidelines define the term “disproportionately high and adverse,” CEQ includes a non-quantitative definition stating that an effect is disproportionate if it appreciably exceeds the risk to the general population.

Identification of an area that would be affected by the alternatives under consideration and contains a disproportionate amount of low-income or minority residents does not, by itself, constitute an environmental justice effect. Rather, an environmental justice effect would occur if the alternatives under consideration would disproportionately affect a population that is made up of 50 percent or greater for either the minority or low-income categories. If the jurisdiction has a population of 50 percent or greater for either the minority or low-income categories or has a population meaningfully greater (50 percent or greater) than the minority or low-income population percentage in the general population of the regional area, it is identified for more detailed analysis.

Because the Final EIR has already been certified, all Final EIR Mitigation Measures, the Rezone and Tentative Large Lot Parcel Map Conditions of Approval, and the obligations found in the Development Agreement (collectively referred to as the project entitlements) are considered a part of the Proposed Action. Thus, these measures and requirements are considered when analyzing the significance of effects under the Proposed Action.

Because the project entitlements were imposed on the Proposed Action by the County as part of its approval process, it is reasonable to assume that if one of the action alternatives were adopted, the County would impose similar conditions during the entitlement of the alternative.

THRESHOLDS OF SIGNIFICANCE

The determinations of the significance of effects for this analysis are based on professional standards regularly used in environmental review documents in the region. These thresholds encompass the factors taken into account under NEPA to determine the significance of an action in terms of its context and the intensity of its effects. To make a finding that disproportionately high and adverse effects would likely fall on a minority or low-income population as a result of implementation of the alternatives under consideration, three conditions must be met simultaneously:

- ▶ a minority or low-income population must reside in the effect zone,
- ▶ a high and adverse effect must exist, and
- ▶ the effect on the minority or low-income population must be disproportionately high and adverse.

3.7.5 ENVIRONMENTAL CONSEQUENCES AND MITIGATION MEASURES

EFFECTS ANALYSIS

Effects that would occur under each alternative development scenario are identified as follows: NA (No Action), PA (Proposed Action), EDP (Expanded Drainage Preservation), EP (Expanded Preservation), P (Pilatus), and RC (Regional Conservation). The effects for each alternative are compared relative to the PA at the end of each effect conclusion (i.e., similar, greater, lesser).

EFFECT 3.7-1	Potential Effects on Minority Populations. <i>Implementation of the Proposed Action or Alternatives would not create a disproportionate placement of adverse environmental effects on minority communities.</i>
-----------------	---

NA

Under the No Action Alternative, no new development would occur that could have a potential adverse effect on a minority population; thus, **no indirect** or **direct** adverse effects would occur. [*Lesser*]

Mitigation Measures: No mitigation measures are required.

PA, EDP, EP, P, RC

As shown in Table 3.7-1, no minority populations recognized by the U.S. Census Bureau are greater than 50 percent of the population in the relevant geographic area or are proportionally larger than in Sacramento County or the state. In 2010, the minority population in CT 86, the Rancho Murieta CDP, and the Rancho Cordova CCD was approximately 13.8 percent, 11.2 percent, and 38.3 percent, respectively. These percentages are lower than the average percent minority population in Sacramento County (42.5 percent) and the state (42.4 percent). The Hispanic population represented the largest non-Caucasian population within CT 86, the Rancho Murieta CDP, the Rancho Cordova CCD (10.4 percent, 7.7 percent, and 18.3 percent, respectively). These percentages are lower than the average Sacramento County population (21.3 percent) and average percentage of the state population

(37.6 percent) identified as Hispanic. Therefore, no minority populations would be disproportionately affected from implementation of the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives, and **no indirect or direct** effects would occur. *[Similar]*

Mitigation Measure: No mitigation measures are required.

EFFECT Potential Effects on Low-Income Populations. *Implementation of the Proposed Action or Alternatives*
3.7-2 *would not create a disproportionate placement of adverse environmental effects on low-income populations.*

NA

Under the No Action Alternative, no new development would occur that could have a potential effect on a low-income population; thus, **no indirect or direct** effects would occur. *[Lesser]*

Mitigation Measures: No mitigation measures are required.

PA, EDP, EP, P, RC

As shown in Table 3.7-1, the percentage of the population in CT 86, the Rancho Murieta CDP, and the Rancho Cordova CCD that live in households with incomes below the poverty level (3.4 percent, 3.7 percent, and 14.4 percent, respectively) does not exceed 50 percent and is not meaningfully greater than the percentage of the general population in Sacramento County (14.9 percent) and the state (14.4 percent) who live in households with income levels below the poverty level. Therefore, implementation of the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives would not cause a disproportionately high and adverse effect on low-income populations and **no indirect or direct** effects would occur. *[Similar]*

Mitigation Measure: No mitigation measures are required.

3.7.6 RESIDUAL SIGNIFICANT EFFECTS

No adverse effects associated with environmental justice would occur. Therefore, there would be no residual significant effects.

3.7.7 CUMULATIVE EFFECTS

The cumulative context for environmental justice effects includes past, present, and reasonably foreseeable future projects in CT 86, which includes the Rancho Murieta CDP, and the Rancho Cordova CCD. These areas represent the local and regional areas that could potentially be affected by construction or operation of the alternatives under consideration.

The alternatives under consideration would not cause a disproportionately high and adverse effect on minority or low-income populations. Based on 2010 and 2011 U.S. Census Bureau data, no minority or low-income populations are located within CT 86 or the Rancho Cordova CCD (where the Cordova Hills and Pilatus sites and the other foreseeable projects are located). CT 86 and the Rancho Cordova CCD do not contain minority populations that are greater than 50 percent or are proportionally larger than in Sacramento County or the state as a whole. The percentage of the population living in households with income levels below the poverty level in CT

86 and the Rancho Cordova CCD does not exceed 50 percent and is not meaningfully greater than of the population percentage of the general population in Sacramento County and state as a whole. Therefore, a cumulatively significant effect related to disproportionate high and adverse effects on minority and low-income populations would not occur.

3.8 GEOLOGY, SOILS, MINERALS, AND PALEONTOLOGICAL RESOURCES

3.8.1 INTRODUCTION

This analysis presents a description of the existing environment related to geology, soils, minerals, and paleontological resources, discusses regulations that are pertinent to these topics, and provides an analysis of potential effects of the alternatives under consideration. Feasible mitigation measures are recommended where appropriate, to reduce adverse effects.

3.8.2 AFFECTED ENVIRONMENT

GEOLOGY

Regional Geology

The Cordova Hills and Pilatus sites are located along the margin between the eastern edge of the Sacramento Valley and the western foothills of the Sierra Nevada Mountain Range. The Sierra Nevada trends north-northwest from Bakersfield to Lassen Peak, and is composed of northwest-trending belts of metamorphic, volcanic, and igneous rocks that have undergone intense deformation, faulting, and intrusion. Active faults that mark the eastern edge of the Sierra Nevada have resulted in upthrusting and tilting of the entire Sierra Nevada block in the last 5 million years—steeply on the eastern edge (adjacent to the Mono Basin), and gently along the western edge (where the Cordova Hills site is located). The gently rolling Sierra Nevada foothills are composed of metamorphosed sedimentary rocks that have been intruded by igneous rocks. The rock formations that make up the western edge of the Sierra Nevada block likely originally formed as a volcanic arc that was later accreted (added) to the western margin of the continent during the Jurassic period (Day 1992). The Cordova Hills and Pilatus sites lie within the Western Sierra Metamorphic Belt, which contains primarily volcanic and sedimentary rocks that were added to the continental margin during the Jurassic period. These rocks are overlain by younger upper Cretaceous and Tertiary sedimentary rocks of the Central Valley.

Local Geology

The Cordova Hills and Pilatus sites are located within the U.S. Geological Survey (USGS) Buffalo Creek 7.5-Minute Quadrangle. The topography is variable. The western portion of the Cordova Hills site is gently rolling with elevations ranging from approximately 230 to 250 feet above mean sea level (msl). The southwestern portion of the Cordova Hills site slopes steeply to the southeast with elevations ranging from approximately 230 feet msl to 140 feet msl. Elevations in the eastern portion of the Cordova Hills site range from 250 to 150 feet msl with areas of steep slopes. Several creek channels bisect the Cordova Hills site, flowing from a northeast to southwest direction. Rock outcrops are present at the higher elevations in the eastern portion of the Cordova Hills site. (Wallace Kuhl & Associates, Inc. [Wallace Kuhl] 2007a and 2007b.) The Pilatus site is nearly level.

Exhibit 3.8-1 shows the geologic formations exposed at the surface on the Cordova Hills and Pilatus sites based on the *Generalized Geology of the Folsom 15-Minute Quadrangle* (Lloyd 1984). The Valley Springs Formation was deposited during the Miocene epoch on an apparently uneven surface that had moderate or low relief and was largely the product of an earlier erosional cycle. This erosional cycle was terminated in the middle Miocene epoch by deformation in the Sierra Nevada, which tilted the Sierra Nevada block and caused the stream courses to steepen,

thus increasing their erosive power. Following this erosional period, the Sierra Nevada entered into a period of volcanism. Although the lava did not flow for long distances down the mountains, large quantities of pumice and coarse fragments were thrown out during the eruptions, and were subsequently washed into streams and transported downstream to form the fluvial deposits of the Valley Springs Formation. The flows during this period of time consisted primarily of rhyolite. During the later Miocene and early Pliocene epochs, a second period of volcanism in the Sierra Nevada resulted in widespread andesitic flows. Mudflows and erosional forces carried andesitic remnants downstream to the valley floor to form the fluvial deposits of the Mehrten Formation (Piper et al. 1939).

Quaternary Alluvium

Quaternary alluvium at the Cordova Hills and Pilatus sites is of Pleistocene (1.8 million years Before Present [B.P.]) and Holocene (11,700 years B.P. to present day) age. It consists of sand, silt, and gravel carried by erosional forces and deposited by local watercourses.

Tertiary Alluvium

Tertiary alluvium at the Cordova Hills and Pilatus sites is of Pliocene age (approximately 1.8-5.3 million years B.P.). It consists of sand, silt, and gravel carried by erosional forces and deposited by local watercourses.

Mehrten Formation

The Mehrten Formation is of Pliocene-Miocene age (approximately 9 million years B.P.). It typically consists of sandstone, siltstone, and conglomerate that are interbedded with andesitic breccia from volcanic lava flows that occurred in the Sierra Nevada. However, test pits excavated by Wallace Kuhl (2007a) indicated that the Mehrten Formation at the Cordova Hills site does not contain mudflow breccia or conglomerate.

Valley Springs Formation

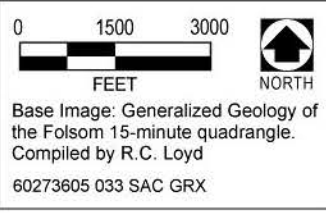
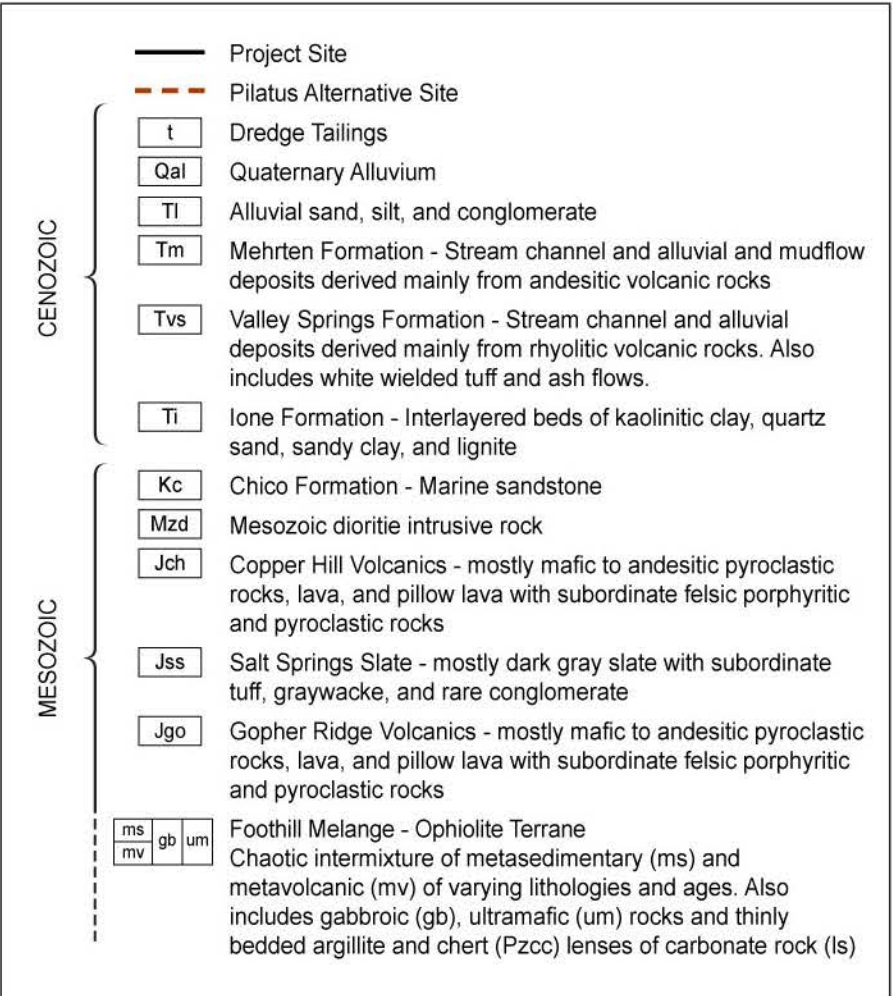
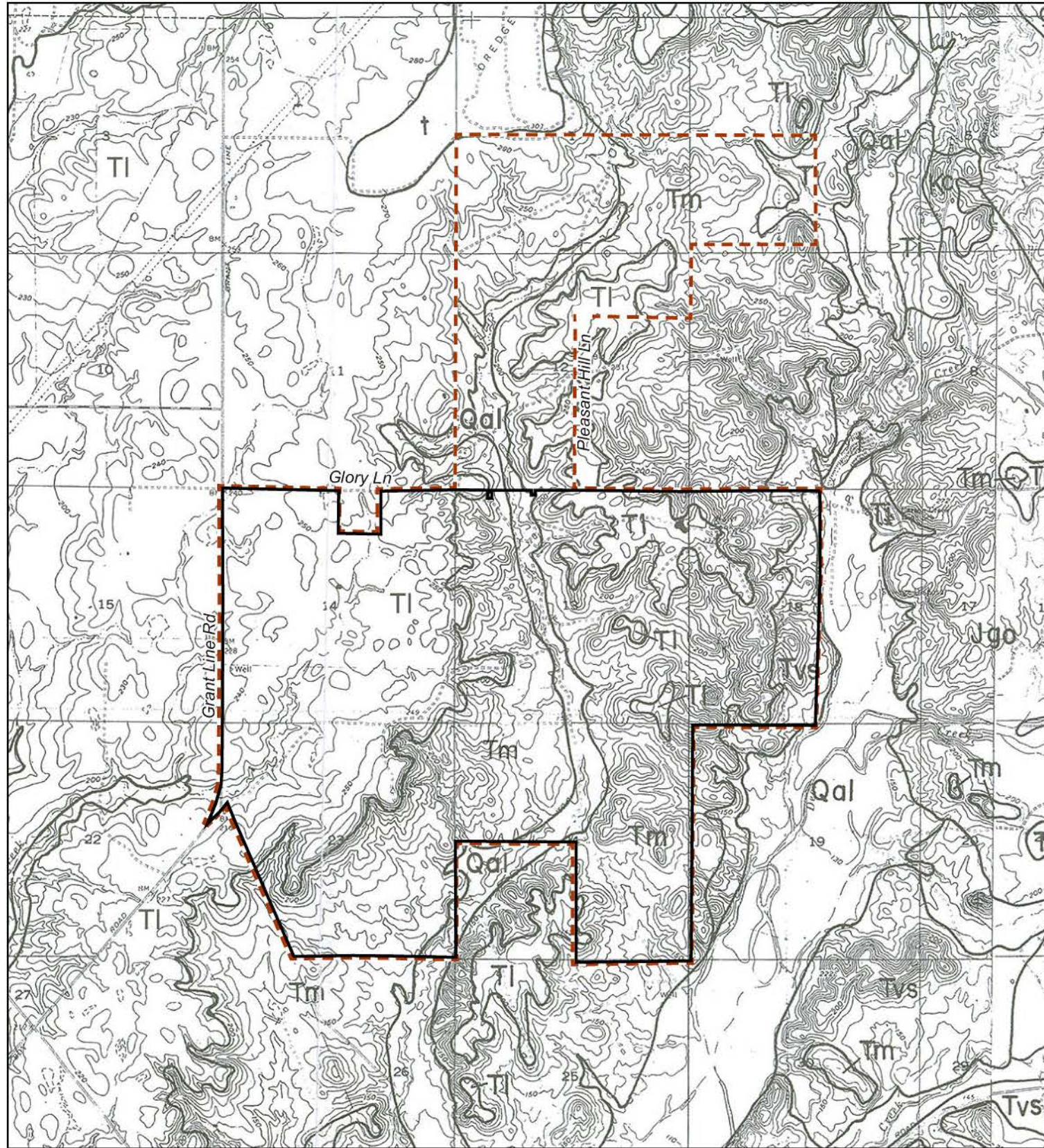
The Valley Springs Formation is of mid-Miocene age (approximately 24 million years B.P.). It consists of pumice, rhyolitic tuff, sandstone, and conglomerate from volcanic lava flows that occurred in the Sierra Nevada.

REGIONAL SEISMICITY AND FAULT ZONES

Potential seismic hazards resulting from a nearby moderate to major earthquake can generally be classified as primary and secondary. The primary effect is fault ground rupture, also called surface faulting. Common secondary seismic hazards include ground shaking, liquefaction, and subsidence. Each of these potential hazards is discussed below.

Fault Ground Rupture

Surface rupture is an actual cracking or breaking of the ground along a fault during an earthquake. Structures built over an active fault can be torn apart if the ground ruptures. Surface ground rupture along faults is generally limited to a linear zone a few yards wide. The Alquist-Priolo Earthquake Fault Zoning Act (Alquist-Priolo Act) (see Section 3.8.3, “Regulatory Framework/Applicable Laws, Regulations, Plans and Policies,” below) was created to prohibit the location of structures designed for human occupancy across the traces of active faults, thereby reducing the loss of life and property from an earthquake. The Cordova Hills site is not located in an Alquist-Priolo Earthquake Fault Zone (California Geological Survey [CGS] 2010). The nearest fault zoned under



Source: Loyd 1984

Exhibit 3.8-1

Geologic Formations at the Cordova Hills and Pilatus Sites

the Alquist-Priolo Act is the northern segment of the Cleveland Hills Fault located near Lake Oroville, more than 50 miles north of the Cordova Hills and Pilatus sites.

Seismic Ground Shaking

Ground shaking, motion that occurs as a result of energy released during faulting, could potentially result in the damage or collapse of buildings and other structures, depending on the magnitude of the earthquake, the location of the epicenter, and the character and duration of the ground motion. Other important factors to be considered are the characteristics of the underlying soil and rock and, where structures exist, the building materials used and the workmanship of the structures.

Faults in the Region

The Foothills Fault System is the dominant structural feature of the western Sierra Nevada. The steeply dipping to vertical component faults that make up this system trend northwest through an area approximately 200 miles long and 30 miles wide, from Mormon Bar (east of Merced) in the south to Lake Almanor in the north. The East and West Branches of the Bear Mountains Fault Zone are two of the largest fault zones within the Foothills Fault System. Jennings (1994) indicates that the West Bear Mountains Fault Zone, which is located approximately 7 miles east of the Cordova Hills and Pilatus sites, shows no evidence of activity in the last 1.6 million years (i.e., Pre-Quaternary in age). However, Jennings (1994) does indicate that a portion of the East Bear Mountains Fault Zone, near the community of Rescue, shows evidence of displacement in the last 11,700 to 700,000 years (i.e., Pleistocene age). A detailed analysis prepared by Tierra Engineering Consultants in 1983 and summarized by Wahl et al. in 1989 indicated that this fault zone could generate a magnitude 6.0-6.5 earthquake with a return period of 400 years. However, this fault has not been classified as “active” by the CGS and the slip rate of the Foothills Fault System is extremely low (0.05 millimeters per year), which is well below the planning threshold for major earthquakes (Wills et al. 2007).

With the exception of the Cleveland Hills fault located near Lake Oroville, the western Sierra Nevada foothills have not been seismically active in the last 11,700 years (Holocene time) (Jennings 1994). Faults with known or estimated activity during the Holocene are generally located in the San Francisco Bay Area to the west, or in the Lake Tahoe area to the east. Table 3.8-1 lists the known active faults (i.e., evidence of movement during the last 11,700 years), approximate distance from the proposed facilities, projected slip rate, and projected maximum moment magnitude.

The intensity of ground shaking depends on the distance from the earthquake epicenter to the site, the magnitude of the earthquake, site soil conditions, and the characteristics of the source. Ground motions from seismic activity can be estimated by probabilistic method at specified hazard levels and by site-specific design calculations using a computer model. The CGS Probabilistic Seismic Hazards Assessment Model indicates a minimum horizontal acceleration of 0.109g for soft rock, 0.1g for firm rock, and 0.145g for alluvial conditions (where g is the percentage of gravity) at the Cordova Hills site with a 10 percent probability of earthquake occurrence in a 50-year timeframe (also known as the “Design Basis Earthquake” [DBE]) for use in earthquake-resistant design (CGS 2012). Stated another way, these calculations indicated there is a 1-in-10 probability that an earthquake will occur within 50 years that would result in a peak horizontal ground acceleration exceeding 0.1g.

**Table 3.8-1
Regional Faults with Evidence of Activity During Holocene Time**

Fault Name	Approximate Distance from Cordova Hills and Pilatus Sites (miles)	Regional Location	Maximum Moment Magnitude	Slip Rate (mm/yr)
East Branch Bear Mountains Fault Zone	14	Sierra Nevada Mountains	6.5	N/A
Dunnigan Hills Fault	45	Western Sacramento Valley	6.5	N/A
Cleveland Hills/Swain Ravine Fault	50	Sierra Nevada Foothills	6.5	0.05
West Tahoe/Dollar Point Fault Zone	45	Lake Tahoe	7.2	N/A
North Tahoe/Incline Village Fault Zone	50	Lake Tahoe	7.0	0.2–1.0
Great Valley Fault Zone Segment 4	60	Margin between Sacramento Valley and Coast Range	6.6	1.5
Great Valley Fault Zone Segment 5	65	Margin between Sacramento Valley and Coast Range	6.5	1.5
Green Valley Fault	65	Coast Range	6.2	5.0
Greenville Fault Zone (includes Clayton and Marsh Creek sections)	65	Coast Range	6.6	2.0
Concord Fault	70	Coast Range	6.2	4.0

Notes: mm/yr = millimeters per year; N/A = not available or not known
Sources: Cao 2003, Jennings 1994, Ichinose et al. 2000, Sawyer 1999, Sawyer and Haller 2000, Wills et al. 2007, Wahl et al. 1989; data compiled by AECOM in 2012

Seismic Seiches

Earthquakes may affect open bodies of water by creating seismic sea waves and seiches. Seismic sea waves (often called “tidal waves”) are caused by abrupt ground movements (usually vertical) on the ocean floor in connection with a major earthquake. Because of the long distance of the Cordova Hills site from the Pacific Ocean, seismic sea waves would not represent a hazard. A seiche is a sloshing of water in an enclosed or restricted water body, such as a basin, river, or lake, which is caused by earthquake motion; the sloshing can occur for a few minutes or several hours. Although an 1868 earthquake along the Hayward fault in the San Francisco Bay Area is known to have generated a seiche along the Sacramento River, the affected area was located in the Sacramento–San Joaquin Delta. As there are no sizeable water bodies in the vicinity, seiches would not occur near the Cordova Hills or Pilatus sites.

Ground Failure/Liquefaction

Soil liquefaction occurs when ground shaking from an earthquake causes a sediment layer saturated with groundwater to lose strength and become fluid, similar to quicksand. Factors determining liquefaction potential are soil type, the level and duration of seismic ground motions, the type and consistency of soils, and the depth to groundwater. Loose sands and peat deposits and recent Holocene-age sediment are more susceptible to liquefaction, while clayey silts, silty clays, and clays deposited in freshwater environments are generally stable under the influence of seismic ground shaking.

Liquefaction poses a hazard to engineered structures. The loss of soil strength can result in bearing capacity insufficient to support foundation loads, increased lateral pressure on retaining or basement walls, and slope instability.

Based on a review of information contained in the geotechnical reports prepared by Wallace Kuhl (2007a, 2007b) it is unlikely that Cordova Hills site soils would be subject to liquefaction in the event of an earthquake because the Cordova Hills site is located in stable soils underlain by bedrock at shallow depths, the potential seismic sources are a relatively long distance away, and the groundwater table is at least 100 feet below the ground surface (bgs).

A geotechnical report has not been prepared by the project applicant and is not available for that portion of the Pilatus site that is north of the Cordova Hills site. However, given that that property is immediately adjacent to the Cordova Hills site and is composed of the same geologic formations with the same depositional history (see Exhibit 3.8-1), it is unlikely that Pilatus site soils would be subject to liquefaction in the event of an earthquake for the same reasons described above.

Subsidence, Settlement, and Soil Bearing Capacity

Subsidence of the land surface can be induced by both natural and human phenomena. Natural phenomena that can cause subsidence can result from tectonic deformations and seismically induced settlements; from consolidation, hydrocompaction, or rapid sedimentation; from oxidation or dewatering of organic-rich soils; and from subsurface cavities. Subsidence related to human activity can result from withdrawal of subsurface fluids or sediment. Pumping of water for residential, commercial, and agricultural uses from subsurface water tables causes more than 80 percent of the identified subsidence in the United States (Galloway et al. 1999). Lateral spreading is the horizontal movement or spreading of soil toward an open face, such as a streambank, the open side of fill embankments, or the sides of levees. The potential for failure from subsidence and lateral spreading is highest in areas where the groundwater table is high, where relatively soft and recent alluvial deposits exist, and where creek banks are relatively high. Soil bearing capacity is the ability of soil to support the loads applied to the ground; where the bearing capacity is too low to support proposed structures, subsidence and settlement may occur.

Based on a review of Natural Resource Conservation Service (NRCS) (2012) soil survey data and the geotechnical reports prepared by Wallace Kuhl (2007a and 2007b), Cordova Hills site soils would not be subject to hazards from subsidence or settlement because the groundwater table is at least 100 feet bgs and because the Cordova Hills site soils generally consist of older bedrock materials of adequate bearing strength.

As noted above, a geotechnical report is not available for that portion of the Pilatus site that is north of the Cordova Hills site. However, given that that property is immediately adjacent to the Cordova Hills site and is composed of the same geologic formations with the same depositional history (see Exhibit 3.8-1), it is unlikely that Pilatus site soils would be subject to hazards from subsidence or settlement for the same reasons described above.

SLOPE STABILITY

A landslide is the downhill movement of masses of earth material under the force of gravity. The factors contributing to landslide potential are steep slopes, unstable terrain, and proximity to earthquake faults. This process typically involves the surface soil and an upper portion of the underlying bedrock. Movement may be

very rapid, or so slow that a change of position can be noted only over a period of weeks or years (creep). The size of a landslide can range from several square feet to several square miles.

Several areas of the Cordova Hills site contain steep slopes; however, no landslides have been recorded in the Cordova Hills site and vicinity.

The Pilatus site is nearly level, and therefore would not represent a slope stability hazard.

SOILS

Exhibit 3.8-2 shows the locations of the soil types of the proposed facilities and Table 3.8-2 summarizes the relevant general soil characteristics.

Subsurface Conditions

Based on data contained in the geotechnical reports (Wallace Kuhl 2007a and 2007b), the subsurface conditions vary across the Cordova Hills site depending on the specific location. In those areas underlain by the Mehrten Formation, subsurface conditions consist of gravelly silty sands, sandy silty clays, and sandy gravels at depths of 1-5 feet bgs. Below this layer, test borings encountered variably cemented clayey sandy silts, and variably cemented sandy silty gravels from 5-11.5 feet bgs. Test bores terminated at depths below 11.5 feet due to hard bedrock. In those areas underlain by Quaternary alluvium, the subsurface conditions consist of gravelly silty sands and gravelly silty clays to a maximum depth explored of 12 feet bgs. Additional test pits in the southeastern portion of the Cordova Hills site (Wallace Kuhl 2007b) yielded results similar to those described above, except that sandstone layers were encountered at 7 feet bgs.

Approximately half of the test pits excavated in March 2007 (Wallace Kuhl 2007a) encountered perched groundwater above cemented soils, which caused excessive caving of the side walls. Perched shallow water and seepage conditions are expected at the Cordova Hills site, particularly during the winter months. Free groundwater was not encountered in any of the test pits and the groundwater table is anticipated to be at least 100 feet bgs (Wallace Kuhl 2007a and 2007b).

As noted above, a geotechnical report is not available for that portion of the Pilatus site that is north of the Cordova Hills site. However, given that that property is immediately adjacent to the Cordova Hills site and is composed of the same geologic formations with the same depositional history (see Exhibit 3.8-1), subsurface conditions at the Pilatus site are expected to be similar to those described above.

Naturally Occurring Asbestos

Asbestos is a term applied to several types of naturally occurring fibrous materials found in rock formations throughout California (i.e., naturally occurring asbestos or “NOA”). Exposure and disturbance of rock and soil that contains asbestos can result in the release of fibers to the air and consequent exposure to the public. All types of asbestos are now considered hazardous and pose public health risks. Asbestos is commonly found in ultramafic rock, including serpentine. Two forms of asbestos are associated with serpentinite: chrysotile asbestos and tremolite/actinolite asbestos. In 2004, after the Sacramento Metropolitan Air Quality Management District (SMAQMD) determined that NOA was present in the Folsom area, SMAQMD issued Advisory 04-05(2) and commissioned the CGS to perform a study, published in 2006, entitled *Relative Likelihood for the Presence of Naturally Occurring Asbestos in Eastern Sacramento County, California* (Special Report 192) (Higgins and

**Table 3.8-2
Soil Characteristics at the Cordova Hills and the Pilatus Site**

Soil Map Unit Name	Shrink-Swell Potential ¹	Permeability ²	Water Erosion Hazard ³	Wind Erosion Hazard ⁴	Drainage	Limitations
Amador-Gillender complex, 2-15 percent slopes	Low	Moderately high	Moderate	5	Well drained	Buildings and Roads: severe due to soft bedrock at shallow depths Septic Systems: severe due to shallow depth to bedrock and restricted permeability due to bedrock or hardpan
Bruella sandy loam, 2-5 percent slopes	Moderate	High	Moderate	3	Well drained	Buildings and Roads: moderate due to shrink-swell potential Septic Systems: severe due to restricted permeability
Corning complex, 0-8 percent slopes	Moderate	Moderately high	Low	6	Well drained	Buildings and Roads: no limitations Septic Systems: severe due to restricted permeability
Corning-Redding complex, 8-30 percent slopes	Moderate	Moderately high	Low	6	Well drained	Buildings: severe due to steep slopes Roads: Corning – severe due to steep slopes; Redding – moderate due to steep slopes and shrink-swell potential Septic Systems: severe due to restricted permeability, shallow depth to hardpan, steep slopes
Coyotecreek silt loam, 0-2 percent slopes, occasionally flooded	Low	Moderately high	Moderate	6	Well drained	Buildings and Roads: severe due to occasional flooding Septic Systems: severe due to restricted permeability, occasional flooding
Creviscreek sandy loam, 0-3 percent slopes	Low	High	Moderate	3	Moderately well drained	Buildings and Roads: severe due to soil saturation at shallow depths Septic Systems: severe due to soil saturation at shallow depths, slow permeability, shallow depth to bedrock
Hadselville-Pentz complex, 2-30 percent slopes	Low	High	Moderate	3	Moderately well drained	Buildings and Roads: severe due to soft bedrock at shallow depths, steep slopes Septic Systems: severe due to shallow depth to bedrock, restricted permeability due to shallow bedrock or hardpan, steep slopes, seepage in bottom layer
Hicksville loam, 0-2 percent slopes, occasionally flooded	Moderate	Moderately high	Moderate	6	Moderately well drained	Buildings and Roads: severe due to soil saturation at shallow depths, occasional flooding; moderate due to shrink-swell potential Septic Systems: severe due to soil saturation at shallow depths, slow permeability, occasional flooding
Hicksville sandy clay loam, 0-2 percent slopes, occasionally flooded	Moderate	Moderately high	Low	5	Moderately well drained	Buildings and Roads: severe due to soil saturation at shallow depths, occasional flooding; moderate due to shrink-swell potential Septic Systems: severe due to soil saturation at shallow depths, slow permeability, shallow depth to bedrock, occasional flooding
Keyes sandy loam, 2-15 percent slopes	Moderate	Moderately high	Moderate	3	Moderately well drained	Buildings: moderate due to shrink-swell potential Roads: severe due to thin hardpan at shallow depths; moderate due to shrink-swell potential Septic Systems: severe due to shallow depth to bedrock, shallow depth to hardpan, restricted permeability due to bedrock or hardpan
Pardee-Ranchoseco complex, 3-15 percent slopes	Low	Moderately high	Low	6	Well drained	Buildings and Roads: severe due to hard bedrock at shallow depths Septic Systems: severe due to shallow depth to bedrock, restricted permeability due to bedrock or hardpan
Pentz-Lithic xerorthents complex, 30-50 percent slopes	Low	High	Moderate	3	Well drained	Buildings and Roads: severe due to steep slopes; moderate due to soft bedrock at shallow depths Septic Systems: severe due to shallow depth to bedrock, steep slopes, restricted permeability due to bedrock or hardpan, seepage in bottom layer
Peters Clay, 1-8 percent slopes	High	Moderately high	Moderate	4	Well drained	Buildings and Roads: severe due to shrink-swell potential, soft bedrock at shallow depths, low soil bearing strength Septic Systems: severe due to shallow depth to bedrock, restricted permeability due to bedrock or hardpan
Red Bluff loam, 2-5 percent slopes	Moderate	Moderately high	Moderate	6	Well drained	Buildings and Roads: moderate due to shrink-swell potential Septic Systems: severe due to slow permeability
Red Bluff-Redding complex, 0-5 percent slopes	Moderate	Moderately high	Moderate	6	Well drained	Buildings and Roads: moderate due to shrink-swell potential Septic Systems: severe due to slow permeability, shallow depth to hardpan
Redding gravelly loam, 0-8 percent slopes	Moderate	Moderately high	Moderate	6	Moderately well drained	Buildings and Roads: moderate due to shrink-swell potential Septic Systems: severe due to shallow depth to hardpan and slow permeability
Sailboat silt loam, drained, 0-2 percent slopes, occasionally flooded	Low	Moderately high	Moderate	6	Somewhat poorly drained	Buildings and Roads: severe due to occasional flooding; moderate due to shrink-swell potential Septic Systems: severe due to slow permeability, occasional flooding
San Joaquin silt loam, 0-3 percent slopes	Low	Moderately high	Moderate	6	Moderately well drained	Buildings and Roads: no limitations Septic Systems: severe due to shallow depth to hardpan, slow permeability
San Joaquin silt loam, 3-8 percent slopes	Low	Moderately high	Moderate	6	Moderately well drained	Buildings and Roads: no limitations Septic Systems: severe due to shallow depth to hardpan, slow permeability
Vleck gravelly loam, 2-15 percent slopes	Moderate	Moderately high	Moderate	6	Moderately well drained	Buildings and Roads: severe due to shrink-swell potential and low soil bearing strength Septic Systems: severe due to shallow depth to hardpan, slow permeability, shallow depth to bedrock
Xerofluvents, 0-2 percent slopes, flooded	N/R	N/R	N/R	N/R	Somewhat excessively drained	N/R
Xerothents, dredge tailings, 2-50 percent slopes	Low	High	N/R	N/R	Somewhat excessively drained	N/R

Notes: N/R = not rated

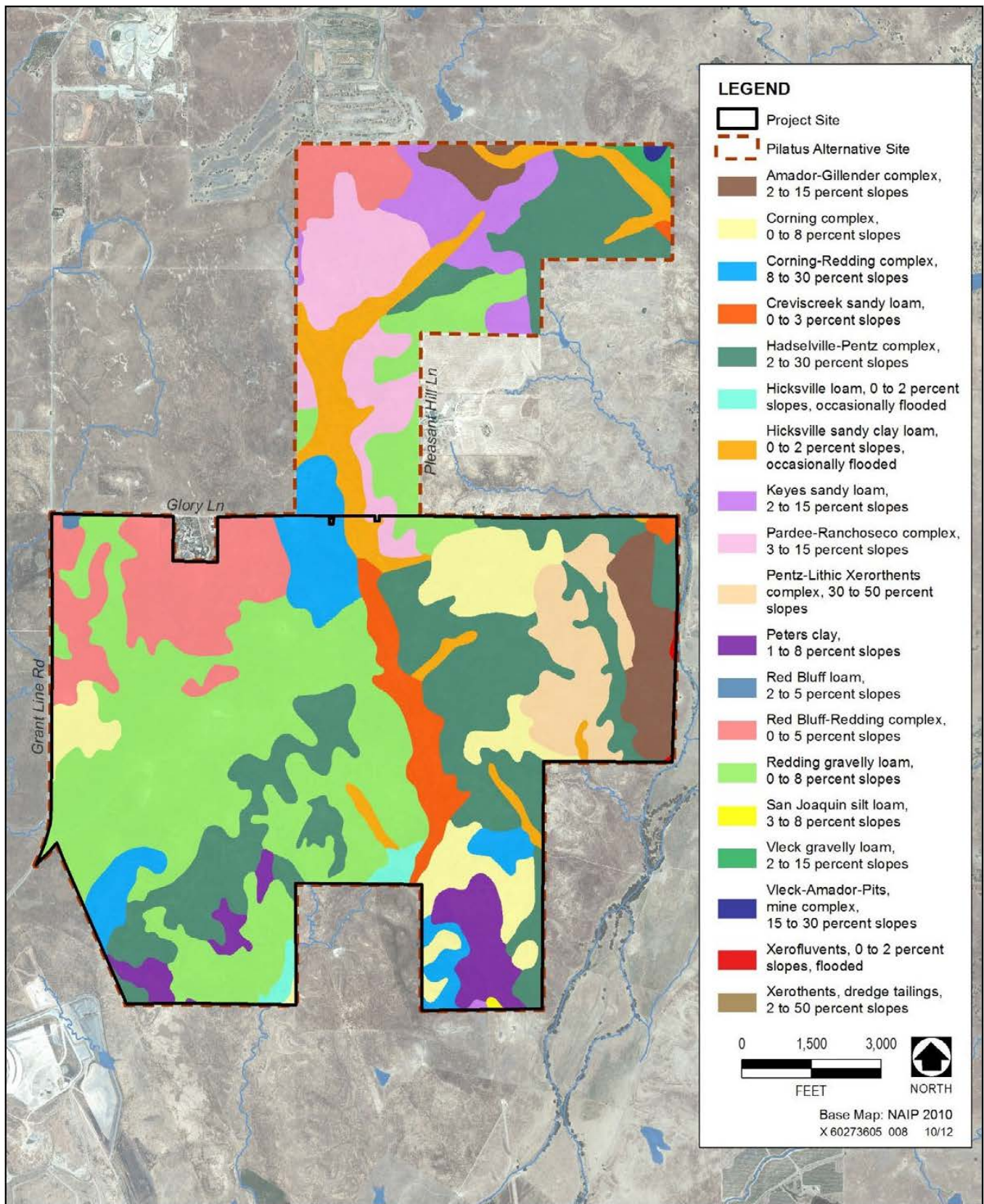
¹ Based on percentage of linear extensibility. Shrink-swell potential ratings of “moderate” to “very high” can result in damage to buildings, roads, and other structures.

² Based on standard U.S. Department of Agriculture (USDA) saturated hydraulic conductivity (Ksat) class limits; Ksat refers to the ease with which pores in a saturated soil transmit water.

³ Based on the erosion factor “Kw whole soil,” which is a measurement of relative soil susceptibility to sheet and rill erosion by water.

⁴ The soils assigned to Group 1 are the most susceptible to wind erosion, and those assigned to Group 8 are the least susceptible.

Source: NRCS 2012



Source: NRCS Soil Survey Geographic Database (SSURGO) 2007

Exhibit 3.8-2

Soil Types at the Cordova Hills and Pilatus Sites

Clinkenbeard 2006). The map contained in Special Report 192 indicates that the Cordova Hills site is located in the category “Areas Least Likely to Contain NOA,” but it is located approximately 2,000 feet west of an area designated as “Moderately Likely to Contain NOA.” Test pits excavated by Wallace Kuhl (2007a and 2007b) found no evidence of ultramafic or serpentinite rock. Based on the known geology of the Cordova Hills site, NOA is not expected to be present.

Although test pits have not been excavated at the Pilatus site, a review of the above-referenced publications indicates that it also is designated as “Areas Least Likely to Contain NOA” (Higgins and Clinkenbeard 2006). Based on the known geology of the northern portion of the Pilatus site discussed previously in this section, NOA is not expected to be present.

Expansive Soils

Expansive soils are composed largely of clays, which greatly increase in volume when saturated with water and similarly shrink when dried. Because of this “shrink-swell” effect, building foundations may rise during the rainy season and fall during the dry season. If this expansive movement varies underneath different parts of a single building, foundations may crack, structural portions of the building may be distorted, and doors and windows may become warped so that they no longer function properly. The potential for soil to undergo shrink and swell is greatly enhanced by the presence of a fluctuating, shallow groundwater table. Changes in the volume of expansive soils can result in the consolidation of soft clays after the lowering of the water table or the placement of fill.

Based on a review of NRCS (2012) soil survey data and the geotechnical reports prepared by Wallace Kuhl (2007a and 2007b), surface and near-surface soils at the Cordova Hills site have a moderate to high shrink-swell potential, meaning that they have a high clay content and would be expected to undergo volume changes with increasing or decreasing soil moisture content. Therefore these soils would be capable of exerting substantial expansion pressures on structural foundations and exterior flatwork.

As noted above, a geotechnical report is not available for that portion of the Pilatus site that is located north of the Cordova Hills site; therefore, laboratory testing for expansive soils has not been performed. However, a review of NRCS (2012) soil survey data indicates that those soils have a moderate to high shrink-swell potential similar to the Cordova Hills site described above (see Exhibit 3.8-2 and Table 3.8-2).

Soil Limitations for Septic Systems

For a septic system to function properly, soils must percolate—that is, a certain volume of water must flow through the soil in a certain time period, as determined by a licensed soils or geotechnical engineer. Wastewater is “treated” as soil bacteria feed on the waste material and in the process, break down the material into more basic elements that are dispersed into the lower layers of the soil horizon. If wastewater percolates through the soil too quickly, the bacteria do not have enough time to digest the material. On the other hand, if wastewater percolates through the soil too slowly, the bacteria are killed by the lack of oxygen. Most of the Cordova Hills site soils consist of a shallow layer of silt, sand, or clay, underlain by bedrock. Most of the shallow soils have a low permeability and are subject to water seepage (i.e., a high water holding capacity) and thus tend to percolate too slowly, rendering them unsuitable for septic systems. Most of the bedrock soils have extremely high permeability (i.e., a low water holding capacity) and thus tend to percolate too quickly, rendering them unsuitable for septic systems. Based on a review of NRCS soil data (see Table 3.8-2), the soils on the Cordova Hills site and the northern portion of the Pilatus site are all unsuitable for conventional septic systems.

MINERAL RESOURCES

Under the Surface Mining and Reclamation Act (SMARA), the State Mining and Geology Board may designate certain mineral deposits as being regionally significant to satisfy future needs. The Board’s decision to designate an area is based on a classification report prepared by CGS and on input from agencies and the public. The Cordova Hills site lies within the designated Sacramento-Fairfield Production-Consumption Region for Portland cement concrete aggregate, which includes all designated lands within the marketing area of the active aggregate operations supplying the Sacramento-Fairfield urban center.

In compliance with SMARA, the California Division of Mines and Geology (CDMG) has established the classification system shown in Table 3.8-3 to denote both the location and significance of key extractive resources.

Table 3.8-3 California Division of Mines and Geology Mineral Land Classification System	
Classification	Description
MRZ-1	Areas where adequate information indicates that no significant mineral deposits are present or where it is judged that little likelihood exists for their presence
MRZ-2	Areas where adequate information indicates that significant mineral deposits are present or where it is judged that a high likelihood for their presence exists
MRZ-3	Areas containing mineral deposits, the significance of which cannot be evaluated from existing data
MRZ-4	Areas where available data are inadequate for placement in any other mineral resource zone
Note: MRZ = Mineral Resource Zone Source: Dupras 1999	

Over many thousands of years, weathering eroded various auriferous (gold-bearing) formations in the Sierra Nevada, thus allowing gold flakes, nuggets, and gold-bearing rocks to be carried along in glacial meltwater and in river channels. Depending on the volume of water and the rate of flow, the gold was eventually deposited on the surfaces of ancient river channels. Auriferous rocks eventually became deposited at the mouths of rivers as alluvial fans. Areas around Folsom, Prairie City, and Rancho Cordova, where the American River emptied into the Sacramento Valley, eventually became well known locations for gold miners.

Within weeks after gold was found at Sutter’s Mill on the South Fork of the American River in 1848, Mormon Island (now buried underneath Folsom Lake) was being mined. Subsequent gold discoveries and mining operations developed at Beal’s Bar, Rattlesnake Bar, Negro Bar, Whiskey Bar, and Prairie City. When the Natomas Water and Mining Company began supplying water to the area around Prairie City in 1853, miners began staking claims along the company’s canal. When those claims were exhausted, the Natomas Company (as it was later called) began dredging the nearby ancient American River deposits. Dredging operations did not take place on the Cordova Hills site, but did occur immediately adjacent to and north of the northern Pilatus site boundary.

The piles of cobbles deposited during dredging operations in the vicinity of the Cordova Hills site have proved to be a valuable source of sand and gravel. Sand and gravel mined in Sacramento County and in the vicinity of Rancho Cordova is used for construction. Construction aggregates are an important building material used in

Portland cement concrete, asphalt concrete, plaster, and stucco, and as a road base material. In terms of volume and price, there is no economically feasible substitute for aggregate products in the construction industry.

Land immediately west of the Cordova Hills site (in Rancho Cordova), which is also within the Sacramento-Fairfield Production-Consumption Region, is classified MRZ-3 and is planned for urban development. Land south of the Cordova Hills site is primarily classified as MRZ-1 and consists of Kiefer Landfill. In 2009, approximately 1,000 acres of land south of White Rock Road and northeast of the Cordova Hills site was reclassified from MRZ-3 to MRZ-2 and is planned for aggregate mining operations identified as the Teichert Quarry and DeSilva Gates. Although DeSilva-Gates has withdrawn its project application, to be conservative for purposes of this analysis, it is assumed that the DeSilva-Gates quarry project will still go forward in the future with a different project applicant. A third aggregate mining operation, the Stoneridge Quarry, has been proposed adjacent to and southeast of the Teichert quarry. These proposed aggregate quarry operations would be located approximately 2.5 miles northeast of the Cordova Hills site.

As shown in Exhibit 3.8-3, the Cordova Hills site and the northern portion of the Pilatus site have the same two CDMG mineral classifications: MRZ-1, areas where adequate information indicates that no significant mineral deposits are present or where it is judged that little likelihood exists for their presence; and MRZ-3, areas containing mineral deposits, the significance of which cannot be evaluated from existing data.

PALEONTOLOGICAL RESOURCES

Paleontological resources are fossils, the remains of prehistoric plants and animals, which are important scientific and educational resources because of their usefulness in (1) documenting the presence and evolutionary history of particular groups of extinct and extant organisms; (2) reconstructing the environments in which these organisms lived; and (3) determining the relative ages of the strata in which they occur and the geologic events that resulted in the deposition of the sediments that formed these strata.

Paleontological Resource Inventory Methods

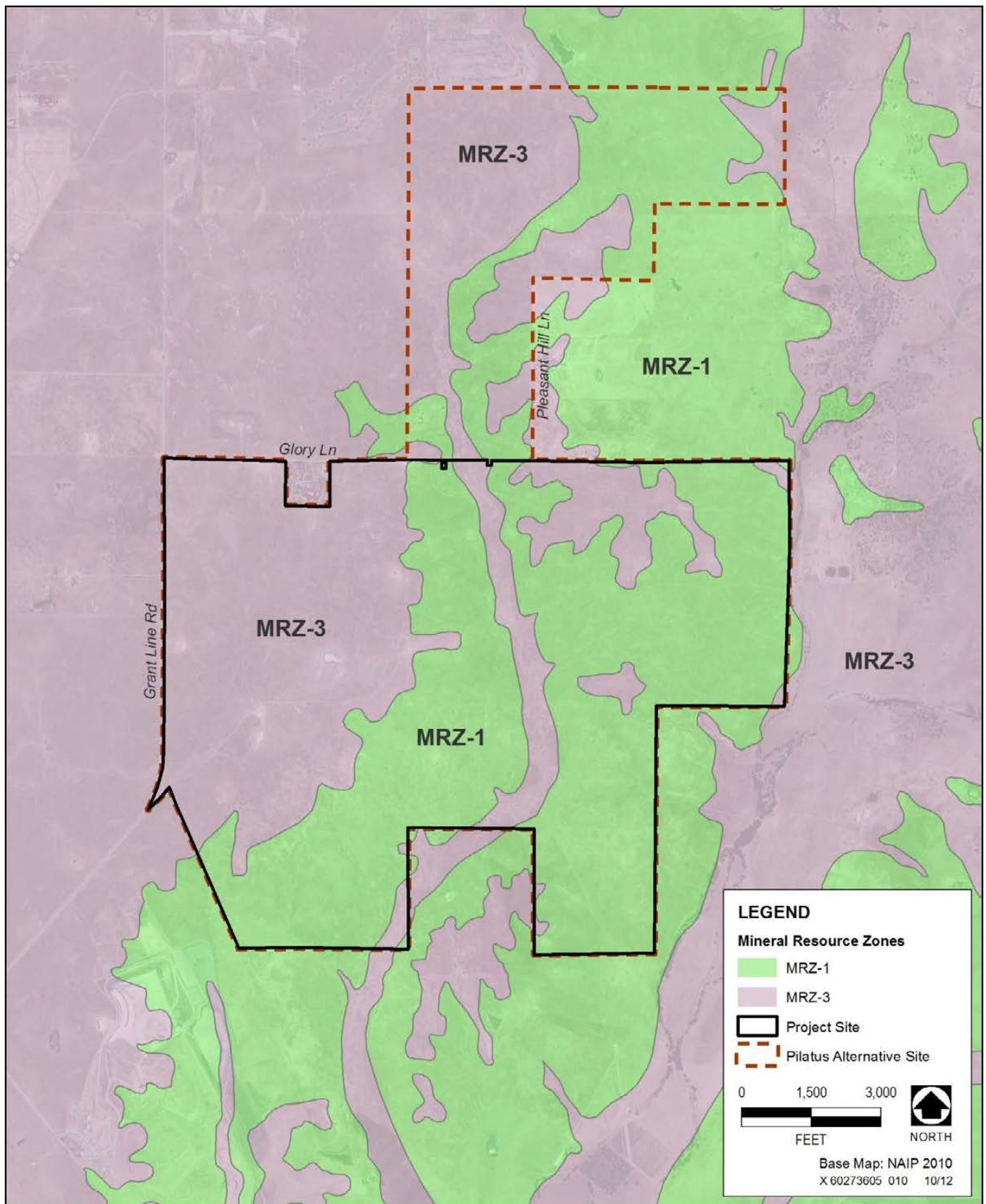
A stratigraphic inventory was completed to develop a baseline paleontological resource inventory of the Cordova Hills site and surrounding area by rock unit and to assess the potential paleontological productivity of each rock unit. Research methods included a review of published and unpublished literature and a search for recorded fossil sites at the University of California Museum of Paleontology (UCMP). These tasks complied with Society of Vertebrate Paleontology guidelines (1995).

Stratigraphic Inventory

Geologic maps and reports covering the geology of the Cordova Hills and Pilatus sites and the surrounding area were reviewed to determine the exposed rock units and to delineate their respective aerial distributions in the Cordova Hills study area.

Paleontological Resource Inventory

Published and unpublished geological and paleontological literature were reviewed to document the number and locations and previously recorded fossil sites from rock units exposed in and near the Cordova Hills site and vicinity, as well as the types of fossil remains each rock unit has produced. The literature review was supplemented by an archival search conducted at the UCMP in Berkeley, California, on October 4, 2012.



Source: Dupras 1999

Exhibit 3.8-3

Mineral Resource Classifications of the Cordova Hills and Pilatus Sites

Paleontological Resource Field Survey

A reconnaissance-level field survey was conducted by AECOM on January 9, 2013. It was not possible to tour the entire Cordova Hills site, and AECOM did not have access to the northern portion of the Pilatus site. The ground surface was generally obscured by vegetation. No evidence of fossil resources was observed. The Mehrten Formation was observed at the Cordova Hills site.

Paleontological Resource Assessment Criteria

The potential paleontological importance of a site can be assessed by identifying the paleontological importance of exposed rock units. Because the areal distribution of a rock unit can be easily delineated on a topographic map, this method is conducive to delineating parts of a project site that are of higher and lower sensitivity for paleontological resources and to delineating parts of a project site that may require mitigation to ensure that unique paleontological resources are not damaged or destroyed.

A paleontologically important rock unit is one that has a high potential paleontological productivity rating and is known to have produced unique, scientifically important fossils. The potential paleontological productivity rating of a rock unit exposed at a project site refers to the abundance/densities of fossil specimens and/or previously recorded fossil sites in exposures of the rock unit in and near the project site. Exposures of a specific rock unit in a project site are most likely to yield fossil remains representing particular species in quantities or densities similar to those previously recorded from the unit in and near the project site.

An individual vertebrate fossil specimen may be considered unique or significant if it is identifiable and well preserved and it meets one of the following criteria:

- ▶ a type specimen (i.e., the individual from which a species or subspecies has been described);
- ▶ a member of a rare species;
- ▶ a species that is part of a diverse assemblage (i.e., a site where more than one fossil has been discovered) wherein other species are also identifiable, and important information regarding life history of individuals can be drawn;
- ▶ a skeletal element different from, or a specimen more complete than, those now available for its species; or
- ▶ a complete specimen (i.e., all or substantially all of the entire skeleton is present).

For example, identifiable vertebrate marine and terrestrial fossils are generally considered scientifically important because they are relatively rare. The value or importance of different fossil groups varies, depending on the age and depositional environment of the rock unit that contains the fossils, their rarity, the extent to which they have already been identified and documented, and the ability to recover similar materials under more controlled conditions, such as part of a research project. Marine invertebrate fossil specimens are generally common, well developed, and well documented. They would generally not be considered a unique paleontological resource.

The tasks listed below were completed to establish the paleontological importance of each rock unit exposed at or near the Cordova Hills site.

- ▶ The potential paleontological productivity of each rock unit was assessed, based on the density of fossil remains previously documented within the rock unit.
- ▶ The potential for a rock unit exposed within the Cordova Hills and Pilatus sites to contain a unique paleontological resource was considered.

Paleontologic Resource Inventory Results

Stratigraphic Inventory

Regional and local surficial geologic mapping and correlation of the various geologic units in the Cordova Hills site and vicinity have been provided at a scale of 1:48,000 by Loyd (1984) and 1:250,000 by Wagner et al. (1987).

Paleontological Resource Inventory and Assessment by Rock Unit

Based on a record search conducted at UCMP (UCMP 2012 and 2013), there are no previously recorded fossil localities within or near the Cordova Hills or Pilatus sites.

Quaternary and Tertiary Alluvium

Vertebrate mammal and plant fossils have been reported from Quaternary (i.e., Pleistocene-age) and Tertiary (i.e., Pliocene-age) alluvium in numerous locations throughout the Central Valley. Pleistocene-age alluvium encompasses the Modesto, Riverbank, and Turlock Formations, among others, which have yielded thousands of vertebrate fossils uncovered during earth-moving activities in nearly every major city in the Central Valley (UCMP 2013). In the Cordova Hills region, locality V-6951 in Shingle Springs (approximately 7 miles northeast of the Cordova Hills site) yielded remains of a Pleistocene-age mammoth. Nine different localities in the Sacramento area have yielded Pleistocene-age remains of bison, camel, horse, dog, mammoth, Harlan's ground sloth, woodrat, mole, gopher, and bony fish, among others. Localities V-69129 and V-75126 at the Teichert Gravel Pit on Jackson Highway/State Route 16 (approximately 4.5 miles to the southwest) are the closest to the Cordova Hills site. Due to the large number of vertebrate fossils that have been recovered from Pleistocene-age alluvium, it is considered to be of high paleontological sensitivity.

Tertiary (Pliocene-age) alluvium encompasses the Tehama, Tuscan, and Laguna Formations. The results of a UCMP (2013) database search indicate there are 43 recorded localities where vertebrate fossils were recovered from the Tehama Formation in six different northern California counties. These localities yielded specimens of horse, various reptiles, mammoth, giant ground sloth, peccary, coyote, deer, and canid, among others. The closest Tehama Formation locality to the Cordova Hills site is V-2906 from Cache Creek in Yolo County, where horse specimens were covered. The Tehama formation is considered paleontologically sensitive due the large number of vertebrate fossils recovered therein. The UCMP database does not include records of any vertebrate fossils localities, and only one plant and two invertebrate fossil localities for the Tuscan and Laguna Formations. Therefore, these formations are considered to be of low paleontological sensitivity.

Mehrten Formation

Vertebrate mammal and plant fossils have been reported from the Mehrten Formation throughout the Sierra Nevada foothills and the eastern margin of the Central Valley. The closest recorded vertebrate fossil locality within the Mehrten Formation (V-76050) is near Camanche Reservoir, approximately 23 miles south of the

Cordova Hills site, where a specimen of *Pliohippus* (horse) was recovered. Other vertebrate fossils have been recovered from the Mehrten Formation from over 40 locations in Calaveras, San Joaquin, Stanislaus, Tuolumne, and Merced Counties (UCMP 2012). In addition, several specimens of plant fossils have been recovered locally from the Mehrten Formation in Granite Bay, Roseville, and Rocklin (Sierra College Natural History Museum 2011). Because of the large number of fossils that have been recovered from the Mehrten Formation, it is considered to be of high paleontological sensitivity.

Valley Springs Formation

A search of the UCMP database (UCMP 2012) indicates a total of five California localities in the Valley Springs Formation from which plant fossils were recovered: two in El Dorado County, two in Calaveras County, and one in Sierra County. No localities from which vertebrate or invertebrate fossils were recovered have been reported. A review of geologic literature indicates that the Valley Springs Formation is not known to be fossiliferous. Therefore, the Valley Springs Formation is considered to be of low paleontological sensitivity.

3.8.3 REGULATORY FRAMEWORK/APPLICABLE LAWS, REGULATIONS, PLANS, AND POLICIES

State laws and regulations are provided for informational purposes and to assist with NEPA review. USACE has considered applicable state, regional, and local plans and ordinances as a part of the environmental review process for this EIS.

Sacramento County certified an environmental impact report (EIR) and approved the Proposed Action in January 2013. State, regional, and local plans, policies, laws, and ordinances were considered in the EIR and adopted mitigation measures have been incorporated into the Proposed Action.

FEDERAL PLANS, POLICIES, REGULATIONS, AND LAWS

Earthquake Hazards Reduction Act

In October 1977, the U.S. Congress passed the Earthquake Hazards Reduction Act to reduce the risks to life and property from future earthquakes in the United States through the establishment and maintenance of an effective earthquake hazards reduction program. To accomplish this goal, the act established the National Earthquake Hazards Reduction Program (NEHRP). This program was substantially amended in November 1990 by the National Earthquake Hazards Reduction Program Act (NEHRPA), which refined the description of agency responsibilities, program goals, and objectives.

The mission of NEHRP includes improved understanding, characterization, and prediction of hazards and vulnerabilities; improved building codes and land use practices; risk reduction through postearthquake investigations and education; development and improvement of design and construction techniques; improved mitigation capacity; and accelerated application of research results. The NEHRPA designates the Federal Emergency Management Agency as the lead agency of the program and assigns several planning, coordinating, and reporting responsibilities. Other NEHRPA agencies include the National Institute of Standards and Technology, National Science Foundation, and USGS.

STATE PLANS, POLICIES, REGULATIONS, AND LAWS

Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Act (California Public Resources Code [PRC] Sections 2621–2630) was passed in 1972 to mitigate the hazard of surface faulting to structures designed for human occupancy. The main purpose of the law is to prevent the construction of buildings used for human occupancy on the surface trace of active faults. The law addresses only the hazard of surface fault rupture and is not directed toward other earthquake hazards. The Alquist-Priolo Act requires the State Geologist to establish regulatory zones known as Earthquake Fault Zones around the surface traces of active faults and to issue appropriate maps. The maps are distributed to all affected cities, counties, and state agencies for their use in planning efforts. Before a project can be permitted in a designated Alquist-Priolo Earthquake Fault Zone, cities and counties must require a geologic investigation to demonstrate that proposed buildings would not be constructed across active faults.

Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act of 1990 (California PRC Sections 2690–2699.6) addresses earthquake hazards from non-surface fault rupture, including liquefaction and seismically induced landslides. The act established a mapping program for areas that have the potential for liquefaction, landslide, strong ground shaking, or other earthquake and geologic hazards. The act also specifies that the lead agency for a project may withhold development permits until geologic or soils investigations are conducted for specific sites and mitigation measures are incorporated into plans to reduce hazards associated with seismicity and unstable soils.

National Pollutant Discharge Elimination System Permit

In California, the State Water Resources Control Board (SWRCB) administers regulations promulgated by the U.S. Environmental Protection Agency (55 Code of Federal Regulations [CFR] 47990) requiring the permitting of stormwater-generated pollution under the National Pollutant Discharge Elimination System (NPDES). In turn, the SWRCB's jurisdiction is administered through nine regional water quality control boards. Under these Federal regulations, an operator must obtain a general permit through the NPDES Stormwater Program for all construction activities with ground disturbance of 1 acre or more. The general permit requires the implementation of best management practices (BMPs) to reduce sedimentation into surface waters and to control erosion. One element of compliance with the NPDES permit is preparation of a storm water pollution prevention plan (SWPPP) that addresses control of water pollution, including sediment, in runoff during construction. (See Section 3.10, "Hydrology and Water Quality," for more information about the NPDES and SWPPPs.)

California Building Standards Code

The California Building Standards Commission is responsible for coordinating, managing, adopting, and approving building codes in California. The State of California provides minimum standards for building design through the CBC (CCR Title 24). Where no other building codes apply, Chapter 29 of the CBC regulates excavation, foundations, and retaining walls. The CBC applies to building design and construction in the state and is based on the Federal Uniform Building Code used widely throughout the country (generally adopted on a state-by-state or district-by-district basis). The CBC has been modified for California conditions with numerous more detailed or more stringent regulations.

The state earthquake protection law (California Health and Safety Code Section 19100 et seq.) requires that structures be designed to resist stresses produced by lateral forces caused by wind and earthquakes. The CBC requires an evaluation of seismic design that falls into Categories A–F (where F requires the most earthquake-resistant design) for structures designed for a project site. The CBC philosophy focuses on “collapse prevention,” meaning that structures are designed for prevention of collapse for the maximum level of ground shaking that could reasonably be expected to occur at a site. Chapter 16 of the CBC specifies exactly how each seismic design category is to be determined on a site-specific basis through the site-specific soil characteristics and proximity to potential seismic hazards.

Chapter 18 of the CBC regulates the excavation of foundations and retaining walls. This chapter regulates the preparation of a preliminary soil report, engineering geologic report, geotechnical report, and supplemental ground-response report. Chapter 18 also regulates analysis of expansive soils and the determination of the depth to groundwater table. For Seismic Design Category C, Chapter 18 requires analysis of slope instability, liquefaction, and surface rupture attributable to faulting or lateral spreading. For Seismic Design Categories D, E, and F, Chapter 18 requires these same analyses plus an evaluation of lateral pressures on basement and retaining walls, liquefaction and soil strength loss, and lateral movement or reduction in foundation soil-bearing capacity. It also requires addressing mitigation measures to be considered in structural design. Mitigation measures may include ground stabilization, selection of appropriate foundation type and depths, selection of appropriate structural systems to accommodate anticipated displacements, or any combination of these measures. The potential for liquefaction and soil strength loss must be evaluated for site-specific peak ground acceleration magnitudes and source characteristics consistent with the design earthquake ground motions. Peak ground acceleration must be determined from a site-specific study, the contents of which are specified in CBC Chapter 18.

Finally, Appendix Chapter J of the CBC regulates grading activities, including drainage and erosion control and construction on unstable soils, such as expansive soils and areas subject to liquefaction.

California Surface Mining and Reclamation Act

SMARA (California PRC Section 2710 et seq.) was enacted by the California Legislature in 1975 to regulate activities related to mineral resource extraction. The act requires the prevention of adverse environmental effects caused by mining, the reclamation of mined lands for alternative land uses, and the elimination of hazards to public health and safety from the effects of mining activities. At the same time, SMARA encourages both the conservation and the production of extractive mineral resources, requiring the State Geologist to identify and attach levels of significance to the state’s varied extractive resource deposits. Under SMARA, the mining industry in California must plan adequately for the reclamation of mined sites for beneficial uses and provide financial assurances to guarantee that the approved reclamation will actually be implemented. The requirements of SMARA must be implemented by the local lead agency with permitting responsibility for the proposed mining project.

3.8.4 ANALYSIS METHODOLOGY

Evaluation of potential geology, soils, and minerals effects for the alternatives under consideration relied in part on the following two reports:

- ▶ Wallace Kuhl & Associates, Inc. 2007 (March). *Preliminary Geotechnical Engineering Report, Cordova Hills*.

- ▶ Wallace Kuhl & Associates, Inc. 2007 (October). *Preliminary Geotechnical Engineering Report, Solitu LLC Property.*

That portion of the Pilatus site that is north of the Cordova Hills site has not been evaluated by a geotechnical engineer. The analysis prepared for this EIS also relied on NRCS soil survey data (“Web Soil Survey”), and published geologic literature and maps. The information obtained from these sources was reviewed and summarized to present the existing conditions and to identify potential environmental effects, based on the thresholds of significance presented in this section. Effects associated with geology, soils, and mineral resources that could result from construction and operational activities were evaluated qualitatively based on site conditions; expected construction practices; materials, locations, and duration of construction and related activities; and a field visit. The Society of Vertebrate Paleontology (1995, 1996), a national scientific organization of professional vertebrate paleontologists, has established standard guidelines that outline acceptable professional practices in the conduct of paleontological resource assessments and surveys, monitoring and mitigation, data and fossil recovery, sampling procedures, specimen preparation, analysis, and curation. Most practicing professional paleontologists in the nation adhere to the Society of Vertebrate Paleontology assessment, mitigation, and monitoring requirements, as specifically spelled out in its standard guidelines.

In its standard guidelines for assessment and mitigation of adverse effects on paleontological resources, the Society of Vertebrate Paleontology (1995) established three categories of sensitivity for paleontological resources: high, low, and undetermined. Areas where fossils have been previously found are considered to have a high sensitivity and a high potential to produce fossils. Areas that are not sedimentary in origin and that have not been known to produce fossils in the past typically are considered to have low sensitivity. Areas that have not had any previous paleontological resource surveys or fossil finds are considered to be of undetermined sensitivity until surveys and mapping are performed to determine their sensitivity. After reconnaissance surveys, observation of exposed cuts, and possibly subsurface testing, a qualified paleontologist can determine whether the area should be categorized as having high or low sensitivity. In keeping with the significance criteria of the Society of Vertebrate Paleontology (1995), all vertebrate fossils are generally categorized as being of potentially significant scientific value, which has been adopted in the methodology for this EIS.

Because the Final EIR has already been certified, all Final EIR Mitigation Measures, the Rezone and Tentative Large Lot Parcel Map Conditions of Approval, and the obligations found in the Development Agreement (collectively referred to as the project entitlements) are considered a part of the Proposed Action. Thus, these measures and requirements are considered when analyzing the significance of effects under the Proposed Action. Because the project entitlements were imposed on the Proposed Action by the County as part of its approval process, it is reasonable to assume that if one of the action alternatives were adopted, the County would impose similar conditions during the entitlement of the alternative.

THRESHOLDS OF SIGNIFICANCE

Geology, Soils, and Minerals

The basis for determining the significance of effects for this analysis is based on professional standards and is informed by the environmental checklist in Appendix G of the State CEQA Guidelines. These thresholds encompass the factors taken into account under NEPA to determine the significance of an action in terms of its context and the intensity of its effects. The alternatives under consideration were determined to result in a significant effect related to geology, soils, or mineral resources if they would do any of the following:

- ▶ expose people, property, 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 fault;
 - strong seismic ground shaking;
 - seismic-related ground failure, including liquefaction; or
 - landslides;
- ▶ result in substantial soil erosion or the loss of topsoil;
- ▶ 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;
- ▶ 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;
- ▶ have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water;
- ▶ 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 or a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan; or
- ▶ result in inundation by seiche, tsunami, or mudflow.

Paleontological Resources

A project would have a significant effect on paleontological resources if it would directly or indirectly destroy a unique paleontological resource or site. For the purposes of this EIS, this threshold encompasses the factors taken into account under NEPA to determine the significance of an action in terms of its context and the intensity of its effects and applies to the alternatives under consideration. A “unique paleontological resource or site” is one that is considered significant under the professional paleontological standards described below.

An individual vertebrate fossil specimen may be considered unique or significant if it is identifiable and well preserved, and it meets one of the following criteria:

- ▶ a type specimen (i.e., the individual from which a species or subspecies has been described);
- ▶ a member of a rare species;
- ▶ a species that is part of a diverse assemblage (i.e., a site where more than one fossil has been discovered) wherein other species are also identifiable, and important information regarding life history of individuals can be drawn;

- ▶ a skeletal element different from, or a specimen more complete than, those now available for its species; or
- ▶ a complete specimen (i.e., all or substantially all of the entire skeleton is present).

The value or importance of different fossil groups varies depending on the age and depositional environment of the rock unit that contains the fossils, their rarity, the extent to which they have already been identified and documented, and the ability to recover similar materials under more controlled conditions (such as for a research project). Marine invertebrates are generally common; the fossil record is well developed and well documented, and they would generally not be considered a unique paleontological resource. Identifiable vertebrate marine and terrestrial fossils are generally considered scientifically important because they are relatively rare.

Risks to People or Structures Caused by Surface Fault Rupture—The Cordova Hills and Pilatus sites are located approximately 50 miles from the nearest Alquist-Priolo Earthquake Fault Zone, and they are not underlain by or adjacent to any known faults. Because the damage from surface fault rupture is generally limited to a linear zone a few yards wide, the potential for surface fault rupture to cause damage to proposed structures is negligible and this issue is not evaluated further in this EIS.

Result from Inundation by Seiche, Tsunami, or Mudflow—The Cordova Hills and Pilatus sites are located too far from the Pacific Ocean to be affected by tsunamis. Because the Sacramento Valley is generally not seismically active and because there are no large waterbodies in the immediate vicinity of the Cordova Hills and Pilatus sites, seismic seiches would not represent a hazard. Although the Cordova Hills site does contain areas of steep slopes, the Sacramento Valley is generally not seismically active; thus, mudflows would not represent a hazard. Therefore, these issues are not evaluated further in this EIS.

3.8.5 ENVIRONMENTAL CONSEQUENCES AND MITIGATION MEASURES

EFFECTS ANALYSIS

Effects that would occur under each alternative are identified as follows: NA (No Action), PA (Proposed Action), EDP (Expanded Drainage Preservation), EP (Expanded Preservation), P (Pilatus), and RC (Regional Conservation). The effects associated with each alternative are compared relative to the PA at the end of each effect conclusion (i.e., similar, greater, lesser).

EFFECT 3.8-1	Possible Risks to People and Structures Caused by Strong Seismic Ground Shaking. <i>The Cordova Hills and Pilatus sites are located in an area of generally low seismic activity; therefore, the risk from strong seismic ground shaking is considered low.</i>
-----------------	---

NA

Under the No Action Alternative, no development would occur. Thus, there would be **no indirect** or **direct** effect related to strong seismic ground shaking. *[Lesser]*

Mitigation Measure: No mitigation measures are required.

PA, EDP, EP, P, RC

The Cordova Hills and Pilatus sites are not located within a known fault zone, or within any faults known to be active during Holocene time. A portion of the East Bear Mountains Fault Zone, near the community of Rescue (approximately 14 miles northeast of the Cordova Hills and Pilatus sites), shows evidence of displacement during the last 11,700 to 700,000 years (i.e., Pleistocene age). A detailed analysis prepared by Tierra Engineering Consultants 1983 and summarized by Wahl et al. 1989 indicated that this fault zone could generate a magnitude 6.0 to 6.5 earthquake with a return period of 400 years. The West Branch of the Bear Mountains Fault is located approximately 7 miles east of the eastern Cordova Hills and Pilatus site boundaries (Wallace Kuhl 2007a and 2007b); however, Jennings (1994) does not indicate that fault activity on the West Branch has occurred within the last 11,700 years, and the slip rate of the Foothills Fault System is extremely low (0.05 millimeters per year), which is well below the planning threshold for major earthquakes (Wills et al. 2007). Faults that have been classified as “active” by CGS are located in the Coast Range (approximately 60 miles west of the Cordova Hills site) or in the vicinity of Lake Tahoe (approximately 50 miles east of the Cordova Hills site). Because of the distance to active faults, it is unlikely that structures at the Cordova Hills or Pilatus sites would be subject to strong seismic ground shaking, and the potential for damage from strong seismic ground shaking is considered an **indirect, less-than-significant** effect. **No direct** effects would occur. No mitigation measures were identified to further reduce these effects. *[Similar]*

EFFECT Seismically-Induced Risks to People and Structures Caused by Liquefaction. *Development would*
3.8-2 *not occur in areas subject to liquefaction.*

NA

Under the No Action Alternative, no development would occur. Thus, there would be **no indirect** or **direct** effect related to seismically-induced liquefaction. *[Lesser]*

Mitigation Measure: No mitigation measures are required.

PA, EDP, EP, P, RC

Based on a review of information contained in the geotechnical reports prepared by Wallace Kuhl (2007a and 2007b), it is unlikely that Cordova Hills site soils would be subject to seismically-induced liquefaction in the event of an earthquake for the following reasons: (1) the Cordova Hills and Pilatus sites are located in stable soils underlain at shallow depths by bedrock, (2) the potential seismic sources are a relatively long distance away, and (3) the groundwater table is at least 100 feet bgs.

As noted above under the “Affected Environment” subsection, a geotechnical report is not available for the portion of the Pilatus site that is located north of the Cordova Hills site. However, given that this property is immediately adjacent to the Cordova Hills site and it is composed of the same geologic formations with the same depositional history as the Cordova Hills site (see Exhibits 3.8-1 and 3.8-2), it is unlikely that Pilatus site soils would be subject to liquefaction in the event of an earthquake for the same reasons described above.

Because no potential damage from the placement of new structures or potential risks to people from seismically-induced liquefaction under the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, Pilatus, and, Regional Conservation Alternatives are anticipated, **no indirect or direct** effects would occur. *[Similar]*

Mitigation Measure: No mitigation measures are required.

EFFECT 3.8-3 Temporary and Short-Term Construction-Related Erosion. *Construction activities would entail grading and movement of earth in soils subject to wind and water erosion hazard and on steep slopes.*

NA

Under the No Action Alternative, no development would occur. Thus, there would be **no indirect or direct** temporary and short-term effect related to construction-related erosion. *[Lesser]*

Mitigation Measure: No mitigation measures are required.

PA, RC

Implementation of the Proposed Action and Regional Conservation Alternatives would entail intensive grading and construction activities for infrastructure and building and road foundations over approximately 1,981 and 1,963 acres, respectively, of varied terrain, ranging from relatively flat, to gently rolling, to steeply sloped. Extensive amounts of cut-and-fill and associated grading activities would be necessary to construct the Proposed Action or Regional Conservation Alternative. Construction activities would occur in soils that have moderate wind and water erosion hazard potential (see Table 3.8-2). Conducting these activities would result in the temporary and short-term disturbance of soil and would expose disturbed areas to storm events. Rain of sufficient intensity could dislodge soil particles from the soil surface. If the storm is large enough to generate runoff, localized erosion could occur. On the steeper slopes, severe erosion could occur as a result of development. In addition, soil disturbance during the summer as a result of construction activities could result in soil loss because of wind erosion. Finally, excavation and processing of any aggregate materials that may be present on the Cordova Hills and Pilatus sites could also expose soils and result in additional erosion hazards. Therefore, **direct** temporary and short-term effects associated with construction-related erosion would be **potentially significant**. Other **direct** effects from soil erosion, such as sediment transport into waterways, are evaluated in Section 3.10, "Hydrology and Water Quality." **No indirect** effects would occur. *[Similar]*

Mitigation Measure 3.8-1: Prepare and Implement a Grading and Erosion Control Plan.

Before grading permits are issued, the project applicant shall retain a California Registered Civil Engineer to prepare a grading and erosion control plan. The grading and erosion control plan shall be submitted to the Sacramento County Community Development Department before issuance of grading permits for all new development. The plan shall be consistent with Sacramento County's Grading, Erosion, and Sediment Control Ordinance and the state's NPDES permit, and shall include the site-specific grading associated with development for all phases.

The plan referenced above shall include the location, implementation schedule, and maintenance schedule of all erosion and sediment control measures, a description of measures designed to control dust and

stabilize the construction-site road and entrance, and a description of the location and methods of storage and disposal of construction materials. Erosion and sediment control measures could include the use of detention basins, berms, swales, wattles, and silt fencing, and covering or watering of stockpiled soils to reduce wind erosion. Stabilization on steep slopes could include construction of retaining walls and reseeding with vegetation after construction. Stabilization of construction entrances to minimize trackout (control dust) is commonly achieved by installing filter fabric and crushed rock to a depth of approximately 1 foot. The project applicant shall ensure that the construction contractor is responsible for securing a source of transportation and deposition of excavated materials.

Implementation of Mitigation Measure 3.10-1 (discussed in Section 3.10, “Hydrology and Water Quality”) would also help reduce erosion-related effects.

Implementation: Project applicant.

Timing: Before the start of construction activities.

Enforcement: Sacramento County Planning and Community Development Department.

Implementation of Mitigation Measure 3.8-1 would also reduce the **direct** and **indirect** risk of erosion to a **less-than-significant** level because grading and erosion control plans with specific erosion and sediment control measures such as those suggested above or listed in Mitigation Measure 3.10-1 would be prepared, approved by Sacramento County, and implemented. USACE does not have authority to enforce this mitigation measure; Sacramento County would be the enforcement agency. Because this mitigation measure identifies mechanisms to meet existing legal and regulatory requirements, it is likely that this mitigation measure would be implemented. No mitigation measures were identified to further reduce these effects

EDP, EP

Under the Expanded Drainage Preservation and Expanded Preservation Alternatives, construction activities for infrastructure and building and road foundations would occur over approximately 1,661 and 1,420 acres, respectively. This represents approximately 310 and 550 fewer acres, respectively, as compared to the Proposed Action. However, construction activities would still expose a very large area of soils to erosion hazards from wind and water, and proposed development would occur within various areas of steep terrain where severe erosion could occur. Finally, excavation and processing of any aggregate materials that may be present could also expose soils and result in additional erosion hazards. Therefore, **direct** effects associated with temporary and short-term construction-related erosion under the Expanded Drainage Preservation and Expanded Preservation Alternatives would be **potentially significant**. Other **direct** effects from soil erosion, such as sediment transport, are evaluated in Section 3.10, “Hydrology and Water Quality.” **No indirect** effects would occur. *[Lesser]*

Mitigation Measure: Implement Mitigation Measure 3.8-1.

Implementation of Mitigation Measure 3.8-1 would also reduce the **direct** and **indirect** risk of erosion to a **less-than-significant** level because grading and erosion control plans with specific erosion and sediment control measures such as those suggested above or listed in Mitigation Measure 3.10-1 would be prepared, approved by Sacramento County, and implemented. USACE does not have authority to enforce this mitigation measure; Sacramento County would be the enforcement agency. Because this mitigation measure identifies mechanisms to

meet existing legal and regulatory requirements, it is likely that this mitigation measure would be implemented. No mitigation measures were identified to further reduce these effects

P

Under the Pilatus Alternative, construction activities for infrastructure and building and road foundations would occur over an additional 488 acres as compared to the Proposed Action. Construction activities throughout the 2,488 acres of developable area would expose soils to erosion hazards from wind and water. Furthermore, proposed development would occur within various areas of steep terrain, where severe erosion could occur. Finally, excavation and processing of any aggregate materials that may be present on the Pilatus site could also expose soils and result in additional erosion hazards. Therefore, **direct** effects associated with temporary and short-term construction-related erosion under the Pilatus Alternative are **potentially significant**. Other **direct** effects from soil erosion, such as sediment transport, are evaluated in Section 3.10, “Hydrology and Water Quality.” **No indirect** effects would occur. *[Greater]*

Mitigation Measure: Implement Mitigation Measure 3.8-1.

Implementation of Mitigation Measure 3.8-1 along with Mitigation Measure 3.10-1 (discussed in Section 3.10, “Hydrology and Water Quality”), would reduce potentially significant temporary and short-term construction-related erosion effects to a **less-than-significant** level because grading and erosion control plans with specific erosion and sediment control measures such as those suggested above or listed in Mitigation Measure 3.10-1 would be prepared, approved by Sacramento County, and implemented.. USACE does not have authority to enforce this mitigation measure; Sacramento County would be the enforcement agency. Because this mitigation measure identifies mechanisms to meet existing legal and regulatory requirements, it is likely that this mitigation measure would be implemented. No mitigation measures were identified to further reduce these effects

EFFECT 3.8-4	Potential Geologic Hazards Related to Construction in Bedrock and Rock Outcrops, and Unstable Soils. <i>Development would occur in steep slopes underlain by bedrock at shallow depths, in rock outcrops, and in perched groundwater conditions that could result in geologic hazards during construction.</i>
-----------------	--

NA

Under the No Action Alternative, no development would occur. Thus, there would be **no indirect** or **direct** effect related to development in bedrock and rock outcrops, or unstable soils. *[Lesser]*

Mitigation Measure: No mitigation measures are required.

PA, EDP, EP, P, RC

The topography of the western portion of the Cordova Hills site is gently rolling. However, development on steep slopes under the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives would occur in various areas in the central and eastern portions of the Cordova Hills site. Based on a review of the Conceptual Grading Plan prepared by MacKay & Soms (2011), multiple benches requiring cut and fill would need to be created throughout the Cordova Hills site, with slopes approximately 18 percent. Without proper engineering controls, Cordova Hills site soils could be subject to landslide potential during or after construction activities.

Development of the Cordova Hills site would entail the use of conventional, contour, and landform grading, as described below:

- ▶ Conventional grading is characterized by uniform slope gradients with angular slope intersections and pad configurations that are rectangular. In the Cordova Hills site, conventional grading would be mostly associated with non-hillside commercial building pads, homebuilding sites, school sites, municipal uses, parks, and other areas where uniform site grading is the primary consideration.
- ▶ Contour grading slopes are curvilinear in plan rather than linear as in conventional grading. Transition zones and slope intersections generally have some rounding applied and the resultant pad configurations are mildly curvilinear. In the Cordova Hills site, contour grading would most likely occur in hillside-graded slope transition areas as well as highly visible areas where visual aesthetics are an important consideration.
- ▶ Landform grading replicates the irregular shapes of natural stable slopes. Landform-graded slopes are characterized by a continuous series of concave and convex forms interspersed with swales and berms that blend into the existing slopes, and thus the resultant pad configurations are irregular. In the Cordova Hills site, landform grading would most likely occur in hillside areas where the natural blending of slopes is important, including transitions to natural drainages and open space.

Because boring refusal occurred at shallow depths during excavation of test pits, Wallace Kuhl (2007a and 2007b) performed a seismic refraction survey in the higher areas of the Cordova Hills site where there is little alluvial cover over bedrock. Results of the survey indicate that in those areas tested, the underlying rock can be excavated using a D9 Caterpillar. However, Wallace Kuhl (2007a and 2007b) indicated that other areas not tested could necessitate the use of blasting to excavate the Cordova Hills site materials. Large chunks of bedrock would likely be encountered during deeper excavations that would require either disposal off site or pulverization.

According to the results from test pits excavated by Wallace Kuhl (2007a and 2007b), groundwater was not encountered in any test pit. However, in the steeper areas, infiltrated seasonal runoff can be expected to flow underneath the Cordova Hills site along the soil/bedrock interface, which may create or increase shallow seasonal groundwater conditions. Furthermore, perched groundwater conditions during the winter months and water seepage conditions may be encountered throughout the Cordova Hills site. Without proper design techniques, such as installation of French drains, this could result in adverse effects to building foundations constructed at or near the interface of soil and rock. Saturated soils, particularly during the winter months, could pose a caving hazard during excavation. Although a geotechnical report was not available for the Pilatus site, because it is located immediately adjacent to the Cordova Hills site and has the same land forms and geologic formations, it is assumed that perched groundwater conditions would also be encountered at the Pilatus site.

Potential **indirect and direct** geologic hazards from development in bedrock/rock outcroppings and unstable soils are considered **significant** effects. Additional **indirect** effects from construction in bedrock/rock outcroppings could entail creation of a public safety hazard from blasting operations (evaluated in Section 3.9, “Hazardous Wastes and Materials”), and noise and/or groundborne vibration levels that could exceed local thresholds (evaluated in Section 3.11, “Noise”). *[Similar]*

Mitigation Measure 3.8-2a: Prepare Final Geotechnical Report and Implement Appropriate Recommendations per the CBC.

Before building permits are issued and construction activities begin, the project applicant shall hire a licensed geotechnical engineer to prepare a final geotechnical report for the proposed facilities, which shall be submitted for review and approval to the Sacramento County Community Development Department. The final geotechnical engineering report shall address and make recommendations on the following:

- ▶ seismic design parameters;
- ▶ site preparation;
- ▶ soil bearing capacity;
- ▶ appropriate sources and types of fill;
- ▶ potential need for soil amendments;
- ▶ road, pavement, and parking areas;
- ▶ structural foundations, including retaining-wall design;
- ▶ grading practices;
- ▶ soil corrosion of concrete and steel;
- ▶ erosion/winterization;
- ▶ seismic ground shaking;
- ▶ liquefaction; and
- ▶ expansive/unstable soils.

In addition to the recommendations for the conditions listed above, the geotechnical investigation shall include subsurface testing of soil and groundwater conditions, and shall determine appropriate foundation designs that are consistent with the version of the CBC that is applicable at the time building and grading permits are applied for. All recommendations contained in the final geotechnical engineering report shall be implemented by the project applicant of each phase. Special recommendations contained in the geotechnical engineering report shall be noted on the grading plans and implemented as appropriate before construction begins. Design and construction of all new development shall be in accordance with the CBC. The project applicant shall provide for engineering inspection and certification that earthwork has been performed in conformity with recommendations contained in the geotechnical report.

Implementation: Project applicant.

Timing: Before and during earthmoving activities.

Enforcement: Sacramento County Community Development Department.

Mitigation Measure 3.8-2b: Divert Seasonal Water Flows Away from Building Foundations.

The project applicant of all phases shall either install subdrains (which typically consist of perforated pipe and gravel, surrounded by nonwoven geotextile fabric), or take such other actions as recommended by the geotechnical or civil engineer for the project that would serve to divert seasonal flows caused by surface infiltration, water seepage, and perched water during the winter months away from building foundations.

- Implementation:** Project applicant.
- Timing:** Before and during earthmoving activities.
- Enforcement:** Sacramento County Community Development Department.

Implementation of Mitigation Measures 3.8-2a and 3.8-2b would reduce the potential effects from development in bedrock, rock outcroppings, and unstable soils under the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives to a **less-than-significant** level because site-specific final geotechnical reports would be prepared, design and construction would occur according to CBC requirements, and subsurface drains or another methodology recommended by the project engineer (and approved by the county), would be installed to channel water as necessary. USACE does not have authority to enforce this mitigation measure; Sacramento County would be the enforcement agency. Because the mitigation measures identify a mechanism to comply with standard engineering practices, it is likely that this mitigation measure would be implemented. No mitigation measures were identified to further reduce these effects.

EFFECT 3.8-5 Potential Damage to Structures and Infrastructure from Development in Expansive Soils. *Portions of the Cordova Hills and Pilatus sites are underlain by soils that have a moderate to high potential for expansion when wet and may result in damage to structures and infrastructure.*

NA

Under the No Action Alternative, no development would occur. Thus, there would be **no indirect** or **direct** effect related to construction in expansive or corrosive soils. *[Lesser]*

Mitigation Measure: No mitigation measures are required.

PA, EDP, EP, P, RC

Expansive soils shrink and swell as a result of moisture change. Over time, these volume changes can result in damage to building foundations, underground utilities, and other subsurface facilities and infrastructure if they are not designed and constructed appropriately to resist the damage associated with changing soil conditions. Volume changes of expansive soils also can result from the consolidation of soft clays following the lowering of the water table or the placement of fill. Placing buildings or constructing infrastructure on or in expansive soils can result in structural failure. A review of NRCS soil survey data (see Table 3.8-2) as well as site-specific soil test results from Wallace Kuhl (2007a and 2007b) show that many of the Cordova Hills and Pilatus site soils have a moderate to high shrink-swell potential, indicating the soils are expansive. Soil expansion, including volume changes during seasonal fluctuations in moisture content, could adversely affect road surfaces, interior slabs-on-grade, landscaping hardscapes, and underground pipelines under the action alternatives. Therefore, this **indirect** effect is considered **potentially significant**. **No direct** effects would occur. *[Similar]*

Mitigation Measure: Implement Mitigation Measure 3.8-2a.

Implementation of Mitigation Measure 3.8-2a would reduce the potentially significant effect of potential damage to people and structures from development in expansive soils under the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives to a **less-than-significant**

level by requiring that the design recommendations of a geotechnical engineer to reduce damage from expansive soils be incorporated into buildings, structures, and infrastructure as required by the CBC, and that a geotechnical or civil engineer provide on-site monitoring to ensure that earthwork is being performed as specified in the plans. USACE does not have authority to enforce this mitigation measure; Sacramento County would be the enforcement agency. Because the mitigation measures identify a mechanism to comply with standard engineering practices, it is likely that this mitigation measure would be implemented. No other mitigation measures were identified to further reduce these effects.

EFFECT **Suitability of Soils for Use with Septic Systems.** *The Cordova Hills and Pilatus sites are underlain by*
3.8-6 *soils that are unsuitable for use with conventional septic systems.*

NA

Under the No Action Alternative, no development would occur. Thus, there would **no indirect** or **direct** effect related to unsuitability of soils for septic systems. *[Lesser]*

Mitigation Measure: No mitigation measures are required.

PA, EDP, EP, P, RC

Septic systems would be required in the southern portion of the Cordova Hills site and the other alternatives for proposed development within the Sacramento County landfill buffer zone. Most of the Cordova Hills site soils consist of a shallow layer of silt, sand, or clay, underlain by bedrock. Most of the shallow soils have a low permeability and are subject to water seepage (i.e., a high water holding capacity) and thus tend to percolate too slowly, rendering them unsuitable for septic systems. Most of the bedrock soils have extremely high permeability (i.e., a low water holding capacity) and thus tend to “perc” too quickly, rendering them unsuitable for septic systems. Based on a review of NRCS soil data (see Table 3.8-2), all of the soil types on the Cordova Hills and Pilatus sites are rated with a severe limitation because all of the soils are unsuitable for conventional septic systems. Therefore, this **direct** effect is considered **significant**. **No indirect** effects would occur. *[Similar]*

Mitigation Measure 3.8-3: Implement an Engineered Septic System in Compliance with Sacramento County Standards.

The project applicant shall retain the services of a licensed geotechnical or civil engineer to conduct a perc test and to design and engineer a septic system that would effectively treat wastewater to the standards specifically set forth in Sacramento County Code Title 6, Chapter 6.32. Code Section 6.32.340 “Design Criteria” requires the project applicant to address the following as part of the wastewater treatment system design:

- ▶ available effective absorptive area in both primary and reserve disposal fields;
- ▶ separation between disposal field bottom and groundwater or a restrictive soil layer;
- ▶ ground slope in both the primary and reserve disposal field areas;
- ▶ influent wastewater strength and quantity;
- ▶ requirements for setbacks from wells, surface waters, and property boundaries; and
- ▶ treatment of wastewater such that it does not adversely affect water quality or endanger public health.

Implementation: Project applicant for any discretionary action where wastewater treatment is required within the 2,000-foot Kiefer Landfill buffer zone.

Timing: Before the start of construction activities.

Enforcement: Sacramento County Environmental Management Department.

Implementation of Mitigation Measure 3.8-3 would reduce the significant effect from unsuitability of soils for conventional septic systems under the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives for development within the 2,000-foot Kiefer Landfill buffer zone to a level where **no effect** would occur because a licensed geotechnical or civil engineer would be retained to design a wastewater treatment system that meets the requirements of Sacramento County Code Title 6, Chapter 6.32 such that it does not adversely affect water quality or endanger public health. USACE does not have authority to enforce this mitigation measure; Sacramento County would be the enforcement agency. Because the mitigation measures identify a mechanism to comply with standard engineering practices, it is likely that this mitigation measure would be implemented.

EFFECT 3.8-7 Possible Loss of Mineral Resources–Construction Aggregate. *The Cordova Hills and Pilatus sites do not contain a known source of construction aggregate, and any aggregate that may be present would be used for on-site construction.*

NA

Under the No Action Alternative, no development would occur. Thus, there would be **no indirect** or **direct** effect related to possible loss of mineral resources. *[Lesser]*

Mitigation Measure: No mitigation measures are required.

PA, EDP, EP, P, RC

As shown in Exhibit 3.8-3, the Cordova Hills and Pilatus sites both have the same two CDMG classifications for aggregate resources:

- ▶ MRZ-1: areas where adequate information indicates that no significant mineral deposits are present or where it is judged that little likelihood exists for their presence; and
- ▶ MRZ-3: areas containing mineral deposits, the significance of which cannot be evaluated from existing data.

Neither the Cordova Hills nor the Pilatus sites are delineated as an area of known mineral resources in the Sacramento County General Plan (2011). Section 7.10 of the Cordova Hills Master Plan (Materials Conservation), which is discussed in Chapter 2, “Description of the Proposed Action and Alternatives,” of this EIS, indicates that any on-site aggregate deposits that may be encountered while conducting activities related to on-site excavation, earthmoving, construction of structures, landscaping, compaction, fills, road cuts, and embankments would be used to the fullest extent feasible while construction activity is ongoing. Section 7.10 further indicates that processing and sorting of aggregate materials would only take place within the Cordova Hills site and no off-site export would be permitted. Because aggregate materials, if present, would be used for on-site construction

materials, a loss of mineral resources would not occur under any of the action alternatives. Therefore, **no direct** adverse effects would occur. **Indirect** effects associated with on-site aggregate processing are evaluated throughout this EIS as part of the evaluation of on-site construction activities. *[Similar]*

Mitigation Measure: No mitigation measures are required.

EFFECT 3.8-8 Possible Damage to or Destruction of Previously Unknown Unique Paleontological Resources during Construction-Related Activities. *Portions of the Cordova Hills and Pilatus sites are underlain by paleontologically sensitive rock formations. Therefore, construction activities could damage or destroy previously unknown, unique paleontological resources.*

NA

Under the No Action Alternative, no development would occur. Thus, there would be **no indirect** or **direct** effect related to damage or destruction of unique paleontological resources. *[Lesser]*

Mitigation Measure: No mitigation measures are required.

PA, EDP, EP, P, RC

As shown in Exhibit 3.8-1, portions of the Cordova Hills and Pilatus sites are underlain by the Valley Springs Formation. A search of the UCMP (2012) database indicates that only five fossil localities from California have been reported, and these localities contained individual plant specimens. No vertebrate or invertebrate fossils have been reported from this formation. This formation is considered to be of low paleontological sensitivity, and therefore construction activities in this rock formation would have a less-than-significant effect on unique paleontological resources.

However, the remainder of the Cordova Hills and Pilatus sites are underlain by the Mehrten Formation and Quaternary and Tertiary alluvium (see Exhibit 3.8-1). Vertebrate fossils have been recovered from the Mehrten Formation from over 40 locations in Calaveras, San Joaquin, Stanislaus, Tuolumne, and Merced Counties (UCMP 2012). In addition, several specimens of plant fossils have been recovered locally from the Mehrten Formation in Granite Bay, Roseville, and Rocklin (Sierra College Natural History Museum 2011). Alluvium on the Cordova Hills and Pilatus sites may be of Holocene, Pleistocene, or Pliocene age. Holocene-age alluvium is too young to contain unique paleontological resources. However, hundreds of fossils from Pleistocene- and Pliocene-age alluvium have been recovered throughout the Central Valley as discussed above in the “Affected Environment,” subsection (UCMP 2013).

Because of the large number of fossils that have been recovered from the Mehrten Formation, Quaternary (Pleistocene) alluvium, and Tertiary (Pliocene) alluvium throughout the Central Valley, these rock units are considered to be of high paleontological sensitivity under the Society of Vertebrate Paleontology guidelines (1995), thus suggesting that there is a potential for uncovering additional similar fossil remains during construction-related earthmoving activities in these formations. Therefore, the potential for damage to previously unknown unique paleontological resources during earthmoving activities at the Cordova Hills and Pilatus sites is considered a **potentially significant, direct** effect. **No indirect** effects would occur. *[Similar]*

Mitigation Measure 3.8-4: Conduct Construction Personnel Education, Stop Work if Paleontological Resources are Discovered, Assess the Significance of the Find, and Prepare and Implement a Recovery Plan as Required.

To minimize potential adverse effects on previously unknown potentially unique, scientifically important paleontological resources, the project applicant of all phases where construction would occur in the Mehrten Formation, Quaternary (Pleistocene) alluvium, and Tertiary (Pliocene) alluvium (as shown on Exhibit 3.8-1) shall do the following:

- ▶ Before the start of any earthmoving activities for any phase in the Mehrten Formation or Quaternary (Pleistocene) or Tertiary alluvium, the project applicant shall retain a qualified paleontologist to train all construction personnel involved with earthmoving activities, including the site superintendent, regarding the possibility of encountering fossils, the appearance and types of fossils likely to be seen during construction, and proper notification procedures should fossils be encountered.
- ▶ If paleontological resources are discovered during earthmoving activities, the construction crew shall immediately cease work in the vicinity of the find and notify the Sacramento County Planning and Community Development Department. The project applicant shall retain a qualified paleontologist to evaluate the resource and prepare a recovery plan in accordance with Society of Vertebrate Paleontology guidelines (1995, 1996). The recovery plan may include, but is not limited to, a field survey, construction monitoring, sampling and data recovery procedures, museum storage coordination for any specimen recovered, and a report of findings. Recommendations in the recovery plan that are determined by Sacramento County to be necessary and feasible shall be implemented before construction activities can resume at the site where the paleontological resources were discovered.

Implementation: Project applicant of all phases within the Mehrten Formation and Quaternary (Pleistocene) and Tertiary alluvium.

Timing: During earthmoving activities.

Enforcement: Sacramento County Planning and Community Development Department.

Implementation of Mitigation Measure 3.8-4 would reduce potentially significant effects related to damage or destruction of unique paleontological resources under the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives to a **less-than-significant** level because construction workers would be alerted to the possibility of encountering paleontological resources, and in the event that resources were encountered, fossil specimens would be recovered and recorded and would undergo appropriate curation. USACE does not have authority to enforce this mitigation measure; Sacramento County would be the enforcement agency. Because this mitigation measure is similar to Final EIR Mitigation Measure CR-1 and Mitigation Measure 3.6-2 that also require construction worker education and work stops if subsurface resources are encountered during excavation, it is likely that this mitigation measure would be implemented. No other feasible mitigation measures that would fully reduce these effects are available.

3.8.6 RESIDUAL SIGNIFICANT EFFECTS

With implementation of Mitigation Measures 3.8-1 through 3.8-4 all effects related to geology, soils, and paleontological resources would be reduced to less-than-significant levels. Therefore, no residual significant effects would occur.

3.8.7 CUMULATIVE EFFECTS

The Cordova Hills and Pilatus sites and the other foreseeable projects are located within the eastern portion of the Sacramento Valley and/or the western margin of the Sierra Nevada foothills. The geologic formations, mineral resources, and soil types vary depending on each specific project location, and therefore are site specific.

Fossil discoveries resulting from excavation and earthmoving activities associated with development and the construction of infrastructure are occurring with increasing frequency throughout California. The value or importance of different fossil groups varies depending on the age and depositional environment of the rock unit that contains the fossils, their rarity, the extent to which they have already been identified and documented, and the ability to recover similar materials under more controlled conditions, such as part of a research project. Unique, scientifically important fossil discoveries are relatively rare, and the likelihood of encountering them is specific to each site and is based on the type of specific geologic rock formations that are present. These geologic formations vary from location to location.

SEISMIC, GEOLOGIC, AND SOILS HAZARDS

Seismic, geologic, and soils effects are site-specific, therefore they are not additive in nature and do not combine to create cumulative effects. Furthermore, every project in California is required to adhere to the regulations of the CBC, which has been specifically designed to reduce seismic, geologic, and soils effects to the maximum extent practicable. Therefore, cumulatively significant seismic, geologic, and soils effects would not occur.

CONSTRUCTION-RELATED EROSION

Implementation of the Proposed Action or Alternatives would include grading and excavation over 1,425-2,488 acres including soil removal, trenching, excavation, pipe and footing installation, grading, cut and fill, aggregate materials processing, and revegetation. Construction activities would result in the temporary disturbance of soil and would expose disturbed areas to winter storm events. Rain of sufficient intensity could dislodge soil particles from the soil surface. Once particles are dislodged and the storm is large enough to generate runoff, localized erosion could occur. In addition, soil disturbance during the spring and summer months could result in loss of topsoil because of wind erosion. Implementation of the other foreseeable projects could result in construction-related soil erosion similar to that described above. However, each project considered in this cumulative analysis must individually meet NPDES permit requirements and the requirements of local policies (i.e., grading and erosion control plans); furthermore, these effects are site specific and depend on the type of soil present at each project location. Therefore, no additive effect would result and a cumulatively significant effect from construction-related erosion would not occur.

SUITABILITY OF SOILS FOR SEPTIC SYSTEMS

Septic systems would be required for Cordova Hills site development that is within the Sacramento County Landfill buffer zone. Most of the Cordova Hills site soils consist of a shallow layer of silt, sand, or clay, underlain by bedrock. Most of the shallow soils have a low permeability and are subject to water seepage (i.e., a high water holding capacity) and thus tend to “perc” too slowly, rendering them unsuitable for septic systems. Most of the bedrock soils have extremely high permeability (i.e., a low water holding capacity) and thus tend to “perc” too quickly, rendering them unsuitable for septic systems. Most of the other foreseeable projects considered in this cumulative analysis would not require the use of septic systems; instead, wastewater treatment would be provided through connections to regional wastewater treatment conveyance pipelines and plants. However, the Teichert Quarry project would require the use of an on-site septic system. Based on data contained in Section 3.6, “Geology and Soils,” of the Final EIR prepared for the Teichert Quarry project (County of Sacramento 2010), soils at that project site are not suitable for conventional septic systems. Therefore, an engineered “mound” system would be designed and implemented in accordance with Sacramento County engineering requirements. Soil suitability for septic systems is dependent on the specific soil types at each individual project site and is therefore site-specific. Each individual project considered in this cumulative analysis must individually meet Sacramento County engineering requirements for septic systems or be connected to a permitted regional wastewater treatment plant. Therefore, no additive effect would result and a cumulatively significant effect related to suitability of soils for septic systems would not occur.

LOSS OF MINERAL RESOURCES

The presence of mineral resources is dependent on the type of geologic formation, which varies from location to location and therefore is site-specific. Neither the Cordova Hills nor the Pilatus sites contain any deposits of known aggregate materials. Furthermore, Section 7.10 of the Cordova Hills Master Plan (Materials Conservation), which is discussed in Chapter 2, “Description of the Proposed Action and Alternatives,” of this EIS, indicates that if any on-site aggregate deposits are encountered while conducting activities related to on-site excavation and earthmoving, such deposits would be used to the fullest extent feasible on the Cordova Hills or Pilatus sites while construction activity is ongoing. Therefore, the Proposed Action or Alternatives would not result in an adverse effect related to loss of regionally or locally significant mineral resources. Several of the other foreseeable projects consist of aggregate mining operations. Some of the related development projects, such as Arboreum and Rio del Oro, contain or may contain sources of aggregate materials. However, those projects would use any on-site sources of construction aggregate as part of the on-site construction process, and therefore mineral resources effects from the other foreseeable projects would be less than significant. Because the Proposed Action or Alternatives, and the other foreseeable projects would use any on-site sources of construction aggregate that may be present, a cumulatively significant effect would not occur.

DAMAGE/DESTRUCTION OF UNIQUE PALEONTOLOGICAL RESOURCES

The Cordova Hills site is underlain by three paleontologically sensitive rock formations: Quaternary (Pleistocene) alluvium, Tertiary (Pliocene) alluvium, and the Mehrten Formation. Thus, the potential exists to encounter unique paleontological resources during construction-related earthmoving activities.

The County General Plan (2011) contains policies that require a paleontological resources investigation and implementation of mitigation measures to protect unique paleontological resources from damage or destruction. Therefore, because any other foreseeable project where development would take place in a paleontologically

sensitive rock formation would be required to implement appropriate mitigation measures, the other foreseeable projects would not result in a significant effect related to damage or destruction of unique paleontological resources after implementation of required mitigation.

Implementation of Mitigation Measure 3.8-9 would reduce the effect of the Proposed Action and Alternatives on previously undiscovered paleontological resources to a less-than-significant level because construction worker personnel training would be provided, construction would be halted in the vicinity of any resources encountered, and fossils would be removed and curated. Because mitigation measures to protect paleontological resources are required by the County General Plan and the City of Rancho Cordova General Plan for both the alternatives under evaluation as well as the other foreseeable projects, damage or destruction of unique paleontological resources would not occur, and the Proposed Action and Alternatives would not result in a cumulatively considerable contribution to a significant cumulative effect related to paleontological resources.

This page intentionally left blank.

3.9 HAZARDOUS WASTE AND MATERIALS

3.9.1 INTRODUCTION

This section addresses hazards and hazardous materials that could be affected by implementing the Proposed Action or Alternatives, including hazardous substances, airport safety, emergency evacuation routes, and wildland fires. Feasible mitigation measures are recommended, where appropriate, to reduce adverse effects.

3.9.2 AFFECTED ENVIRONMENT

DEFINITIONS

For purposes of this section, the term “hazardous materials” refers to both hazardous substances and hazardous wastes. A “hazardous material” is defined as “a substance or material that...is capable of posing an unreasonable risk to health, safety, and property when transported in commerce” (49 Code of Federal Regulations [CFR] Section 171.8). California Health and Safety Code Section 25501 defines a hazardous material as follows:

“Hazardous material” means any material that, because of its quantity, concentration, or physical, or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment. “Hazardous materials” include, but are not limited to, hazardous substances, hazardous waste, and any material which a handler or the administering agency has a reasonable basis for believing that it would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment.

“Hazardous wastes” are defined in California Health and Safety Code Section 25141(b) as wastes that:

...because of their quantity, concentration, or physical, chemical, or infectious characteristics, [may either] cause, or significantly contribute to an increase in mortality or an increase in serious 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.

ENVIRONMENTAL CONTAMINATION WITHIN THE CORDOVA HILLS AND PILATUS SITES

Wallace Kuhl & Associates, Inc. (Wallace Kuhl) was retained by the project applicant to conduct Phase I Environmental Site Assessments (ESAs) for the Cordova Hills site in 2005, 2007, and 2010. The purpose of the Phase I ESAs was to document recognized environmental conditions (RECs) within the Cordova Hills site related to current and historical uses of the area, and to evaluate the potential for releases of hazardous materials from on- or off-site sources that could affect environmental conditions at the Cordova Hills site. Preparation of the Phase I ESAs was guided by standards published by the American Society for Testing and Materials (ASTM), which defines an REC as “...the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, ground water, or surface water of the property.” The project applicant has not conducted a Phase I ESA for the northern portion of the Pilatus site.

Recognized Environmental Conditions

Cordova Hills Site

Based on a review of interviews, database searches, aerial photographs, and maps, Wallace Kuhl (2005, 2007, and 2010) established that the Cordova Hills site has been used for ranching over the last 100 years. The remains of a former homestead and vehicle, a windmill, seven wells, fencing materials, and several circular areas of depressed soils (which may be the remains of prospect mining pits) are present on the site. There are several Sacramento Municipal Utility District (SMUD) pole-mounted electrical transformers on the Cordova Hills site, which likely were installed prior to 1975 (Wallace Kuhl 2005). Electrical transmission lines on steel towers bisect the eastern portion of the Cordova Hills site. Wallace Kuhl (2005, 2007, and 2010) indicated there is no evidence of aboveground or underground storage tanks (UST), prior application of agricultural herbicides or pesticides, or stained or odiferous soils. The Cordova Hills site is not listed on any regulatory agency database, including those that are maintained as part of the Cortese list (described in the “Regulatory Framework/Applicable Laws, Regulations, Plans, and Policies” subsection below.). There are no recorded permits for any industrial or manufacturing activities, or any regulated agricultural use. Therefore, Wallace Kuhl (2005, 2007, and 2010) concluded that there are no RECs present on the Cordova Hills site.

Pilatus Site

Because a Phase I ESA for the northern portion of the Pilatus site has not been conducted by the project applicant, AECOM performed a search of several publicly available databases that are maintained as part of the Cortese List to ascertain whether or not any known hazardous materials are present.

The Geotracker database is an information management system related to groundwater that is maintained by the State Water Resources Control Board (SWRCB). Data relating to leaking USTs and other types of soil and groundwater contamination, along with associated cleanup activities, are part of the information that SWRCB is required to maintain under California Public Resources Code (PRC) Section 65962.5 (i.e., the “Cortese List”). A search of the Geotracker database (SWRCB 2012a) indicated no known reports of contamination at the Pilatus site.

The Hazardous Waste and Substances Site List (i.e., the “EnviroStor” database) is maintained by the California Department of Toxic Substances Control (DTSC) as part of the requirements of PRC Section 65962.5. A search of the EnviroStor database indicated that there are no reported cases of hazardous waste and substances sites at the Pilatus site (DTSC 2012).

A search of the U.S. Environmental Protection Agency’s (EPA) Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) database indicated there is no known hazardous material contamination at the Pilatus site (EPA 2012a and 2012b).

Other Hazardous Materials

An evaluation of asbestos-containing materials, lead-based paint, and polychlorinated biphenyls (PCBs) is outside the scope of a standard Phase I ESA as required by ASTM E1527-05; therefore, these topics were not included in the Phase I ESAs prepared for the Cordova Hills site by Wallace Kuhl (2005, 2007, and 2010) and are discussed separately below.

Asbestos

Asbestos is designated as a hazardous substance when the fibers have potential to come in contact with air because the fibers are small enough to lodge in lung tissue and cause health problems. The presence of asbestos-containing materials (ACMs) in existing buildings poses an inhalation threat only if the ACMs are in a friable state. If the ACMs are not friable, then there is no inhalation hazard because asbestos fibers remain bound in the material matrix. Emissions of asbestos fiber to the ambient air, which can occur during activities such as renovation or demolition of structures made with ACMs (e.g., insulation), are regulated in accordance with Section 112 of the Federal Clean Air Act (CAA).

The remains of the former homestead on the Cordova Hills site consist solely of a building foundation. Thus, no building materials that contain asbestos are present at the Cordova Hills site. There are no buildings or structures present on the Pilatus site. Based on the known geology of the Cordova Hills and Pilatus sites, naturally occurring asbestos (NOA) is not expected to be present. The potential for NOA to be present on the Cordova Hills or Pilatus sites is discussed in more detail in Section 3.8, “Geology, Soils, Minerals, and Paleontological Resources.”

Lead-Based Paint

Human exposure to lead has been determined by EPA and the Occupational Health and Safety Administration (OSHA) to be an adverse human health risk, particularly to young children. Demolition of structures containing lead-based paint requires specific remediation activities regulated by Federal, state, and local laws. The use of lead as an additive to paint was discontinued in 1978.

The remains of the former homestead on the Cordova Hills site consist solely of a building foundation. Thus, no materials containing lead-based paint are known to be present at the Cordova Hills site. The Pilatus site does not contain any buildings or structures which could contain lead-based paint.

Polychlorinated Biphenyls

Prior to 1975, PCBs were commonly used in transformers, capacitors, and fluorescent light ballasts. In 1975, when it was demonstrated that PCBs were highly toxic, manufacture of PCBs was discontinued in the United States. Older pole-mounted electrical transformers, still in use, may contain PCBs. The pole-mounted transformers at the Cordova Hills site were likely installed before 1975, and therefore may contain PCBs. An assessment of each transformer would be necessary to confirm the presence or absence of PCBs, and if PCBs are found, remediation would be the responsibility of SMUD.

Assessments performed by SMUD associated with PCBs are intended for SMUD’s purpose of remedial and mitigation activities to protect food, feed stock, habitats, water ways, human health, and the physical environment. If transformers are not tagged “Non-PCB,” SMUD performs sampling for PCBs once the transformer is removed from the field location and SMUD transports and disposes of PCBs in accordance with Federal and state regulations.

ENVIRONMENTAL CONTAMINATION IN THE CORDOVA HILLS VICINITY

There are four known sites of environmental contamination in the vicinity of the Cordova Hills and Pilatus sites. Wallace Kuhl (2005, 2007, and 2010) reported three areas of known contamination, and AECOM has also included a discussion of the nearby Aerojet Superfund site. Based on a review of publicly available databases

conducted by AECOM in 2012, the sites listed below are also the only known off-site contamination areas in the vicinity of the Cordova Hills and Pilatus sites. Each contamination area is discussed separately below.

Kiefer Landfill

Kiefer Landfill is an approximately 1,084-acre solid waste disposal site that is owned and operated by Sacramento County. As described in Chapter 2, “Description of the Proposed Action and Alternatives,” the landfill property is located approximately 2,000 feet south of the current Urban Services Boundary line where it runs along the southern edge of the Cordova Hills site. Sacramento County has purchased rangeland that serves as a buffer zone around the perimeter of the landfill. Proposed facilities in the southwestern corner of the Cordova Hills site would be constructed within this buffer zone. The landfill is classified as Class III and accepts a variety of wastes, including mixed municipal, sludge (biosolids), and construction/demolition materials. Samples from some of the monitoring wells at the landfill indicated that wastes have been released to the groundwater. The major groundwater contaminants are volatile organic compounds (VOCs), including perchloroethylene (PCE); trichloroethylene (TCE); 1,1,1-trichloroethane (1,1,1-TCA); 1,2-dichloroethylene (1,2-DCE); benzene; and vinyl chloride. VOCs were first detected in the landfill monitoring wells in 1998. The County monitors three water bearing zones, to a depth of 150 feet below mean sea level (msl). The County operates a groundwater extraction and treatment (GET) system on the landfill site, including 50 groundwater monitoring wells in various locations around the landfill. Treated water is discharged southwest of the landfill. The contaminant plume is monitored by the landfill operator and results are sent to the Sacramento County Environmental Management Department (SCEMD) on a weekly basis. The nearest edge of the contaminant plume is approximately 3,200 feet southwest of the southwestern corner of the Cordova Hills site (Wallace Kuhl 2010).

Landfill gas is created when waste in a landfill decomposes. This gas is approximately 50 percent methane and 40 percent carbon dioxide. At Kiefer Landfill, gas is collected by a series of wells that connect to the on-site energy facility. Internal combustion engines convert gas into electricity, which is then delivered to SMUD’s power distribution system. While this system provides a variety of benefits (e.g., reduction of greenhouse gas emissions, production of energy from a sustainable resource), there is a potential that these landfill gases could escape into the environment and adversely affect air quality. In addition, methane and carbon dioxide can act as carrier gases for trace VOCs and result in groundwater contamination. Due to these concerns, gas and leachate are inspected by SCEMD on a monthly basis. To date, no adverse effects on air quality that would affect the Cordova Hills site have been reported. Wallace Kuhl (2010) conducted a preliminary screening for potential vapor intrusion conditions. Based on the screening results, Wallace Kuhl concluded it is unlikely that favorable conditions for vapor intrusion are present at the Cordova Hills site. However, that screening analysis was based on the location of the landfill wastes in 2010.

The landfill will be built out to its fully permitted capacity in phases (called modules). According to the Sacramento County Department of Waste Management and Recycling, the landfill is currently constructing Module 3. At completion of Module 3, landfill waste will be placed approximately 4,000 feet from the proposed Sports Park (located in the bufferlands) and approximately 4,500 feet from the proposed Living and Learning center area of the proposed University/College Campus Center. At completion of Module 5 (proposed for 2025–2035), landfill waste will be placed approximately 1,700 feet from the proposed Sports Park and approximately 2,200 feet from the proposed Living and Learning Center.

Sacramento County Boys Ranch

The Sacramento County Boys Ranch formerly operated as a 24-hour secure correctional facility for teens referred to the facility by the court system for a 1-year program term. The Boys Ranch was located east of the northeast property boundary. It was closed in 2010 due to County funding shortages. A hazardous materials release occurred from a leaking fuel UST at the Boys Ranch. The UST was removed, the contaminated soil was remediated, and the site received closure status from SCEMD (Wallace Kuhl 2005).

Aerojet Superfund Site

The Aerojet Superfund site consists of approximately 8,500 acres roughly bounded by U.S. Highway 50, the Folsom South Canal, White Rock Road, and Prairie City Road, plus Area 39, Area 40, and the former Cavitt Ranch. The Superfund site is currently being remediated under CERCLA. Groundwater contamination at the Aerojet site consists primarily of VOCs such as TCE, perchlorate, and n-nitrosodimethylamine. One of the contaminated groundwater plumes emanates from the former liquid rocket fuel testing area on the eastern side of the Aerojet site, west of Prairie City Road. This plume is migrating south and slightly west, and extends to the southern edge of the Teichert aggregate processing facility on Grant Line Road. The southern edge of this plume is approximately 1.7 miles north of the Cordova Hills site and approximately 0.3 mile north of the northern Pilatus site boundary. The contaminant plume is migrating generally towards the Cordova Hills and Pilatus sites; however, remedial actions to contain the plume are underway.

Area 39, which is located in the Prairie City State Vehicular Recreation Area approximately 1.2 miles northeast of the northern Pilatus site boundary, is also part of the Aerojet Superfund site. Soil contaminated with metals, perchlorate, dioxins/furans, and VOCs was found to exceed human health and ecological risk screening levels. Soil vapor samples indicated that VOCs were above human health and ecological screening levels. A site assessment was prepared in 2009, and cleanup activities are ongoing (SWRCB 2012b).

Inactive Rancho Cordova Test Site

The Inactive Rancho Cordova Test Site (IRCTS) is located approximately 1 mile northwest of the Cordova Hills site and approximately 4,800 feet west of the Pilatus site. The IRCTS consists of a 2,728-acre area north of Douglas Road, south of White Rock Road, and east of Sunrise Boulevard. Gold-dredging activities occurred over approximately 70 percent of the site from the early 1900s until 1962. Since the mid-1960's, it has been used by several aerospace companies (including Aerojet), which has resulted in groundwater contamination with various VOCs.

Since 1984, groundwater investigations at the IRCTS have been ongoing to characterize the site's hydrology, evaluate the direction of groundwater flow, assess the extent of groundwater contamination, and provide remediation. The site was divided into three separate groundwater study areas based on the sources of chemicals and their potential effects on the groundwater. These consist of the Western Groundwater Operable Unit, the Northern Groundwater Study Area, and the Southern Groundwater Study Area. The Southern Groundwater Study Area (SGSA) is closest to the Cordova Hills and Pilatus sites (EDAW [now AECOM] 2006:Section 3.13).

The SGSA was designated as part of the cleanup operations to address chemicals in groundwater originating from the Alpha Complex and the Administration Area (Security Park) Operable Units. Numerous monitoring wells and GET wells have been installed at various locations within the SGSA. Additional GET wells were installed along

Douglas Road and south of Douglas Road (on land that is part of the Sunrise Douglas Community Plan area) to remediate contaminated groundwater moving south from the Security Park industrial area. Sampling data indicate that VOCs, mostly TCE and perchlorate, are the primary chemicals of concern in the groundwater, and that the directions of groundwater flow range from south at the Security Park to southwest at other locations further west. Therefore, the groundwater contaminant plumes are not migrating towards the Cordova Hills site. Perchlorate is not present in the plume from the Security Park or in the eastern TCE plume from the Alpha Complex; however, perchlorate is present within the western side of the TCE plume from the Alpha Complex (EDAW [now AECOM] 2010:Chapter 5). One extraction well and a temporary GET system were installed during 2004 at the intersection of Douglas Road near the center of the IRCTS. The GET system began operating on a limited basis in July 2005 and began continuous operations in October 2005. Two additional extraction wells were installed along Douglas Road in 2005 and were connected to the GET system along with three extraction wells located south of Douglas Road. These wells are intended to remediate contaminated groundwater moving south from the Security Park. The extracted water is pumped from these wells to the GET system and the treated water is discharged to Morrison Creek. The second phase of the groundwater remediation includes the installation of three additional extraction wells on the Ranch at Sunridge project site within the northeastern portion of the existing transmission line easement. The current Remedial Action Plan incorporates requirements for progress evaluations and modifications to the remedies recommended in the plan until perchlorate and TCE are removed from the groundwater to the satisfaction of the Central Valley Regional Water Quality Control Board.

SCHOOLS

The closest K-12 school to the Cordova Hills and Pilatus sites is Sunrise Elementary, located within the Anatolia Village development at 11821 Cobble Brook Drive and operated by the Elk Grove Unified School District. Sunrise Elementary is located approximately 2.75 miles west of the Cordova Hills and Pilatus sites. There are no other existing K-12 schools located in the Cordova Hills vicinity. However, all alternatives would contain an on-site joint high school/middle school, as well as 2 to 4 on-site elementary schools.

AIRPORTS AND AIRSTRIPS

No public or private airports are located within 2 miles of the Cordova Hills or Pilatus sites, nor are the Cordova Hills or Pilatus sites located within the boundaries of an airport land use plan. The closest airport to the Cordova Hills site is Mather Airport, which is located approximately 4 miles to the west.

WILDLAND FIRE HAZARDS

Wildland fires represent a substantial threat in the state, particularly during the hot, dry summer months in more isolated areas where steep topography, limited access, and heavy fuel loading contribute to hazardous conditions. Wildland fires may be started by natural processes, primarily lightning, or may be started by human activities. The California Department of Forestry and Fire Protection (CALFIRE) has established a fire hazard severity classification system to assess the wildland fire potential. The zones depicted on CALFIRE maps take into account the potential fire intensity and speed, production and spread of embers, fuel loading, topography, and climate (e.g., temperature and the potential for strong winds). The classification system provides three classes of fire hazards: moderate, high, and very high. Many homes in the high and very high fire hazard areas are considered by CALFIRE to be without adequate protection from wildland or structural fires. The Cordova Hills site is located in an undeveloped, rural area that consists primarily of grassland with only a few, scattered trees. The Cordova Hills and Pilatus sites are classified as being in a moderate fire hazard severity zone (CALFIRE 2007).

The California Public Resources Code Sections 4125-4137 requires the designation of State Responsible Areas (SRAs) (based on amount and type of vegetative cover, beneficial water uses, probable erosion damage, fire risks, and hazards), where the financial responsibility of preventing and suppressing fires falls primarily on the state. Fire protection outside the SRAs is the responsibility of local or Federal agencies. The Cordova Hills and Pilatus sites are currently located within an SRA (CALFIRE 2007). See Section 3.14, "Public Services," for further information about fire protection services.

3.9.3 REGULATORY FRAMEWORK/APPLICABLE LAWS, REGULATIONS, PLANS, AND POLICIES

State laws and regulations are provided for informational purposes and to assist with NEPA review. USACE has considered state, regional, and local plans and ordinances as a part of the environmental review process for this EIS.

Sacramento County certified an environmental impact report (EIR) and approved the Proposed Action in January 2013. State, regional, and local plans, policies, laws, and ordinances were considered in the EIR and adopted mitigation measures have been incorporated into the Proposed Action.

FEDERAL PLANS, POLICIES, REGULATIONS, AND LAWS

Hazardous Materials Handling

The principal Federal agency regulating the generation, transport, and disposal of hazardous substances is EPA, under the authority of the Resource Conservation and Recovery Act (RCRA), originally enacted in 1976. Under the RCRA, EPA regulates the generation, transportation, treatment, storage, and disposal of hazardous substances. RCRA was amended in 1984 by the Hazardous and Solid Waste Amendments of 1984, which specifically prohibits the use of certain techniques to dispose of various hazardous substances. The Federal Emergency Planning and Community Right to Know Act of 1986 imposes hazardous materials planning requirements to help protect local communities in the event of accidental release of hazardous substances. EPA has delegated much of the implementation of RCRA requirements to DTSC.

Use and safety considerations related to blasting activities are regulated by the U.S. Department of Labor, OSHA under the Construction Safety and Health Outreach Program. Storage or explosives and blasting agents is regulated by the U.S. Department of Justice, Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF) under 27 CFR Part 55, *Commerce in Explosives*.

Hazardous Materials Regulation

CERCLA of 1980, commonly known as Superfund, created a trust fund and provided Federal authority to respond directly to releases or threatened release of hazardous substance that could endanger public health or the environment. CERCLA was enlarged and reauthorized by the Superfund Amendments and Reauthorization Act of 1986 (SARA, Public Law 99-499). SARA requires EPA to compile a list of national priorities among the known releases or threatened releases of hazardous substances, pollutants, or contaminants throughout the United States and its territories, known as the National Priorities List. These locations are commonly referred to as "Superfund sites." EPA has delegated some of its regulatory authority related to prevention and cleanup of certain types of hazardous materials incidents to several state agencies, including DTSC and SWRCB.

Worker Safety Requirements

OSHA is responsible at the Federal level for ensuring worker safety. OSHA sets Federal standards for implementing workplace training, exposure limits, and safety procedures for the handling of hazardous substances (as well as other hazards). OSHA also establishes criteria by which each state can implement its own health and safety program.

STATE PLANS, POLICIES, REGULATIONS, AND LAWS

Hazardous Materials Handling

The California Hazardous Materials Release Response Plans and Inventory Law of 1985 (Business Plan Act) requires preparation of hazardous materials business plans and disclosure of hazardous materials inventories. A business plan includes an inventory of hazardous materials handled, facility floor plans showing where hazardous materials are stored, an emergency response plan, and provisions for employee training in safety and emergency response procedures (California Health and Safety Code, Division 20, Chapter 6.95, Article 1). The business plan program is administered by the California Emergency Management Agency (CalEMA). A business plan is required if a hazardous substance would be stored more than 30 days in any of the following quantities:

- ▶ 500 gallons or more of any solid,
- ▶ 55 gallons or more of any liquid,
- ▶ 200 cubic feet or more of any compressed gas, or
- ▶ any acutely hazardous substance or radiological material that meets the Federal threshold planning quantities listed in 40 CFR Part 355, Subpart A.

Worker Safety Requirements

The California Department of Industrial Relations, Division of Occupational Safety and Health, better known as Cal-OSHA (Cal-OSHA), assumes primary responsibility for developing and enforcing workplace safety regulations within California. Cal-OSHA regulations pertaining to the use of hazardous materials in the workplace (California Code of Regulations [CCR] Title 8) include requirements for safety training, availability of safety equipment, accident and illness prevention programs, hazardous substance exposure warnings, and preparation of emergency action and fire prevention plans. Cal-OSHA enforces hazard communication program regulations that contain training and information requirements, including procedures for identifying and labeling hazardous substances, communicating hazard information related to hazardous substances and their handling, and preparing health and safety plans to protect workers and employees at hazardous waste sites. The hazard communication program requires that employers make Material Safety Data Sheets available to employees and document employee information and training programs.

California Multi-Hazard Mitigation Plan

CalEMA issued the State of California Multi-Hazard Mitigation Plan (Multi-Hazard Mitigation Plan) (CalEMA 2010), which was approved by the Federal Emergency Management Agency (FEMA) in October 2010. The overall intent of the Multi-Hazard Mitigation Plan is to reduce or prevent injury and damage from natural hazards in California, such as earthquakes, wildfires, and flooding. The plan identifies past and present hazard mitigation activities; current policies and programs; and mitigation goals, objectives, and strategies for the future (CalEMA 2010). The Federal Disaster Mitigation Act required all state emergency services agencies to issue such plans by

November 1, 2004, for the states to receive Federal grant funds for disaster assistance and mitigation under the Stafford Act (44 CFR 201.4). These plans must be updated every 3 years.

California Emergency Plan

California has developed an emergency response plan to coordinate emergency services provided by Federal, state, and local governments and private agencies. The State of California Emergency Plan (CalEMA 2009) addresses the state's response to extraordinary emergency situations associated with natural disasters or human-caused emergencies. The plan describes the methods for carrying out emergency operations, the process for rendering mutual aid, the emergency services of governmental agencies, how resources are mobilized, how the public will be informed and the process to ensure continuity of government during an emergency or disaster. The concepts presented in the plan emphasize mitigation programs to reduce the vulnerabilities to disaster and preparedness activities to ensure the capabilities and resources are available for an effective response and recovery. Response to hazardous material incidents is one part of this plan.

The plan is managed by CalEMA, which assists in coordinating the responses of other state and local agencies in accordance with the Standardized Emergency Management System (SEMS), which is required by the California Emergency Services Act for managing multiagency and multijurisdictional responses to emergencies in California.

Hazardous Materials Transport

The U.S. Department of Transportation (DOT) regulates transportation of hazardous materials between states. State agencies with primary responsibility for enforcing Federal and state regulations and responding to hazardous materials transportation emergencies consist of the California Highway Patrol (CHP) and the California Department of Transportation (Caltrans). Together, these agencies determine container types used and license hazardous waste haulers for transportation of hazardous waste on public roads, including explosives that may be used for blasting.

California Accidental Release Prevention Program

The goal of the California Accidental Release Prevention (CalARP) Program, overseen by CalEMA, is to reduce the likelihood and severity of consequences of extremely hazardous materials releases. Any business that handles regulated substances (chemicals that pose a major threat to public health and safety or the environment because they are highly toxic; flammable; or explosive, including ammonia, chlorine gas, hydrogen, nitric acid, and propane) is required to prepare a risk management plan (RMP). The RMP is a detailed engineering analysis of the potential accident factors present at a business and the measures that can be implemented to reduce this accident potential. The RMP must provide safety information, hazard data, operating procedures, and training and maintenance requirements.

California Government Code Section 65962.5 (Cortese List)

The provisions of California Government Code Section 65962.5 are commonly referred to as the "Cortese List" (after the legislator who authored the legislation that enacted it). The Cortese List is a planning document used by state and local agencies to comply with CEQA requirements in providing information about the location of hazardous materials release sites. California Government Code Section 65962.5 requires Cal-EPA to develop an updated Cortese List annually, at minimum. DTSC is responsible for a portion of the information contained in the

Cortese List. Other California state and local government agencies are required to provide additional hazardous material release information for the Cortese List.

California Public Resources Code Section 21151.4

Under PRC Section 21151.4, unless certain conditions are first met, EIRs or mitigated negative declarations that would involve constructing or altering facilities that meet any of the following criteria may not be certified or adopted for projects within 1/4 mile of schools:

- ▶ might reasonably be anticipated to emit hazardous air emissions;
- ▶ would handle an extremely hazardous substance or a mixture containing extremely hazardous substances in a quantity equal to or greater than the State threshold quantity specified in Section 25532(j) of the Health and Safety Code; or
- ▶ may pose a health or safety hazard to persons who would attend or would be employed at the school.

For an EIR to be certified or mitigated negative declaration to be adopted for such a project, both of the following must have already occurred:

- (1) The lead agency preparing the EIR must have consulted with the school district with jurisdiction about the potential effect of the project on the school.
- (2) The school district must have been notified about the project in writing at least 30 days before the proposed certification of the EIR or adoption of the mitigated negative declaration.

3.9.4 ANALYSIS METHODOLOGY

Evaluation of potential hazards and hazardous materials effects for the alternatives under consideration relied in part on the following three reports:

- ▶ Wallace Kuhl & Associates, Inc. 2005 (April). *Environmental Site Assessment Cordova Hills 2,323-Acre Property*.
- ▶ Wallace Kuhl & Associates, Inc. 2007 (March). *All Appropriate Inquiries Report Conwy South Property Sacramento County, California*.
- ▶ Wallace Kuhl & Associates, Inc. 2010 (October). *Phase I Environmental Site Assessment Update Conwy property, Rancho Cordova, Sacramento County, California*.

Evaluation of potential hazards and hazardous materials effects for the Pilatus Alternative was based upon supplemental research undertaken by AECOM, as well as reasonable extrapolation from the Wallace Kuhl reports because Wallace Kuhl did not conduct a Phase 1 ESA of the Pilatus site.

Potential effects on the environment related to hazards and hazardous materials were evaluated based on the type and location of anticipated construction and operational activities, and were based on publicly available

information related to existing land uses, wildfire hazard zones, and known soil and/or groundwater contamination sites within and in the vicinity of the proposed facilities.

Because the Final EIR has already been certified, all Final EIR Mitigation Measures, the Rezone and Tentative Large Lot Parcel Map Conditions of Approval, and the obligations found in the project entitlements (collectively referred to as the project entitlements) are considered a part of the Proposed Action. Thus, these measures and requirements are considered when analyzing the significance of effects under the Proposed Action. Because the project entitlements were imposed on the Proposed Action by the County as part of its approval process, it is reasonable to assume that if one of the action alternatives were adopted, the County would impose similar conditions during the entitlement of the alternative.

THRESHOLDS OF SIGNIFICANCE

The determinations of the significance of effects for this analysis are based on professional standards regularly used in environmental review documents in the region. These thresholds encompass the factors taken into account under NEPA to determine the significance of an action in terms of its context and the intensity of its effects. These are also informed by the environmental checklist in Appendix G of the State CEQA Guidelines. The alternatives under consideration were determined to result in a significant effect related to hazards and hazardous materials if they would do any of the following:

- ▶ create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment or through the routine transport, use, or disposal of hazardous materials;
- ▶ emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;
- ▶ 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 create a significant hazard to the public or the environment;
- ▶ for a project located within an airport land use plan or within two miles of a public airport, result in a safety hazard for people residing or working in the project area;
- ▶ for a project located in the vicinity of a private air strip, result in a safety hazard for people residing or working in the project area;
- ▶ impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan; or
- ▶ expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or residences are intermixed with wildlands.

Hazards from Project Development within Two Miles of an Airport—The Cordova Hills and Pilatus sites are not located within an area that is subject to an airport land use plan or within 2 miles of a public or private airport; thus, there would be no safety hazard for people residing or working at the Cordova Hills or Pilatus sites. Thus, this issue is not evaluated further in this EIS. Aircraft noise effects from Mather Airport are discussed in Section 3.11, “Noise.”

3.9.5 ENVIRONMENTAL CONSEQUENCES AND MITIGATION MEASURES

EFFECTS ANALYSIS

Effects that would occur under each alternative development scenario are identified as follows: NA (No Action), PA (Proposed Action), EDP (Expanded Drainage Preservation), EP (Expanded Preservation), P (Pilatus), and RC (Regional Conservation). The effects for each alternative are compared relative to the PA at the end of each effect conclusion (i.e., similar, greater, lesser).

EFFECT 3.9-1 Potential Hazards from Inadvertent Release of Hazardous Materials into the Environment or Through the Routine Transport, Use, or Disposal of Hazardous Materials. *Implementation of the Proposed Action or Alternatives would entail the storage, use, and transport of hazardous materials, which is regulated by Federal, state, and local regulations.*

NA

Under the No Action Alternative, no development would occur. Thus, there would be **no indirect** or **direct** effect related to the use or transport of hazardous materials. [*Lesser*]

Mitigation Measure: No mitigation measures are required.

PA, EDP, EP, P, RC

Under all five action alternatives, development with residential and commercial uses would entail the storage, use, and transport of hazardous materials (e.g., asphalt, fuel, lubricants, paint) during construction activities. In addition, commercial uses associated with the operation of the Proposed Action or Alternatives could include facilities such as gas stations and dry cleaners that could be used on site and routinely transport hazardous materials on and off site. Transportation of hazardous materials on area roadways is regulated by CHP and Caltrans, and use of these materials is regulated by DTSC, as outlined in Title 22 of the CCR. The project applicant, builders, contractors, business owners, and others would be required to use, store, and transport hazardous materials in compliance with Federal, state, and local regulations during construction and operation. Facilities that would use hazardous materials on site after the Proposed Action or Alternatives are constructed would be required to obtain permits and comply with appropriate regulatory agency standards designed to avoid hazardous waste releases. Because the construction contractors and businesses during the operational phase are required by law to implement and comply with existing hazardous materials regulations, **indirect** effects related to the creation of significant hazards to the public through routine transport, use, disposal, and risk of accidental release would be considered **less than significant**. **No direct** effects would result. No mitigation measures were identified to further reduce these effects. [*Similar*]

EFFECT 3.9-2 Possible Exposure of Construction Workers, Workers, and Residents to Existing Hazardous Materials, Including those on the Cortese List. *The Cordova Hills and Pilatus sites could contain presently unknown hazardous materials, and operations could expose future residents or employees to hazardous materials from Kiefer Landfill.*

NA

Because no new construction would occur under the No Action Alternative, **no indirect** or **direct** effects from exposure of people to existing hazardous materials would occur. *[Lesser]*

Mitigation Measure: No mitigation measures are required.

PA

Prior activities within the Aerojet Superfund site, which is also on the Cortese list, have resulted in multiple groundwater plumes, one of which is migrating towards the Cordova Hills site from the north. However, the groundwater table is more than 100 feet below the surface, and the Proposed Action would not result in installation of groundwater wells to obtain potable water. Instead, a mix of surface water and County-wide groundwater from other locations would be supplied through the Sacramento County Water Agency and Zones 40 and 41, as described in Section 3.16, “Utilities and Service Systems.” Thus, there would be **no direct** or **indirect** effect from potential exposure of construction workers and residents to contaminated groundwater.

Implementation of the Proposed Action would involve site grading, excavation, and construction of new residential units and commercial facilities. There are on-site wells, prospect mining pits, and septic systems that could represent a safety hazard and/or contain hazardous materials. During construction activities, construction workers could come in contact with and be exposed to hazardous materials. However, USTs are regulated at the local and state level. No surface evidence of USTs was observed during the Wallace Kuhl site visits in 2005 or 2007, and a records search did not indicate that any USTs are or were ever present on the Cordova Hills site. This does not eliminate the possibility, however, that an UST associated with prior agricultural activities may be present.

A portion of the proposed facilities would be constructed within the 2,000-foot buffer zone adjacent to the Kiefer Landfill. The landfill is scheduled to be expanded in phases over time (called modules). Sacramento County Department of Waste Management and Recycling estimates that Module 5 will be constructed from 2025–2035, and that Module 5 will result in landfill waste being placed approximately 1,700 feet from the proposed Sports Park and approximately 2,200 feet from the proposed Living and Learning Center in the university campus. Landfill gas can pose indoor health hazards from vapor intrusion if structures are constructed in close proximity to landfill wastes; structures within 1,000 feet of landfill wastes could be subject to vapor intrusion hazards. The presence of the Kiefer Landfill is not an effect of the Proposed Action; however, proximity to the Kiefer Landfill could present an effect on the Proposed Action.

As part of the CEQA EIR certification and project approval process, the project applicant committed to implementing various mitigation measures and conditions of approval for the Proposed Action. The mitigation measures and conditions of approval that are applicable to this effect that were incorporated into the Proposed Action by the EIR mitigation measures, conditions of approval, and development agreement (project entitlements) are listed below:

- ▶ Any structure within the project boundaries (including but not limited to, buildings, subsurface vaults, utilities, or any other areas where potential landfill gas buildup may cause adverse effects to the public health or safety or the environment) within 1,000 feet of buried waste or proposed buried waste at Kiefer Landfill

shall be continuously monitored by the owner/operator of said structure for landfill gas and be designed and constructed to prevent landfill gas accumulation in those structures (*Final EIR Mitigation Measure HM-1*).

- ▶ The location and nature of the Kiefer Landfill facility shall be disclosed to all prospective buyers of properties within one mile of the ultimate active landfill boundary. The disclosure notice shall include:
 - a. A statement substantially consistent with the following: “The landfill will expand in height and land area over time, and thus the visibility and proximity of the landfill from the property at the time of purchase does not reflect how visible or proximate the landfill will be in the future.” This statement shall be supplemented with relevant facts about ultimate landfill design, including the distance of the property to the ultimate planned edge of the landfill waste disposal area to the nearest 100 feet and the ultimate planned height of the landfill (as set forth in the Solid Waste Facilities Permit).
 - b. Notification that the landfill operates under a Solid Waste Facilities Permit and is required to control pests, vectors, litter, and odor to the extent practicable, but that it is not possible to eliminate all of these nuisances. For this reason, property owners may experience some of these nuisance conditions.
 - c. Notification that the active landfill area is lighted at night. (*Final EIR Mitigation Measure LU-2*).

For the reasons presented above, construction and operational activities could expose construction workers and the general public to harmful substances, and this **indirect** and **direct** effect is considered **potentially significant**. In addition to the mitigation measures from the CEQA EIR, the project applicant shall also implement the mitigation measure listed below.

Mitigation Measure 3.9-1a: Conduct Phase I and/or II Environmental Site Assessments, Destroy Wells and Remediate Septic Systems, and Implement Required Measures if Stained or Odiferous Soil or Contaminated Groundwater is Discovered.

The project applicant shall implement the following measures before and during ground-disturbing activities to reduce health hazards associated with potential exposure to hazardous substances:

- ▶ If stained or odiferous soil is discovered during project-related construction activities, the project applicants shall retain a registered environmental assessor to conduct a Phase I ESA, and if necessary, Phase II ESAs and/or other appropriate testing. Recommendations in the Phase I and II ESAs to address any contamination that is found shall be implemented before continuing with ground-disturbing activities in these areas.
- ▶ Notify the appropriate Federal, state, and local agencies if evidence of previously undiscovered soil or groundwater contamination (e.g., stained soil, odorous groundwater) or if known or previously undiscovered USTs are encountered during construction activities. Any contaminated areas shall be remediated in accordance with recommendations made by the Sacramento County EMD, Central Valley Regional Water Quality Control Board, DTSC, and/or other appropriate Federal, state, or local regulatory agencies.
- ▶ Retain a licensed contractor to remove all septic systems in accordance with Federal, state, and local regulations.

- ▶ Close and destroy all on-site wells in accordance with Sacramento County EMD procedures.

Implementation: Project applicant.

Timing: Before and during the start of construction activities.

Enforcement: Central Valley Regional Water Quality Control Board, California Department of Toxic Substances Control, Sacramento County Environmental Management Department, and/or the appropriate Federal, state, or local regulatory agency.

Final EIR Mitigation Measures HM-1 and LU-2 have been incorporated into the Proposed Action, thereby reducing human health hazards from landfill gas. Implementation of Mitigation Measure 3.9-1a would also reduce human health hazards from exposure to hazardous materials that may be encountered during construction because any hazardous materials that are encountered would be removed and properly disposed of by licensed contractors in accordance with Federal, state, and local laws and regulations. Therefore, under the Proposed Action, these **indirect** and **direct** effects would be **less than significant**. USACE does not have authority to enforce this mitigation measure; CVRWQCB, California Department of Toxic Substances Control, Sacramento County Environmental Management Department, and/or the appropriate Federal, state, or local regulatory agency would be the enforcement agency. Because this mitigation measure identifies mechanisms to meet existing legal and regulatory requirements, it is likely that this mitigation measure would be implemented. No mitigation measures were identified to further reduce these effects.

EDP, EP, P, RC

As described above, although one of contaminated groundwater plumes from the Aerojet Superfund site is migrating towards the Cordova Hills and Pilatus sites from the north, the groundwater table is more than 100 feet below the surface. Furthermore, groundwater wells would not be installed to obtain potable water; instead, a mix of surface water and Countywide groundwater from other locations would be supplied through the Sacramento County Water Agency and Zones 40 and 41, as described in Section 3.16, "Utilities and Service Systems." Thus, there would be **no indirect** or **direct** effect from potential exposure of construction workers and residents to contaminated groundwater.

Implementation of the Expanded Drainage Preservation, Expanded Preservation, Pilatus, or Regional Conservation Alternatives would involve site grading, excavation, and construction of new residential units and commercial facilities. There are on-site wells, prospect mining pits, and septic systems that could represent a safety hazard and/or contain hazardous materials. During construction activities, construction workers could come in contact with and be exposed to hazardous materials. Furthermore, because a Phase I ESA has not been prepared for the Pilatus site, additional unknown hazardous materials could be present. New sources of contamination could be associated with dumping or residential and agricultural uses (i.e., spills from storage tanks that contain hazardous materials). In addition, USTs may be present in the Pilatus site.

Proposed facilities under the Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives would be constructed within the 2,000-foot buffer zone adjacent to the Kiefer Landfill. Construction of Landfill Module 5 will result in landfill waste being placed approximately 1,700 feet from the proposed Sports Park and approximately 2,200 feet from the proposed Living and Learning Center in the University/College Campus Center. Landfill gas can pose indoor health hazards from vapor intrusion if structures

are constructed in close proximity to landfill wastes; structures within 1,000 feet of landfill wastes could be subject to vapor intrusion hazards. The presence of Kiefer Landfill is not an effect of the project; however, proximity to the Kiefer Landfill could present an effect on the project under any of the action alternatives.

As part of the CEQA EIR certification and project approval process, various mitigation measures and conditions of approval were incorporated into the project entitlements. Because these mitigation measures and conditions of approval were incorporated into the Proposed Action, it is reasonable to assume that they would also be incorporated into the four action alternatives, if any of those alternatives were adopted. The mitigation measures that are applicable to this effect that were incorporated into the Proposed Action by the project entitlements are listed below:

- ▶ Any structure within the project boundaries (including but not limited to, buildings, subsurface vaults, utilities, or any other areas where potential landfill gas buildup may cause adverse effects to the public health or safety or the environment) within 1,000 feet of buried waste or proposed buried waste at Kiefer Landfill shall be continuously monitored by the owner/operator of said structure for landfill gas and be designed and constructed to prevent landfill gas accumulation in those structures (*Final EIR Mitigation Measure HM-1*).
- ▶ The location and nature of the Kiefer Landfill facility shall be disclosed to all prospective buyers of properties within one mile of the ultimate active landfill boundary. The disclosure notice shall include:
 - a. A statement substantially consistent with the following: “The landfill will expand in height and land area over time, and thus the visibility and proximity of the landfill from the property at the time of purchase does not reflect how visible or proximate the landfill will be in the future.” This statement shall be supplemented with relevant facts about ultimate landfill design, including the distance of the property to the ultimate planned edge of the landfill waste disposal area to the nearest 100 feet and the ultimate planned height of the landfill (as set forth in the Solid Waste Facilities Permit).
 - b. Notification that the landfill operates under a Solid Waste Facilities Permit and is required to control pests, vectors, litter, and odor to the extent practicable, but that it is not possible to eliminate all of these nuisances. For this reason, property owners may experience some of these nuisance conditions.
 - c. Notification that the active landfill area is lighted at night. (*Final EIR Mitigation Measure LU-2*).

For the reasons presented above, construction and operational activities could expose construction workers and the general public to harmful substances, and this **indirect** and **direct** effect is considered **potentially significant**.
[Similar]

In addition to the mitigation measures from the CEQA EIR, the project applicant shall also implement the mitigation measures listed below.

Mitigation Measure: Implement Mitigation Measure 3.9-1a.

Mitigation Measure 3.9-1b Conduct Phase I Environmental Site Assessment for the Pilatus Site and Implement Recommended Measures.

The project applicant shall prepare a Phase I ESA for the northern portion of the Pilatus site and implement all recommendations for site cleanup (if any) contained therein, if that alternative is selected.

- Implementation:** Project applicant.
- Timing:** Before the start of construction activities and during project operation.
- Enforcement:** Sacramento County Environmental Management Department

Implementation of Final EIR Mitigation Measures HM-1 and LU-2 and the above-listed conditions of approval, along with Mitigation Measures 3.9-1a and 3.9-1b would reduce the potentially significant effects from human health hazards under the Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives to a **less-than-significant** level because any hazardous materials that are encountered would be removed and properly disposed of, a Phase I ESA would be prepared for the Pilatus site, and structures in the landfill buffer zone would be constructed to resist the intrusion and accumulation of landfill gases and would be monitored accordingly. USACE does not have authority to enforce this mitigation measure; Sacramento County would be the enforcement agency. Because this mitigation measure identifies mechanisms to meet existing legal and regulatory requirements, it is likely that this mitigation measure would be implemented. No mitigation measures were identified to further reduce these effects.

EFFECT 3.9-3 Potential for Handling of Hazardous or Acutely Hazardous Materials, Substances, or Waste within 1/4 Mile of an Existing or Proposed School. *The alternatives under consideration include construction of several on-site schools. Implementation of the Proposed Action or Alternatives would involve a potential for accidental release of hazardous materials within 1/4 mile of those schools.*

NA

Because no new schools would be built under the No Action Alternative, there would be **no indirect or direct** effects related to hazardous emissions or handling of hazardous wastes within 1/4 mile of a school. *[Lesser]*

Mitigation Measure: No mitigation measures are required.

PA, P, RC

Implementation of the Proposed Action would entail development of a joint high school/middle school plus three elementary schools. The Pilatus and Regional Conservation Alternatives would each contain a joint high school/middle school. The Pilatus Alternative would contain four elementary schools, while the Regional Conservation Alternative would contain three elementary schools. Areas proposed as Town Centers and Flex Commercial Use would be developed with service-related businesses, which could produce or use hazardous materials or hazardous emissions. Businesses such as gas stations, automotive mechanics, and dry cleaners handle hazardous materials and could accidentally release chemicals into the air, soil, and groundwater (e.g., gas, oil, TCE), which could potentially affect K-12 students attending school. Under the Proposed Action, Pilatus, and Regional Conservation Alternatives, both Town Center and Flex Commercial land uses would be constructed within 1/4 mile of all the proposed elementary schools. Because 1/4 mile has been established as the threshold distance within which potential health hazard effects to schools should be considered, this **indirect** effect would be **potentially significant**. No direct effects would occur. *[Similar]*

Mitigation Measure 3.9-2: Notify Elk Grove Unified School District and all Applicable Schools Located within 1/4 Mile of Project Construction Activities and Proposed Commercial Land Uses, and the Operator of the University Campus.

The project applicant shall provide written notification to the following:

- ▶ each K-12 school that would be located within 1/4 mile of proposed construction activities or within 1/4 mile of proposed commercial land uses;
- ▶ the operator of the university campus; and
- ▶ the Elk Grove Unified School District.

The written notification shall provide examples of the types of hazardous materials that could be used during proposed construction and/or operational activities, or the hazard from landfill gases. As part of the notification procedure, the project applicant shall consult with appropriate school or district personnel about the types of activities that would occur and their estimated timing. The written notification shall be provided at least 30 days before any future site-specific EIR or mitigated negative declaration is certified or adopted for any portion of the project as required by California PRC Section 21151.4. In the event no further environmental documentation is prepared, the written notification shall be provided at least 30 days prior to the commencement of construction activities.

Implementation: Project applicant for any discretionary development application for commercial land uses within 1/4 mile of proposed K-12 schools.

Timing: Before the start of construction activities and during project operation.

Enforcement: Elk Grove Unified School District.

Implementation of Mitigation Measure 3.9-2 would reduce the potentially significant effect from possible exposure to hazardous materials within 1/4 mile of a K-12 school at the Cordova Hills and Pilatus sites under the Proposed Action, Pilatus, and Regional Conservation Alternatives to a **less-than-significant** level because each affected K-12 school as well as the Elk Grove Unified School District would be notified and consulted regarding potential hazards as required by California PRC Section 21151.4 or 30 days prior to commencement of construction activities. Providing such advance notice would allow the schools to take any actions they might determine to be necessary to further protect the health of students. USACE does not have authority to enforce this mitigation measure; Elk Grove Unified School District would be the enforcement agency. Because this mitigation measure identifies mechanisms to meet existing legal and regulatory requirements, it is likely that this mitigation measure would be implemented. No mitigation measures were identified that would further reduce these effects.

EDP, EP

The Expanded Drainage Preservation and Expanded Preservation Alternatives would each contain two elementary schools. Areas proposed as Town Centers and Flex Commercial Use would be developed into service-related businesses, which could produce and/or use hazardous materials or hazardous emissions. However, none of the on-site schools under the Expanded Drainage Preservation or Expanded Preservation Alternatives would be constructed within 1/4 mile of a Town Center or Flex Commercial land use. Because one-quarter mile has been

established as the threshold distance within which potential health hazard effects to schools should be considered, **no indirect** or **direct** effects would occur. *[Lesser]*

Mitigation Measure: No mitigation measures are required.

EFFECT 3.9-4 Temporary Reduction in Emergency Vehicle Access or Emergency Evacuation Routes during Construction. *Implementation of the Proposed Action or Alternatives could temporarily obstruct roadways in the vicinity during construction, potentially obstructing or slowing emergency vehicles access.*

NA

Because no construction activities would occur under the No Action Alternative, **no indirect** or **direct** effects related to reduction in emergency response services would occur. *[Lesser]*

Mitigation Measure: No mitigation measures are required.

PA, EDP, EP, P, RC

Implementation of all five action alternatives would include construction activities of varying levels over a 20-year period. Nearby roadways in the vicinity of the Cordova Hills and Pilatus sites such as Douglas Boulevard, Sunrise Boulevard, Grant Line Road, and White Rock Road could be affected intermittently during construction activities (see also Section 3.15, "Traffic and Transportation"). Ongoing construction activities could result in temporary lane closures, increased truck traffic, and other roadway effects that could interfere with or slow down emergency vehicles, temporarily increasing response times and impeding existing services. However, construction of the Proposed Action or the Alternatives would occur over a 20- to 30-year period, and construction disruption during buildout would be a **direct, less-than-significant** temporary effect. **No indirect** effects would occur. *[Similar]*

Mitigation Measure: No mitigation measures were identified to further reduce these effects.

EFFECT 3.9-5 Potential for Blast-Related Injury to Construction Workers and the General Public. *Implementation of the Proposed Action or Alternatives could entail the use of explosive materials as part of earth-moving activities in hard bedrock that could result in injury to construction workers or the general public.*

NA

Because no construction activities would occur under the No Action Alternative, **no indirect** or **direct** effects related to blasting activities would occur. *[Lesser]*

Mitigation Measure: No mitigation measures are required.

PA, EDP, EP, P, RC

Blasting may be required for excavation and/or removal of rock during construction. Blasting entails the placement of explosive materials into a borehole, which are then ignited. The subsequent explosion generates air

blasts and seismic waves that fracture the surrounding rock. Reasonably foreseeable accidents associated with blasting include accidental discharge and expulsion of materials beyond the expected distance (i.e., flyrock).

Flyrock is a potential hazard from blasting that could occur under accidental or planned ignition. Flyrock is defined as mud, water, or fragments of rock that accidentally travel outside of the expected blast area. Creation of flyrock can be the result of many factors, including anomalies in the geology and rock structure, poor communication, and incorrect blast hole layout and loading. Blasting-induced flyrock can travel up to 1/2 mile at a rate of 400 miles per hour (recorded at 200 feet from the blast site) (Centers for Disease Control and Prevention [CDC] and National Institute for Occupational Safety and Health [NIOSH] 2005). There are numerous documented cases of flyrock causing bodily harm to construction workers and the general public, sometimes leading to fatalities.

Sections 12101 through 12103 of the California Health and Safety Code describe permit requirements for manufacturing, possession, transportation, and use of explosives, which would apply to blasting activities at the Cordova Hills site, and these permits must be issued or endorsed by the jurisdiction in which blasting would take place.

OSHA's Construction Safety and Health Outreach Program sets standards for blaster qualifications, transportation, storage, and loading, execution, and post-explosion requirements. However, accidental discharge or materials or production of flyrock remains possible. Therefore, **direct** effects associated with blasting activities are considered to be **potentially significant**. There would be **no indirect** effects. *[Similar]*

Mitigation Measure 3.9-4: Prepare and Implement a Blasting Safety Plan in Consultation with a Qualified Blaster.

To reduce the potential for accidental injury or death related to blasting, contractors whose work at the Cordova Hills site will include blasting shall prepare and implement a blasting safety plan. This plan shall be created in coordination with a qualified blaster, as defined by the Construction Safety and Health Outreach Program, Subpart U, Section 1926.901, and distributed to all appropriate members of construction teams. The plan shall apply to project applicant of all project phases in which blasting would be employed. The plan shall include, but is not limited to:

- ▶ storage locations that meet the ATF standards contained in 27 CFR Part 55;
- ▶ safety requirements for workers (e.g., daily safety meetings, personal protective equipment);
- ▶ an accident management plan that considers misfires (i.e. explosive fails to detonate), unexpected ignition, and flyrock; and
- ▶ if warranted by location of blasting, measures to protect surrounding property (e.g., netting, announcement of dates of expected blasting, barricades, and audible and visual warnings).

Upon completion of a blasting safety plan, the project applicant shall secure any required permits from Sacramento County.

Implementation: Project applicant and contractors of all project phases in which blasting would be employed.

Timing: At the submission of tentative map applications.

Monitoring: Sacramento Metropolitan Fire District.

Implementation of Mitigation Measure 3.9-4 would reduce potentially significant effects related to hazards from blasting activities under the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives to a **less-than-significant** level because a blasting safety plan would be prepared and implemented that would include protection measures for construction workers and the general public, and the proper permits would be secured by the project applicant of all affected project phases. These actions would substantially diminish the possibility of accidents involving the production of flyrock and accidental ignition. USACE does not have authority to enforce this mitigation measure; Sacramento Metropolitan Fire District would be the enforcement agency. Because this mitigation measure identifies mechanisms to meet existing legal and regulatory requirements, it is likely that this mitigation measure would be implemented. No mitigation measures were identified to further reduce these effects.

EFFECT 3.9-6 Potential Exposure of People or Structures to a Significant Risk of Loss, Injury, or Death Involving Wildland Fires. *The Cordova Hills and Pilatus sites are located in areas of moderate wildlife hazard and adequate fire suppression services are available.*

NA

Because no new development would be built under the No Action Alternative, **no** new **indirect** or **direct** effects related to hazards associated with wildland fires would occur. *[Lesser]*

Mitigation Measure: No mitigation measures are required.

PA, EDP, EP, P, RC

The Cordova Hills and Pilatus sites are currently located within an SRA (CALFIRE 2007), and therefore the financial responsibility of preventing and suppressing fires currently falls primarily on the state. The Sacramento Metropolitan Fire District also provides fire suppression services. The Cordova Hills site is located in an undeveloped, rural area that consists of several thousand acres of grassland, with a very small stand of eucalyptus trees planted between 1981 and 1991. The Cordova Hills and Pilatus sites are located within a moderate fire hazard severity zone (CALFIRE 2007). The sites are not located near any area of high or extremely high fire hazard severity. One to two on-site fire stations would be built as part of the Proposed Action or Alternatives, and during the operational phase, these stations would be staffed and equipped by the Sacramento Metropolitan Fire District to serve the Cordova Hills community. Therefore, implementation of the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives would not expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or residences are intermixed with wildlands. Therefore, this **indirect** effect is considered **less than significant**. **No direct** effects would occur. No mitigation measures were identified to further reduce this effect. *[Similar]*

3.9.6 RESIDUAL SIGNIFICANT EFFECTS

Effects associated with the release of hazardous materials into the environment or through the routine transport, use, or disposal of hazardous materials, temporary reduction in emergency vehicle access or evacuation routes, and wildland fire hazards, would be less than significant. With implementation of Final EIR Mitigation Measures HM-1 and LU-2 and associated conditions of approval, and Mitigation Measures 3.9-1a, 3.9-1b, 3.9-2, 3.9-3, and 3.9-4, potentially significant effects from exposure to hazardous materials at Kiefer Landfill and unknown hazardous materials at the Cordova Hills site, use of hazardous materials within 1/4 mile of a proposed school, and blasting hazards, would be reduced to a less-than-significant level. Therefore, implementation of the Proposed Action or Alternatives would not result in any residual significant effects related to hazards and hazardous materials.

3.9.7 CUMULATIVE EFFECTS

Health and safety effects associated with the past or current uses of any site usually occur on a site-specific basis; they are generally limited to the specific site, are not additive in nature in that they generally do not combine to form cumulative effects that are greater or different than the project-level effect. The cumulative context for impairment of emergency access and for wildland fire hazard is defined as those projects that would entail construction activities in proximity to or concurrently with the activities associated with construction of one of the action alternatives.

ROUTINE TRANSPORT, USE, DISPOSAL, OR ACCIDENTAL RELEASE OF HAZARDOUS MATERIALS

The action alternatives would involve the storage, use, and transport of minor amounts of hazardous materials (e.g., fuels, oils, lubricants) during construction and operation of future uses. Transport of hazardous materials on area roadways is regulated by CHP and Caltrans, and use of these materials is regulated by DTSC, as outlined in CCR Title 22. The future developers or business operators would be required to use, store, and transport hazardous materials in compliance with Federal and state regulations during construction and operation. Specific land uses that would use hazardous materials on-site would be required to obtain permits and comply with appropriate regulatory agency standards designed to avoid accidental releases of hazardous materials. The other foreseeable projects could also involve the storage, use, transport, and accidental release of hazardous materials. However, the Proposed Action or Alternatives and other foreseeable projects would be legally required to implement and comply with existing hazardous materials regulations (e.g., regulations administered by EPA and DTSC), and these effects are site-specific. Even if multiple hazardous releases were to occur at the same time (which is extremely unlikely, given the highly regulated nature of hazardous materials), the releases would occur in different locations, would be small in size given the types of land uses proposed in the action alternatives, and therefore would not combine to form cumulative effects that would be worse than any project-specific effect. Therefore, there would be no cumulative effect associated with hazardous materials storage, use, transport, or accidental spills.

EXPOSURE TO KNOWN AND UNKNOWN HAZARDOUS MATERIALS

Implementation of the action alternatives could result in possible human health hazards from exposure to on-site wells, prospect mining pits, septic systems, contaminated soils, and pole-mounted transformers that could represent a safety hazard and/or contain hazardous materials. Implementation of Mitigation Measures 3.9-1a and 3.9-1b would reduce the effects of the Proposed Action or Alternatives to a less-than-significant level. The

potential for contaminated soils and other hazards such as those listed above to occur is specific to each project site and is dependent on the nature of prior activities at the project site; thus, contaminated soil or other hazards may or may not be present at any given project site. Several of the other foreseeable project sites, such as the SunCreek Specific Plan and the Folsom South of U.S. 50 Specific Plan, contain known hazardous materials. The Folsom project site also contains a portion of the Aerojet Superfund site, which is on the Cortese List. However, site-specific contamination would be remediated on a case-by-case basis (for example, through soil removal and replacement with clean fill dirt, or other equally effective processes); thus, this effect is not additive in nature, and a cumulative effect would not occur.

There are multiple groundwater plumes that originate within Aerojet Superfund site, one of which is migrating towards the Cordova Hills site from the north. However, because the groundwater table is more than 100 feet below the surface, and because the Cordova Hills and the other foreseeable projects are prohibited from using groundwater in the vicinity of the plumes, a mix of surface water and Countywide groundwater from other locations would be supplied through the Sacramento County Water Agency and Zones 40 and 41. Since there is no possibility of human exposure to the contaminated groundwater plume, there would be no project-specific effect, and thus there is no effect which would be exacerbated by the effects associated with other cumulative projects. Thus, a cumulatively significant effect related to contact with existing contaminated groundwater plumes would not occur.

Proposed facilities at the Cordova Hills site would be constructed within 1,700 feet of materials placed in the Kiefer Landfill at full buildout, thereby potentially exposing residents or employees to hazards from landfill gases. Implementation of Final EIR Mitigation Measures HM-1 and LU-2 would reduce the effect of the Proposed Action or Alternatives to a less-than-significant level. None of the other foreseeable projects would place development within or adjacent to the landfill waste buffer zone, and therefore a cumulative effect from exposure to landfill gases would not occur.

HANDLING OF HAZARDOUS MATERIALS WITHIN 1/4 MILE OF A SCHOOL

There are no existing K-12 schools within 1/4 mile of the Cordova Hills site. As part of the land uses that are proposed on the Cordova Hills site, K-12 schools would be placed within 1/4 mile of proposed commercial uses that could handle hazardous materials; however, implementation of Mitigation Measure 3.9-2 would reduce the effects of the Proposed Action or Alternatives to a less-than-significant level. The other foreseeable projects in the vicinity, i.e., Rio del Oro, Folsom South of U.S. 50, SunCreek, Sunridge, Arboretum, Teichert Quarry, or Sacramento Greencycle, could also entail the handling of hazardous materials within 1/4 mile of an existing or planned school. However, any human health hazards would be site-specific, would depend on the type of hazardous material being handled, and would not interact with one another to produce a combined effect that would be greater than the individual effects. Furthermore, the project and other foreseeable projects would not entail the use of large quantities of any acutely hazardous substances; rather, small quantities of materials commonly handled by commercial businesses such as grocery stores, gasoline stations, dry cleaning services, etc. would be used (e.g., small quantities of dry cleaning fluids, paints, solvents, oils, lubricants, and refrigerant). Thus, the Proposed Action or Alternatives would not result in a cumulatively considerable contribution to a cumulatively significant effect.

IMPAIRMENT OF EMERGENCY VEHICLE ACCESS OR EVACUATION ROUTES

Construction of the Proposed Action or Alternatives would temporarily increase traffic congestion and could result in the need for temporary lane closures of roads near the Cordova Hills and Pilatus sites.

The other foreseeable projects include several large residential and commercial development projects in the City of Rancho Cordova that consist of over 1,000 acres each: the Folsom South of U.S. 50 Specific Plan project, which is approximately 3,500 acres; the Teichert Quarry project, which will result in an increase of several thousand quarry truck trips per day; and the Kiefer Landfill Buffer Planning Project, which includes a commercial district. Construction of these projects could occur concurrently with the construction of the Proposed Action or Alternatives, increasing construction traffic and the potential for lane closures on roads in the Cordova Hills vicinity. This could increase the frequency or length of impairment of emergency vehicle access. Therefore, the other foreseeable projects could result in a short-term, temporary, significant cumulative effect related to impairment of emergency evacuation routes and emergency vehicle access during construction activities. Implementation of Mitigation Measure 3.9-3 would reduce the effect of the Proposed Action or Alternatives to a less-than-significant level. Because a project-specific construction traffic control plan would be implemented, the Proposed Action or Alternatives would not result in a cumulatively considerable contribution to this significant cumulative effect.

BLASTING HAZARDS

Because of the shallow depth to hard bedrock at the Cordova Hills and Pilatus sites, blasting activities could be required as part of earthmoving activities. Mining operations at the Teichert Quarry project site will involve blasting to remove hardrock from the quarry face. In addition, the eastern portion of the Folsom South of U.S. 50 project site is also composed of a shallow soil layer over hard bedrock, and therefore blasting activities as part of grading and excavation may be conducted at that location. Blasting-induced flyrock can travel up to 1/2 mile at a rate of 400 miles per hour (recorded at 200 feet from the blast site) (CDC and NIOSH 2005). Implementation of Mitigation Measure 3.9-4 would reduce the effect of the Proposed Action or Alternatives to a less-than-significant level. Furthermore, the area in the vicinity of the Teichert Quarry, Cordova Hills, and Folsom South of U.S. 50 project sites is rural in character and is used for rangeland, and therefore is sparsely populated (with the exception of existing development in El Dorado Hills that is adjacent to the eastern portion of the Folsom South of U.S. 50 project site). The Teichert Quarry project site is approximately 2.3 miles northeast of the Cordova Hills site. The Folsom South of U.S. 50 project site is approximately 1.2 miles north of the Teichert Quarry project site. Therefore, the potential blasting hazards from the three projects would not overlap and would not combine to result in an increased human health and safety hazard that would be greater than any one of the individual projects. Thus, a cumulatively significant human health and safety effect from blasting hazards would not occur.

WILDLAND FIRE HAZARDS

The Cordova Hills site is located in a rural area of Sacramento County that consists of grasslands. According to CALFIRE (2007), both the Cordova Hills and Pilatus sites, and the other foreseeable projects to the north and south fall within an SRA, and are designated as a moderate fire hazard severity zone. The other foreseeable projects to the west are located in a local responsibility area, and are not located in a very high fire hazard severity zone. Fire suppression personnel and equipment are either already available or are included as part of each project to serve the Cordova Hills site and the other foreseeable projects, from the City of Rancho Cordova, the City of Folsom, and Sacramento County. Because the Proposed Action or Alternatives and the other foreseeable projects are not located within or adjacent to a high fire hazard severity zone, and because adequate fire suppression services are or would be available, a cumulatively significant effect would not occur.

3.10 HYDROLOGY AND WATER QUALITY

3.10.1 INTRODUCTION

This chapter presents a description of the existing environment related to hydrology and water quality, discusses pertinent regulations, and provides an analysis of potential effects of the alternatives under consideration. Feasible mitigation measures are recommended, where appropriate, to reduce adverse effects.

MacKay & Soms Civil Engineers, Inc. (MacKay & Soms) was retained by the permit applicant to prepare a drainage plan for the Cordova Hills project. The *Drainage Master Plan for Cordova Hills* (MacKay & Soms 2011) (Drainage Master Plan) is the primary source of the information contained in this section and it is attached to this EIS as Appendix I. The permit applicant retained cbec, inc. (cbec) to prepare a hydromodification assessment and a geomorphic assessment of the watersheds in which the Cordova Hills site is located. The cbec 2009 and 2010 assessments were also used as a source of information for this section (see Appendices A and B to the Drainage Master Plan). Although the Pilatus site includes a portion of the drainage study area, the analysis contained in the Drainage Master Plan and the cbec study was prepared for the purpose of studying the drainage and hydrology associated only with development of the Proposed Action.

3.10.2 AFFECTED ENVIRONMENT

SURFACE WATER

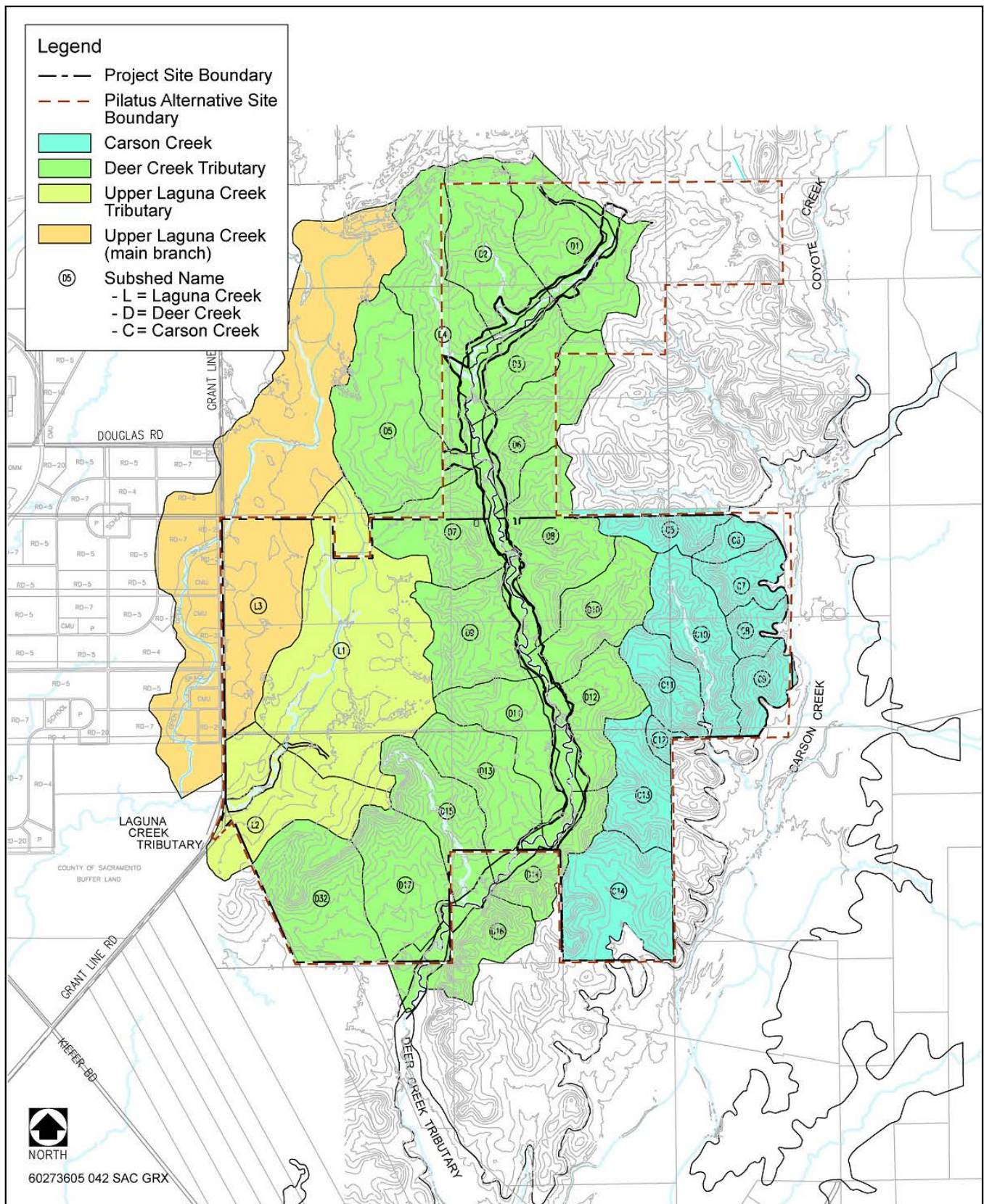
Drainage and Watersheds

The drainage study area for the Cordova Hills site consists of approximately 4,495 acres of land within the Upper Laguna, Deer, and Carson Creek watersheds (see Exhibit 3.10-1). MacKay & Soms (2011) divided the three watersheds into 29 smaller drainage subsheds, as shown in Exhibit 3.10-1, to increase the accuracy of the analysis. All of the larger tributaries discussed below are also visible on Exhibit 3.10-2, which shows the Cordova Hills and Pilatus site boundaries overlaid onto an aerial photograph. A physical description of each watershed is provided below. Although many features are named “creeks,” many of these waterways are identified as intermittent drainages in the verified wetland delineation.

Laguna Creek Watershed

The main branch of Upper Laguna Creek originates on the Pilatus site, approximately 1.5 miles north of the Cordova Hills site. It traverses the extreme northwest corner of the site for only about 50 feet before flowing through dual 50-inch-diameter corrugated metal pipes (CMPs) under Grant Line Road. It then flows in a southerly direction along the west side of Grant Line Road across the Sunridge and SunCreek project sites in Rancho Cordova. During major storm events, water currently ponds along the east side of Grant Line Road at a few of the CMP locations before eventually cresting Grant Line Road during peak flow events. Modeling of 100-year peak design storm events by MacKay & Soms indicate that under existing conditions runoff would over top Grant Line Road.

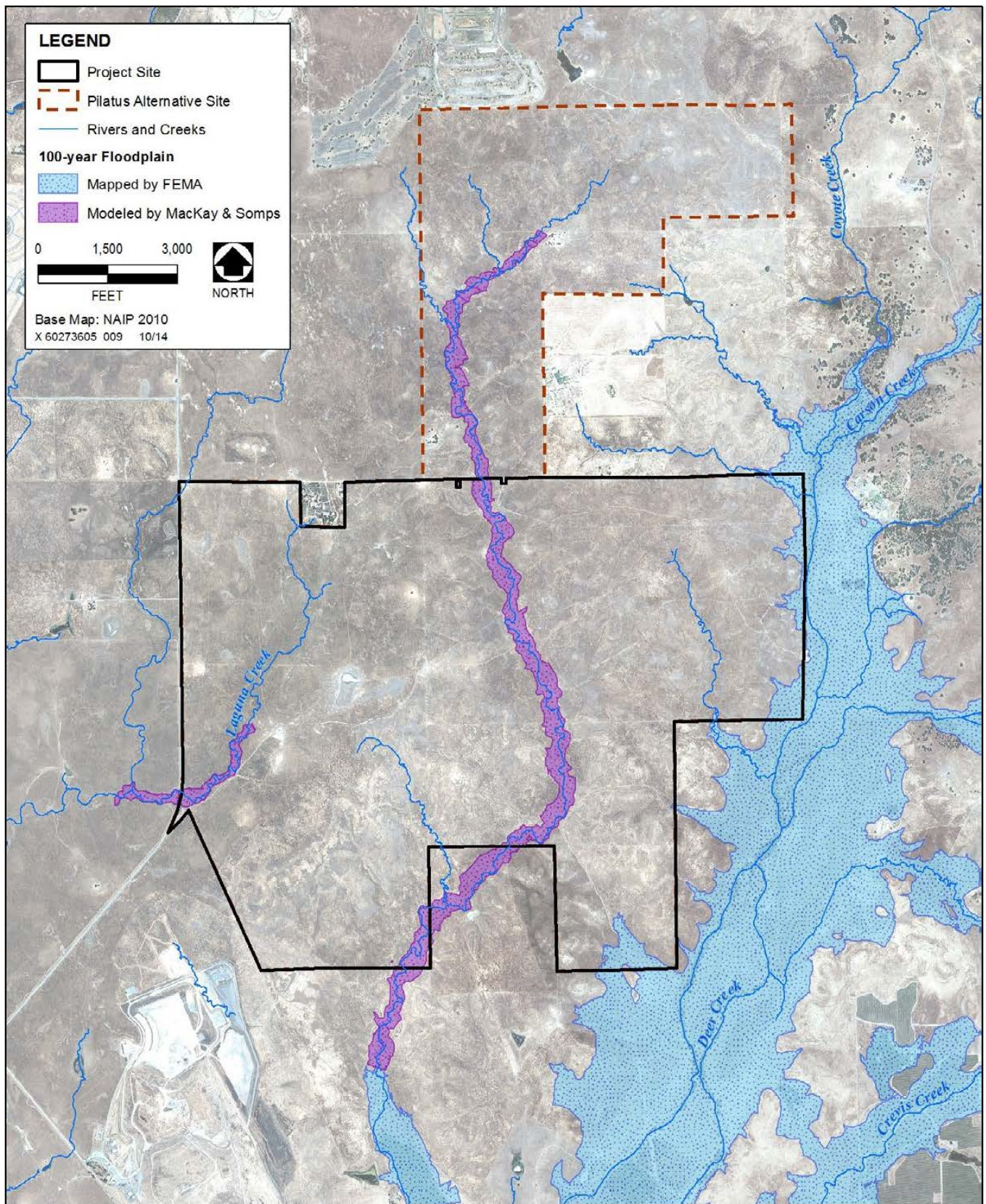
The eastern unnamed Upper Laguna Creek tributary bisects the western portion of the Cordova Hills site. The on-site tributary has a complex form, is well-connected to its floodplain, and is associated with local vernal pool habitats. The eastern unnamed Upper Laguna Creek tributary originates north of the Cordova Hills site, approximately 1,300 feet north of Glory Lane. It traverses the western half of the Cordova Hills site through a



Source: MacKay & Somps 2011, Adapted by AECOM in 2013

Exhibit 3.10-1

Pre-Development Watershed Map



Sources: Federal Emergency Management Agency 1996, MacKay & Soms 2011, adapted by AECOM in 2013

Exhibit 3.10-2

Floodplain Mapping

number of connected, poorly defined, shallow swales, before flowing through dual 62-inch-diameter CMPs crossing under Grant Line Road at the southwest corner of the Cordova Hills site. This tributary then combines with the main branch of Upper Laguna Creek approximately 830 feet west thereof. The main branch of Upper Laguna Creek continues in a southerly direction towards the Jackson Highway/State Route (SR) 16. Laguna Creek eventually combines with Morrison Creek, and finally flows into Stone Lake, eventually connecting to the Sacramento River (MacKay & Soms 2010:11).

Deer Creek Watershed

The intermittent drainage that flows to the south through the approximate center of the Cordova Hills site is tributary to Deer Creek. This tributary is an unmodified channel that flows for its entire length as an open waterway, running unobstructed into Deer Creek. This tributary originates approximately 9,200 feet north of the Cordova Hills site, on the Pilatus site. The Pilatus site encompasses the headwaters of the eastern and central branches of this tributary to Deer Creek. The eastern and central branches join up with the western branch and form a combined channel, which flows through the southern portion of the Pilatus site and onto the Cordova Hills site (see Exhibit 3.10-2). The tributary is a sharply incised cobble-strewn channel. After leaving the Cordova Hills site, the tributary flows southwest for approximately 3,200 feet across undeveloped grasslands before reentering the Cordova Hills site to the west for another 1,200 feet. South of the Cordova Hills site, the tributary meanders in a southerly direction for approximately 9,400 feet across undeveloped grass lands, before flowing into Deer Creek north of Kiefer Boulevard. (MacKay & Soms 2010:11.) Deer Creek and Carson Creek merge together south of the Cordova Hills site, and eventually flow into the Cosumnes River.

Carson Creek Watershed

The small subsheds of the Carson Creek watershed that are located within the Cordova Hills site flow directly into Carson Creek along the Cordova Hills site's eastern boundary. The total on-site watershed area of Carson Creek is approximately 609 acres. The intermittent drainage channel that flows across the eastern side of the Cordova Hills site is tributary to Carson Creek and is an unmodified channel until a double culvert under a dirt access road near the confluence with Carson Creek. Carson Creek merges with Deer Creek south of the Cordova Hills site, and eventually flows into the Cosumnes River.

Another unnamed tributary to Carson Creek begins within the southeastern portion of the Pilatus site and flows through that site (to the southeast) for approximately 750 feet before exiting the Pilatus site to the southeast. A smaller, unnamed tributary to Coyote Creek originates north of the Pilatus site and flows across the northeast corner of that site for approximately 2,000 feet. (See Exhibit 3.10-2.)

Hydrology

Climate and Precipitation

The Cordova Hills and Pilatus sites are located in eastern Sacramento County. They lie within the eastern edge of the Sacramento Valley, which is a nearly flat alluvial plain that extends almost 180 miles from the Sacramento-San Joaquin Delta (Delta) on the south to Redding on the north. The climate in the Sacramento Valley is characterized by warm, dry summers with an almost complete absence of rain, and mild winters with relatively light rains. The local meteorology of the Cordova Hills and Pilatus sites and vicinity is represented by measurements recorded at the Sacramento 5 ESE station, near California State University, Sacramento. The normal annual precipitation, which occurs primarily from November through April, is approximately 18 inches

(Western Regional Climate Center [WRCC] 2013). January temperatures range from an average minimum of 40°F to an average maximum of 53°F. July temperatures range from an average minimum of 59°F to an average maximum of 92°F (WRCC 2013). The predominant wind direction and speed is from the south-southwest at approximately 8 mph (WRCC 2011; National Climatic Data Center 2002).

Topography

The drainage study area (shown in Exhibit 3.10-1) has two distinct types of terrain. On the plateau adjacent to Grant Line Road, elevations range from approximately 130 feet in the south, to approximately 280 feet along the ridge of the Upper Laguna Creek watershed on the Pilatus site. This portion of the drainage study area is gently rolling with no deeply incised drainage channels. The central and eastern portions of the drainage study area fall within the Deer and Carson Creek watersheds. On the Cordova Hills site, the elevations range from 128-256 feet. This area consists of more steeply sloping topography composed of a system of north-south main ridges and east-west spur ridges with deeply incised swales. The topography slopes steeply downward in the southern and eastern portions of the Cordova Hills site. The primary drainage feature is the unnamed tributary to Deer Creek that extends through the central portion of the Cordova Hills site from north to south. The eastern portion of the drainage area slopes toward Carson Creek. (MacKay & Somps 2010:11.)

Hydraulics

Floodplain designations are important hydraulic engineering considerations when constructing buildings, roads, and bridges. The most recent Federal Emergency Management Agency (FEMA) Flood Insurance Study (FIS) Flood Insurance Rate Map (FIRM), revised September 30, 1988, identifies the Cordova Hills and Pilatus sites as being located in the unshaded Zone X classification (see Exhibit 3.10-2). Unshaded Zone X is an area of minimal flood hazard, located outside the 500-year floodplain and protected by levees from the 100-year flood. In addition, the eastern boundary of the Cordova Hills site is located adjacent to, and in some cases within, the boundary of the Zone A 100-year floodplain of Carson Creek.

FEMA has not mapped the existing floodplains of the Upper Laguna Creek or the unnamed Deer Creek tributaries. Therefore, 100-year floodplain mapping of these tributaries was prepared by MacKay & Somps (2011) for both the Cordova Hills and Pilatus sites, which is also shown on Exhibit 3.10-2.

Folsom Dam, the largest dam on the American River, provides a maximum storage capacity of 975,000 acre-feet of water in Folsom Lake, which is a major source of surface water for the region, and it also provides flood protection (U.S. Bureau of Reclamation 2013). Improvements to Folsom Dam are in process, to provide improved management of flood water and which could double the amount of flood protection along the American River (County of Sacramento 2011a:Safety Element). Neither the Cordova Hills nor the Pilatus site are located within the Folsom Dam failure flood area (County of Sacramento 2011b:Figure III-4).

Stream Geomorphology

Upper Laguna Creek from Grant Line Road upstream through the vernal pool terrace is in relatively good condition. Compared to the other tributaries with similar soils, the relatively low relief and high surface storage of the terrace contribute to the stability of the creek (or lack of incision) in the presence of ongoing grazing activities. The double barrel culverts under Grant Line Road may act as base level control for Upper Laguna Creek upstream

of the road since the culverts are elevated relative to the creek/pool level. The presence of this structure may have contributed to the stability of the system.

The unnamed tributary to Deer Creek is in a degraded condition due to cattle grazing and use of a bulldozer during fire-fighting. The main tributary that flows through the Cordova Hills site shows signs of substantial bank erosion and channel incision, and the creek bed is either armored (e.g., cobbles left behind as the bank soils washed away) or downcut to the hardpan. The many small tributaries and swales that feed the main Deer Creek tributary are extremely incised with active headcutting, and the banks are typically vertical, tall, and eroding. The Deer Creek tributaries will likely continue to degrade under their current geomorphic trajectory.

The largest unnamed Carson Creek tributary on the Cordova Hills site is in a condition similar to the many tributaries feeding the Deer Creek Tributary. The Carson Creek tributaries and swales are extremely incised with active headcutting and will continue to degrade under their current geomorphic trajectory. All of the channels within the Carson Creek watershed on the site are incised and unstable. There are multiple areas with older, abandoned channels left behind as the tributaries have eroded a new path and migrated laterally. Like the Deer Creek tributary, it appears that this channel migration can occur rapidly (cbec 2010:11-13).

Stream geomorphology within the Pilatus site was not included as part of the cbec (2010) scope of work, and therefore was not available as of the time of writing of this EIS. However, because the Pilatus site has similar soil, slope, and land use characteristics, the geomorphologic and hydromodification assessments for the Cordova Hills site generally apply to the Pilatus site.

Erosion Potential

A detailed presentation of soil characteristics and soil types that are present at the Cordova Hills and Pilatus sites, based on U.S. Department of Agriculture Natural Resources Conservation Service (NRCS) soil survey data, are shown in Table 3.8-2 and Exhibit 3.8-2 in Section 3.8, “Geology, Soils, Minerals, and Paleontological Resources.”

Most soils can be categorized into hydrologic soil groups based on runoff-producing characteristics. Group A soils generally exhibit a low runoff potential and Group B soils exhibit a low to medium runoff potential. Group C soils exhibit a medium to high runoff potential while Group D soils have a high runoff potential. Hydrologic soil groups only apply to surface layers. Hydrologic soil groups are factored into calculations of erosion potential when drainage plans are prepared. Most of the Cordova Hills site consists of Group D soils (i.e., high runoff potential and low infiltration rate). There are also small areas of Groups A, B, and C soils on the Cordova Hills site, which are primarily located along watercourses within areas that are proposed for avoidance (i.e., natural preserves). (MacKay & Soms 2011:12 and Exhibits G and H.)

Based on a review of NRCS soil survey data, nearly all of the Pilatus site consists of Group D soils, while approximately 200 acres of the Pilatus site (along watercourses) consists of Group C soils (NRCS 2012).

GROUNDWATER HYDROLOGY

The Cordova Hills and Pilatus sites are located within the extreme eastern edge of the Central Sacramento County Groundwater Basin (i.e., Central Basin). The Central Basin is roughly bordered to the north by the American River, to the south by the Cosumnes and Mokelumne Rivers, to the west by Interstate 5 and the Sacramento

River, and to the east by the Sierra Nevada foothills. The Central Basin is located within the Sacramento Valley Groundwater Basin, South American Subbasin, as delineated by the California Department of Water Resources (DWR). Groundwater underlying the Central Basin is contained within a shallow aquifer (Laguna or Modesto Formation) and in a deep aquifer (Mehrten Formation). The Laguna or Modesto Formation consists of older alluvial deposits of loosely to moderately compacted sand, silt, and gravel deposited in alluvial fans. These deposits are moderately permeable and have a thickness of about 100 to 650 feet (DWR 2004). The deeper, Mehrten Formation is a sequence of fragmented volcanic rocks, which crops out in a discontinuous band along the eastern margin of the basin. It is composed of intervals of black volcanic sands, stream gravels, silt, and clay interbedded with intervals of dense tuff breccia. The sand and gravel intervals are highly permeable and the tuff breccia intervals act as confining layers. The thickness of the Mehrten Formation is between 200 and 1,200 feet. Groundwater is located from 20 to 100 feet below the ground surface (bgs) depending on when and where the measurement is taken. The base of the potable water portion of the deep aquifer averages approximately 1,400 feet bgs.

WATER QUALITY

Surface Water

Upper Laguna Creek, Deer Creek, and Carson Creek do not currently have any specific designated beneficial uses attributed to them in the water quality control plan (Basin Plan) adopted by the Central Valley Regional Water Quality Control Board (Central Valley Regional Water Quality Control Board 2011a) as described in Section 3.10.3 “Regulatory Framework/Applicable Laws, Regulations, Plans, and Policies,” below. Consequently, the Central Valley Regional Water Quality Control Board applies the Basin Plan’s “tributary rule” and assigns to these creeks the beneficial uses designated for the nearest downstream location. The Central Valley Regional Water Quality Control Board also regulates waste discharges in undesignated streams to ensure that downstream water quality conditions and beneficial uses are not degraded. Thus, these creeks are subject to regulation for the existing designated uses in their receiving waterbodies. Thus, Upper Laguna Creek is subject to regulation for the existing designated uses in the Sacramento River, which consist of:

- ▶ municipal and domestic water supply;
- ▶ agricultural supply;
- ▶ industrial supply and hydropower generation;
- ▶ contact and noncontact recreation;
- ▶ warm and cold freshwater migration and spawning habitat; and
- ▶ wildlife habitat.

Deer and Carson Creeks are subject to regulation for the existing designated uses in the Cosumnes River, which consist of:

- ▶ municipal and domestic water supply;
- ▶ agricultural supply;
- ▶ contact and noncontact recreation;
- ▶ warm and cold freshwater migration and spawning habitat; and
- ▶ wildlife habitat.

The 2010 version of the Section 303(d) list for California issued by the Central Valley Regional Water Quality Control Board (discussed below in Section 3.10.3 “Regulatory Framework/Applicable Laws, Regulations, Plans, and Policies”), indicates that Deer Creek is listed as impaired for iron. Carson Creek is listed as impaired for aluminum and manganese. Laguna Creek is not listed as impaired on the 303(d) list.

Deer Creek and Carson Creek flow into the Cosumnes River. The upper portion of the Cosumnes River is listed as impaired on the 303(d) list for invasive species. The lower part of the Cosumnes River flows into the eastern Delta, where the river is listed as impaired for invasive species, *E. coli*, and sediment toxicity.

Laguna Creek eventually joins with Morrison Creek, which is on the 303(d) list as impaired for diazanon, pentachlorophenol, pyrethroids, and sediment toxicity. Morrison Creek flows to the Sacramento River. The Sacramento River is listed on the 303(d) list as impaired between Knights Landing and the Delta (16 miles) for chlordane, DDT (dichlorodiphenyltrichloroethane), and dieldrin (which are pesticides); mercury (from abandoned mines/resource extraction); and unknown toxicity (Central Valley Regional Water Quality Control Board 2010). Expected Total Maximum Daily Load (TMDL) completion dates for the first three pollutants are 2021, 2021, and 2022, respectively. A TMDL for mercury was adopted in 2011 (Central Valley Regional Water Quality Control Board 2011b). In addition, the Sacramento River has been listed as impaired for polychlorinated biphenyls (PCBs) from unknown sources, with an expected TMDL completion date of 2021 (Central Valley Regional Water Quality Control Board 2010).

Water quality monitoring in Laguna Creek was conducted by the Sacramento Stormwater Quality Partnership (SSQP 2012) during the 2011/2012 fiscal year (July 1, 2011 – June 30, 2012) in compliance with the Sacramento Municipal Separate Storm Sewer System National Pollutant Discharge Elimination System (NPDES) Stormwater Permit No. CAS082597. Monitoring activities required by the permit included urban tributary (creek) water quality monitoring, bioassessment, and additional pesticide monitoring. In addition, continuous monitoring was conducted for pH, temperature, and dissolved oxygen in Laguna Creek during four wet-weather events. The closest water quality monitoring stations are located approximately 10 miles west of the Cordova Hills site, to the east and west of SR 99 (at Franklin Boulevard and West Stockton Boulevard).

Continuous flow stage recorders and water quality data collection devices were installed at Laguna Creek at Franklin Boulevard (location LC01) and at Laguna Creek at SR 99/Stockton Boulevard (location LC02). Continuous monitoring data values taken during wet-weather events in 2011 and 2012 are provided in Table 3.10-1.

For the 2011-2012 monitoring years, Laguna Creek showed dissolved oxygen levels below the water quality objective of 7 milligrams per liter (mg/L) for coldwater spawning during the October 5, 2011 rainfall event at both sampling stations. However, pH was within the Basin Plan range of 6.5 to 8.5 at all sampling stations for all events. Exceedances of water quality objectives were reported in the 2011-2012 monitoring report and are presented in Table 3.10-2 (SSQP 2012:Appendix 2.4). Monitoring of Laguna Creek showed exceedances for dissolved copper, *E. coli*, fecal coliform, chlorpyrifos (an organophosphate insecticide), and iron. No other exceedances of water quality objectives were reported (SSQP 2012:Appendix 2.4).

Constituent	Laguna Creek at Franklin Boulevard (LC01) October 5, 2011	Laguna Creek at Franklin Boulevard (LC01) February 29, 2012	Laguna Creek at SR 99/ Stockton Boulevard (LC02) October 5, 2011	Laguna Creek at SR 99/ Stockton Boulevard (LC02) January 2, 2012
pH	7.22	7.65	7.5	7.62
Dissolved Oxygen (mg/L)	5.8	9.7	4.3	10.42
Temperature (°C)	12.7	4.2	16.9	9.94
EC (µS/cm)	215	154	210	101
Turbidity (NTU)	N/A	N/A	98	<45

Notes: µS/cm = microsiemens per centimeter; < = less than; EC = electrical conductivity; mg/L = milligrams per liter (parts per million); N/A = not available; NTU = nephelometric turbidity units
Source: SSQP 2012:Appendix 2.4

Constituent	Water Quality Objective as Specified in the NPDES Permit	Laguna Creek at SR 99/Stockton Boulevard (LC02) October 5, 2011	Laguna Creek at SR 99/Stockton Boulevard (LC02) January 20, 2012	Laguna Creek at SR 99/Stockton Boulevard (LC02) February 29, 2012	Laguna Creek at SR 99/Stockton Boulevard (LC02) May 1, 2012
Copper – Dissolved (µg/L)	3.09 ^a	8.62	8.29		
Copper – Dissolved (µg/L)	4.16 ^b		8.29		
Escherichia Coli (MPN/100mL)	235 ^c	13,000	17,000		
Fecal Coliform (MPN/100mL)	400 ^c	30,000	17,000	500	
Chlorpyrifos (µg/L)	0.015 ^d		0.017		
Iron (µg/L)	300 ^e				1230

Notes: µg/L = micrograms per liter (parts per billion); mg/L = milligrams per liter (parts per million); MPN/100mL = most probable number per 100 milliliters; NPDES = National Pollutant Discharge Elimination System; SR = State Route
^a California Toxics Rule, freshwater aquatic life – chronic
^b California Toxics Rule, freshwater aquatic life – acute
^c Basin Plan
^d Total maximum daily load – chronic
^e Title 22, secondary maximum contaminant level
Source: SSQP 2012:Appendix 2.4

Groundwater

Water quality in the shallow aquifer zone is considered to be good with the exception of arsenic detections in a few locations. The shallow aquifer is typically used for private domestic wells requiring no treatment unless high arsenic values are encountered, in which case other water-bearing units are targeted. Water in the deep aquifer typically has higher concentrations of total dissolved solids (TDS), iron, and manganese and typically requires treatment (SCWA et al. 2006:2-24). Iron and manganese are known to cause mineral deposits and affect the taste

of water. At depths of approximately 1,400 feet or greater, TDS concentrations exceed 2,000 mg/L and groundwater is considered non-potable unless treated by reverse osmosis (SCWA et al. 2006:2-30).

The three major groundwater types are: magnesium calcium bicarbonate or calcium magnesium bicarbonate; magnesium sodium bicarbonate or sodium magnesium bicarbonate; and sodium calcium bicarbonate or calcium sodium bicarbonate. Groundwater in the basin is generally characterized as calcium magnesium bicarbonate or magnesium calcium bicarbonate (DWR 2004). Total dissolved solids ranges in the South American Subbasin, within which the Central Basin is located, are from 24 to 581 mg/L and averages 221 mg/L based on 462 records.

A detailed discussion of historic land uses in the vicinity of the Cordova Hills site that have resulted in groundwater contamination is contained in EIS Section 3.9, "Hazardous Waste and Materials."

3.10.3 REGULATORY FRAMEWORK/APPLICABLE LAWS, REGULATIONS, PLANS, AND POLICIES

State laws and regulations are provided for informational purposes and to assist with NEPA review. U.S. Army Corps of Engineers (USACE) has considered applicable state, regional, and local plans and ordinances as a part of the environmental review process for this EIS.

Sacramento County certified an EIR and approved the Proposed Action in January 2013. State, regional, and local plans, policies, laws, and ordinances were considered in the EIR and adopted mitigation measures have been incorporated into the Proposed Action.

FEDERAL PLANS, POLICIES, REGULATIONS, AND LAWS

Federal Clean Water Act

The U.S. Environmental Protection Agency (EPA) is the lead Federal agency responsible for managing water quality. The Clean Water Act (CWA) of 1972 is the primary Federal law that governs and authorizes EPA and the individual states to implement activities to control water quality. The various elements of the CWA that address water quality and are applicable to the Proposed Action and Alternatives are discussed below. Elements administered by the USACE under Section 404 of the CWA, including permits for the discharge of dredged and/or fill material into waters of the U.S., are discussed in Section 3.4, "Biological Resources."

Water Quality Criteria and Standards

Under Federal law, EPA has published water quality regulations under Volume 40 of the Code of Federal Regulations. Section 303 of the CWA requires states to adopt water quality standards for all surface waters of the U.S. As defined by the CWA, water quality standards consist of two elements: (1) designated beneficial uses of the water body in question, and (2) criteria that protect the designated uses. Section 304(a) requires EPA to publish advisory water quality criteria that accurately reflect the latest scientific knowledge on the kind and extent of all effects on health and welfare that may be expected from the presence of pollutants in water. Where multiple uses exist, water quality standards must protect the most sensitive use. EPA is the Federal agency with primary authority for implementing regulations adopted under the CWA. EPA has delegated the State of California as the authority to implement and oversee most of the programs authorized or adopted for CWA compliance through the Porter-Cologne Water Quality Control Act of 1969 (Porter-Cologne Act), described below.

National Pollutant Discharge Elimination System Permit Program

The NPDES permit program was established in the CWA to regulate municipal and industrial discharges to surface waters of the U.S. A discharge from any point source is unlawful unless the discharge is in compliance with an NPDES permit. Federal NPDES permit regulations have been established for broad categories of discharges, including point-source municipal waste discharges and nonpoint-source stormwater runoff. NPDES permits generally identify effluent and receiving water limits on allowable concentrations and/or mass emissions of pollutants contained in the discharge; prohibitions on discharges not specifically allowed under the permit; and provisions that describe required actions by the discharger, including industrial pretreatment, pollution prevention, self-monitoring, and other activities.

In November 1990, EPA published regulations establishing NPDES permit requirements for municipal and industrial stormwater discharges. Phase 1 of the permitting program applied to municipal discharges of stormwater in urban areas where the population exceeded 100,000 persons. Phase 1 also applied to stormwater discharges from a large variety of industrial activities, including general construction activity if the project would disturb more than 5 acres. Phase 2 of the NPDES stormwater permit regulations, which became effective in March 2003, required that NPDES permits be issued for construction activity for projects that disturb 1 acre or more. Phase 2 of the municipal permit system (known as the NPDES General Permit for Small Municipal Separate Storm Sewer Systems [MS4s]) required small municipal areas of less than 100,000 persons to develop stormwater management programs. The nine Regional Water Quality Control Boards (RWQCBs) in California are responsible for implementing the NPDES permit system (see additional information below).

Section 401 Water Quality Certification or Waiver

Under Section 401 of the CWA, an applicant for a Section 404 permit (to discharge dredged or fill material into waters of the U.S.) must first obtain a certificate from the appropriate state agency stating that the fill is consistent with the state's water quality standards and criteria. In California, the authority to either grant water quality certification or waive the requirement is delegated by the State Water Resources Control Board (SWRCB) to the nine RWQCBs. The project would require a Section 401 water quality certification because it would require a Section 404 permit and is under the jurisdiction of the Central Valley Regional Water Quality Control Board.

Antidegradation Policy

The Federal antidegradation policy, established in 1968, is designed to protect existing uses, water quality, and national water resources. The Federal policy directs states to adopt a statewide policy that includes the following primary provisions:

- ▶ Existing in-stream uses and the water quality necessary to protect those uses shall be maintained and protected.
- ▶ Where existing water quality is better than necessary to support fishing and swimming conditions, that quality shall be maintained and protected unless the state finds that allowing lower water quality is necessary for important local economic or social development.
- ▶ Where high-quality waters constitute an outstanding national resource, such as waters of national and state parks, wildlife refuges, and waters of exceptional recreational or ecological significance, that water quality shall be maintained and protected.

Safe Drinking Water Act

Under the Safe Drinking Water Act (Public Law 93-523), passed in 1974, EPA regulates contaminants of concern to domestic water supply. Contaminants of concern relevant to domestic water supply are defined as those that pose a public health threat or that alter the aesthetic acceptability of the water. These types of contaminants are regulated by EPA's primary and secondary maximum contaminant levels (MCLs), which are applicable to treated water supplies delivered to the distribution system. MCLs and the process for setting these standards are reviewed triennially. Amendments to the Safe Drinking Water Act enacted in 1986 established an accelerated schedule for setting MCLs for drinking water.

EPA has delegated to the California Department of Public Health (CDPH) the responsibility for administering California's drinking-water program. CDPH is accountable to EPA for program implementation and for adopting standards and regulations that are at least as stringent as those developed by EPA. The applicable state primary and secondary MCLs are set forth in Title 22, Division 4, Chapter 15, Article 4 of the California Code of Regulations (CCR). Provisions of the Safe Drinking Water Act would apply to water supplies being sought for the Proposed Action or Alternatives.

Section 303(d) Impaired Waters List

Under Section 303(d) of the CWA, states are required to develop lists of water bodies that would not attain water quality objectives after implementation of required levels of treatment by point-source dischargers (municipalities and industries). Section 303(d) requires that the state develop a TMDL for each of the listed pollutants. The TMDL is the amount of loading that the water body can receive and still be in compliance with water quality objectives. The TMDL can also act as a plan to reduce loading of a specific pollutant from various sources to achieve compliance with water quality objectives. The TMDL prepared by the state must include an allocation of allowable loadings to point and nonpoint sources, with consideration of background loadings and a margin of safety. The TMDL must also include an analysis that shows links between loading reductions and the attainment of water quality objectives. The EPA must either approve a TMDL prepared by the state or, if it disapproves the state's TMDL, issue its own. NPDES permit limits for listed pollutants must be consistent with the waste load allocation prescribed in the TMDL. After implementation of the TMDL, it is anticipated that the problems that led to placement of a given pollutant on the Section 303(d) list would be remediated.

Federal Emergency Management Agency

FEMA administers the National Flood Insurance Program to provide subsidized flood insurance to communities that comply with FEMA regulations that limit development in floodplains. FEMA also issues FIRMs that identify which land areas are subject to flooding. These maps provide flood information and identify flood hazard zones in the community. The design standard for flood protection covered by the FIRMs is established by FEMA, with the minimum level of flood protection for new development determined to be the 1-in-100 (0.01 annual exceedance probability [AEP]) (i.e., the 100-year flood event). As developments are proposed and constructed FEMA is also responsible for issuing revisions to FIRMs, such as Conditional Letters of Map Revision (CLOMR) and Letters of Map Revision (LOMR) through the local agencies that work with the National Flood Insurance Program.

STATE PLANS, POLICIES, REGULATIONS, AND LAWS

In California, the SWRCB has broad authority over water-quality control issues for the state. The SWRCB is responsible for developing statewide water quality policy and exercises the powers delegated to the state by the Federal government under the CWA. Other state agencies with jurisdiction over water quality regulation in California include CDPH (for drinking-water regulations), the California Department of Pesticide Regulation, the California Department of Fish and Wildlife (CDFW), and the Office of Environmental Health Hazard Assessment (OEHHA).

Regional authority for planning, permitting, and enforcement is delegated to the nine RWQCBs. The regional boards are required to formulate and adopt Basin Plans for all areas in the region and establish water quality objectives in the plans. California water quality objectives (or “criteria” under the Clean Water Act) are found in the Basin Plans adopted by the SWRCB and each of the nine RWQCBs. The Central Valley Regional Water Quality Control Board is responsible for the regional area in which the Cordova Hills and Pilatus sites are located.

Title 22 Standards

Water quality standards are enforceable limits composed of two parts: (1) the designated beneficial uses of water, and (2) criteria (i.e. numeric or narrative limits) to protect those beneficial uses. Municipal and domestic supply (MUN) is among the “beneficial uses” as defined in Section 13050(f) of the Porter-Cologne Act, which defines them as uses of surface water and groundwater that must be protected against water quality degradation. MCLs are components of the drinking water standards adopted by the CDPH pursuant to the California Safe Drinking Water Act. California MCLs may be found in Title 22 of the CCR, Division 4, Chapter 15, Domestic Water Quality and Monitoring. The CDPH is responsible for Title 22 of the CCR (Article 16, Section 64449) as well, which also defines secondary drinking water standards, established primarily for reasons of consumer acceptance (i.e., taste) rather than because of health issues. Table 3.10-3 lists the Title 22 constituent standards, as well as those for the Central Valley Basin Plan above and the California Toxics Rule described below.

Drinking water MCLs are directly applicable to water supply systems “at the tap,” i.e. at the point of use by consumers in their home, office, etc., and are enforceable by the California Department of Health Services. California MCLs, both Primary and Secondary, are directly applicable to groundwater and surface water resources when they are specifically referenced as water quality objectives in the pertinent Basin Plan. In such cases, MCLs become enforceable limits by the State and Regional Water Boards. When fully health protective, MCLs may also be used to interpret narrative water quality objectives prohibiting toxicity to humans in water designated as a source of drinking water (MUN) in the Basin Plan.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Act is California’s statutory authority for the protection of water quality. Under the act, the state must adopt water quality policies, plans, and objectives that protect the state’s waters for the use and enjoyment of the people. The act sets forth the obligations of the SWRCB and RWQCBs to adopt and periodically update Basin Plans. Basin Plans are the regional water quality control plans required by both the CWA and Porter-Cologne Act in which beneficial uses, water quality objectives, and implementation programs are established for each of the nine regions in California. The act also requires waste dischargers to notify the RWQCBs of their activities through the filing of reports of waste discharge (RWDs) and authorizes the SWRCB and RWQCBs to issue and enforce waste discharge requirements (WDRs), NPDES permits, Section 401 water

**Table 3.10-3
Surface Water and Groundwater Quality Standards of Conventional Contaminants**

Constituent	Minimum Level Required for Detection ⁽¹⁾	Water Quality Objective Source	Water Quality Objective Value
Conventional Pollutants			
	mg/L⁽²⁾		
Oil and Grease	5	Basin Plan	Narrative (3)
Cyanide	0.005	Primary MCL, DPH Title 22 of CCR	150
pH	0–14	Basin Plan	6.5 to 8.5 (range)
Temperature	None	Basin Plan	Narrative (4)
Dissolved Oxygen	Sensitivity to 5 mg/L	Basin Plan	7.0
Bacteria			
Total coliform	<20 MPN/100ml	Basin Plan	Narrative (6)
Fecal coliform	<20 MPN/100ml	Basin Plan	Narrative (6)
E. coli (fresh waters)	<20 MPN/100ml	Basin Plan	Narrative (6)
General			
	mg/L⁽²⁾		
Total Phosphorus	0.05	--	--
Turbidity	0.1 NTU	Basin Plan	Narrative (7)
Suspended Sediments	2	Basin Plan	Narrative (10)
Total Dissolved Solids	2	Secondary MCL, DPH Title 22 of CCR	500 mg/L
Total Petroleum Hydrocarbon	5	Basin Plan	Narrative (8)
Nitrate	0.1	Primary MCL, DPH Title 22 of CCR	45 mg/L (or 10 mg/L as N)
Nitrite	0.1	Primary MCL, DPH Title 22 of CCR	1 mg/L
Specific Conductance	1 µmho/cm	Secondary MCL, DPH Title 22 of CCR	900 µmhos/cm
Chloride	2	Secondary MCL, DPH Title 22 of CCR	250 mg/L
Fluoride	0.1	Primary MCL, DPH Title 22 of CCR	2 mg/L
Methyl tertiary butyl ether (MTBE)	1	Primary MCL, DPH Title 22 of CCR	13 µg/L
Metals			
	µg/L		
Aluminum	100	Primary MCL, DPH Title 22 of CCR	1,000
Antimony	0.5	Primary MCL, DPH Title 22 of CCR	6
Arsenic	1	EPA Section 304(a)	10 (EPA MCL) 50 (DPH MCL)
Beryllium	0.5	Primary MCL, DPH Title 22 of CCR	4
Cadmium	0.25	Primary MCL, DPH Title 22 of CCR	5

**Table 3.10-3
Surface Water and Groundwater Quality Standards of Conventional Contaminants**

Constituent	Minimum Level Required for Detection ⁽¹⁾	Water Quality Objective Source	Water Quality Objective Value
Chromium (total)	0.5	Primary MCL, DPH Title 22 of CCR	50
Copper	0.5	Primary MCL, DPH Title 22 of CCR	1,300
Iron	N/A	Secondary MCL, DPH Title 22 of CCR	300
Lead	0.5	Primary MCL, DPH Title 22 of CCR	15
Manganese	N/A	Secondary MCL, DPH Title 22 of CCR	50
Magnesium		EPA Section 304(a)	10 (EPA MCL) 50 (DPH MCL)
Mercury	0.5	Primary MCL, DPH Title 22 of CCR	2
Nickel	1	Primary MCL, DPH Title 22 of CCR	100
Selenium	1	Primary MCL, DPH Title 22 of CCR	50
Silver	0.25	Secondary MCL, DPH Title 22 of CCR	100
Thallium	1	Primary MCL, DPH Title 22 of CCR	2
Zinc	1	Secondary MCL, DPH Title 22 of CCR	5000
Organophosphate Pesticides	ng/L		
Chlorpyrifos	10.0	CDFW	83 (9)
Diazinon	50.0	CDFW	17 (9)
Molinate	2	Primary MCL, DPH Title 22 of CCR	20
Carbofuran	2	Primary MCL, DPH Title 22 of CCR	18
Herbicides	µg/L		
Glyphosate	5	Primary MCL, DPH Title 22 of CCR	700
2,4-D	0.02	Primary MCL, DPH Title 22 of CCR	70
2,4,5-TP-SILVEX	0.2	Primary MCL, DPH Title 22 of CCR	50
<p>Notes: µg/L = micrograms per liter (parts per billion); CCR = California Code of Regulations; CDFW = California Department of Fish and Wildlife; CDPH = California Department of Public Health; EPA = U.S. Environmental Protection Agency; MCL = Maximum Contaminant Level; mg/L = milligrams per liter (parts per million); MPN = most probable number; ml = milliliter; N/A = not applicable; ng/L = nanograms per liter (parts per trillion); NTU = Nephelometric Turbidity Units; WDR = Waste Discharge Requirements</p> <p>¹ From the State Implementation Plan of the California Toxics Rule, Appendix 4. Note that some Water Quality Objective values are lower than the Minimum Level values.</p> <p>² Unless otherwise noted.</p> <p>³ Waters shall not contain oils, greases, waxes, or other materials in concentrations that cause nuisance, result in a visible film or coating on the surface of the water or on objects in the water, or otherwise adversely affect beneficial uses.</p> <p>⁴ The natural receiving water temperature of intrastate waters shall not be altered unless it can be demonstrated to the satisfaction of the Central Valley Regional Water Quality Control Board that such alteration in temperature does not adversely affect beneficial uses.</p> <p>⁵ Placeholder.</p>			

**Table 3.10-3
Surface Water and Groundwater Quality Standards of Conventional Contaminants**

Constituent	Minimum Level Required for Detection ⁽¹⁾	Water Quality Objective Source	Water Quality Objective Value
6	The most probable number of coliform organisms over any seven-day period shall be less than 2.2MPN/100 ml. This limit would only be applicable for groundwater used for domestic or municipal supply.		
7	The 30-day average for turbidity shall not exceed the following limits: More than 1 NTU where natural turbidity is between 0 and 5 NTU. More than 20 percent where natural turbidity is between 5 and 50 NTU. More than 10 NTUs where natural turbidity is between 50 and 100 NTU. More than 10 percent where natural turbidity is greater than 100 NTU.		
8	The Central Valley Regional Water Quality Control Board has prohibited the discharge of oil or any residuary product of petroleum to the waters of the state, except in accordance with waste discharge requirements or other provisions of Division 7, California Water Code.		
9	Aquatic Life guidance Value for 4-Day Average Concentration.		
10	Central Valley Regional Water Quality Control Board Basin Plan Narrative Objective: Water shall not contain constituent concentrations that would cause nuisance or adversely affect beneficial uses.		
Source: Central Valley Regional Water Quality Control Board 2011a			

quality certifications, or other approvals. The RWQCBs also have authority to issue waivers to RWDs and/or WDRs for broad categories of “low threat” discharge activities that have minimal potential for adverse water quality effects when implemented according to prescribed terms and conditions.

California State Nondegradation Policy

In 1968, as required under the Federal antidegradation policy described above, the SWRCB adopted a nondegradation policy aimed at maintaining high quality for waters in California. The nondegradation policy states that the disposal of wastes into state waters shall be regulated to achieve the highest water quality consistent with maximum benefit to the people of the state and to promote the peace, health, safety, and welfare of the people of the state. The policy provides as follows:

- ▶ Where the existing quality of water is better than required under existing water quality control plans, such quality would be maintained until it has been demonstrated that any change would be consistent with maximum benefit to the people of the state and would not unreasonably affect present and anticipated beneficial uses of such water.
- ▶ Any activity which produces waste or increases the volume or concentration of waste and which discharges to existing high-quality waters would be required to meet waste discharge requirements, which would ensure (1) pollution or nuisance would not occur and (2) the highest water quality consistent with the maximum benefit to the people of the state would be maintained.

California Toxics Rule and State Implementation Plan

The California Toxics Rule (CTR) was issued in 2000 in response to requirements of the EPA National Toxics Rule (NTR), and establishes numeric water quality criteria for approximately 130 priority pollutant trace metals and organic compounds. The CTR criteria are regulatory criteria adopted for inland surface waters, enclosed bays, and estuaries in California that are subject CWA Section 303(c). The CTR includes criteria for the protection of aquatic life and human health. Human health criteria (water and organism based) apply to all waters with a Municipal and Domestic Water Supply Beneficial Use designation as indicated in the Basin Plans.

The Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California, also known as the State Implementation Plan (SIP), was adopted by the SWRCB in 2000. It establishes provisions for translating CTR criteria, NTR criteria, and Basin Plan water quality objectives for toxic pollutants into NPDES permit effluent limits, effluent compliance determinations, monitoring for 2,3,7,8-TCDD (dioxin) and its toxic equivalents, chronic (long-term) toxicity control provisions, initiating site-specific water quality objective development, and granting of exceptions for effluent compliance. The goal of the SIP is to establish a standardized approach for the permitting of discharges of toxic effluents to inland surface waters, enclosed bays, and estuaries in a consistent fashion throughout the state.

National Pollutant Discharge Elimination System Permit System and Waste Discharge Requirements for Construction

The SWRCB and Central Valley Regional Water Quality Control Board have adopted specific NPDES permits for a variety of activities that have potential to discharge wastes to waters of the state. The SWRCB’s statewide stormwater general permit for construction activity (Order 2009-0009-DWQ) is applicable to all land-disturbing construction activities that would disturb 1 acre or more. The Central Valley Regional Water Quality Control

Board *Waste Discharge Requirements for Dewatering and Other Low Threat Discharges to Surface Waters* (Order No. R5-2013-0074, NPDES No. CAG995001) authorizes direct discharges to surface waters up to 250,000 gallons per day for no more than a 4-month period each year. All of the NPDES permits involve similar processes, including submittal to the Central Valley Regional Water Quality Control Board of notices of intent (NOI) to discharge, and implementation of storm water pollution prevention plans (SWPPPs) that include best management practices (BMPs) to minimize those discharges. As mentioned above, the Central Valley Regional Water Quality Control Board may also issue site-specific WDRs, or waivers to WDRs, for certain waste discharges to land or waters of the state. In particular, Central Valley Regional Water Quality Control Board Resolution R5-2003-0008 identifies activities subject to waivers of RWDs and/or WDRs, including minor dredging activities and construction dewatering activities that discharge to land.

Construction activities subject to the general construction activity permit include clearing, grading, stockpiling, and excavation. Dischargers are required to eliminate or reduce non-stormwater discharges to storm sewer systems and other waters. The permit also requires dischargers to consider the use of permanent post-construction BMPs that would remain in service to protect water quality throughout the life of the project. All NPDES permits also have inspection, monitoring, and reporting requirements. In response to a court decision, the Central Valley Regional Water Quality Control Board also implemented mandatory water quality sampling requirements in Resolution 2001-046 for visible and nonvisible contaminants in discharges from construction activities. Water quality sampling is now required if the activity could result in the discharge of turbidity or sediment to a water body that is listed as impaired under Section 303(d) because of sediment or siltation, or if a release of a nonvisible contaminant occurs. Where such pollutants are known or should be known to be present and have the potential to contact runoff, sampling and analysis is required. NPDES permits require the implementation of design and operational BMPs to reduce the level of contaminant runoff. Types of BMPs include source controls, treatment controls, and site planning measures.

Discharges subject to the SWRCB NPDES general permit for construction activity (Order 2009-0009-DWQ) are subject to development and implementation of a SWPPP. The SWPPP must include a site map and description of construction activities and must identify the BMPs that would be employed to prevent soil erosion and discharge of other construction-related pollutants (e.g., petroleum products, solvents, paints, and cement) that could contaminate nearby water resources.

National Pollutant Discharge Elimination System Municipal Stormwater Permit Program

The SWRCB Municipal Storm Water Permitting Program regulates storm water discharges from MS4s. MS4 permits are issued in two phases. Under Phase I, which started in 1990, the RWQCBs have adopted NPDES storm water permits for medium (serving between 100,000 and 250,000 people) and large (serving 250,000 people) municipalities. Most of these permits are issued to a group of co-permittees encompassing an entire metropolitan area. As part of Phase II, the SWRCB adopted a *General Permit for the Discharge of Storm Water from Small MS4s* (WQ Order No. 2003-0005-DWQ) in 2013 to provide permit coverage for smaller municipalities. The MS4 permits require the discharger to develop and implement a Storm Water Management Plan/Program with the goal of reducing the discharge of pollutants to the maximum extent practicable (MEP). MEP is the performance standard specified in Section 402(p) of the CWA. The management programs specify what BMPs will be used to address certain program areas. The program areas include public education and outreach; illicit discharge detection and elimination; construction and post construction; and municipal operations. In general, medium and large municipalities are required to conduct water quality monitoring, though small municipalities are not.

Sacramento County Phase 1 National Pollutant Discharge Elimination System MS4 Permit

Sacramento County and the cities Rancho Cordova, Folsom, Elk Grove, Citrus Heights, Galt, and Sacramento are co-permittees to the Sacramento Areawide NPDES MS4 permit (Sacramento MS4 permit) issued and enforced by the Central Valley Regional Water Quality Control Board. First issued in 1990, the latest permit was adopted on September 11, 2008 (NPDES Permit No. CAS082597, WDR Order No. R5-2008-0142). The permittees formed the SSQP, described in more detail in the next section, to coordinate and implement permit compliance activities. The *Stormwater Quality Improvement Plan* (SQIP) developed for compliance with the NPDES permit is the guiding document for the permittees (SSQP 2009) and describes the activities that will be implemented to reduce pollutant discharges in urban runoff to the MEP. The SSQP, in association with the City of Roseville, published the *Stormwater Quality Design Manual for the Sacramento and South Placer Regions* (Stormwater Quality Design Manual) in May 2007, which is currently the guiding technical design document for development and major redevelopment in the County (SSQP 2007).

The County has identified a range of BMPs and measurable goals to address the stormwater discharges in the County. As part of the SQIP, there are several regulations/procedures in place that implement the SQIP that include the Grading and Erosion Control Ordinance (Chapter 16.44 of the existing County Code) and construction standards. A key component of this compliance is implementation of the SQIP new development element that requires stormwater quality treatment and/or BMPs in project design for both construction and operation. Post-construction stormwater quality controls for new development require use of control measures set forth in the Stormwater Quality Design Manual. This includes the sizing and design criteria for regional detention basins as well as the design and maintenance criteria for on-site stormwater quality source, treatment, and runoff reduction measures.

An important component of the Sacramento MS4 permit requires each permittee (including the County) to update and continue to implement the planning and new development element of its SQIP to minimize the short- and long-term effects on receiving water quality from new development and redevelopment. The permit requires the continued implementation of the permittees' development standards during the entitlement, environmental analysis, and development plan review processes. Specifically, the Sacramento MS4 permit identifies the need to address changes in the hydrograph, defined as hydrograph modification or hydromodification, which could result from urbanization of a watershed, and to require low impact development (LID) controls to more closely mimic the pre-developed hydrologic condition.

To address hydromodification, the permittees have prepared a *Hydromodification Management Plan* (HMP) (SSQP 2011). Conventional flood control and drainage approaches have focused on managing runoff from large storm events (e.g., 100-year return interval events), while generally disregarding the runoff from the smaller, more frequently occurring events. Runoff from such large events can damage a creek's stability and resources. However, studies in the last decade have shown that 95 percent of the erosion and transport of sediment from beds and banks, which leads to habitat degradation and other adverse effects, is actually due to the smaller events (i.e., some percentage of the 2-year return interval event up to the 10-year event) (SSQP 2011). These effects from small storm events are not currently addressed by existing local regulations for flood protection and stormwater quality treatment.

3.10.4 ANALYSIS METHODOLOGY

This analysis relies on information provided by various public agencies, as well as site-specific technical planning studies generated to support proposed development. Hydrology and drainage-related studies reviewed in support of this analysis include the following documents:

- ▶ *Drainage Master Plan For Cordova Hills* (MacKay & Soms Civil Engineers Inc. 2011, attached to this EIS as Appendix I);
- ▶ *Sacramento City/County Drainage Manual Volume 2: Hydrology Standards*. County Sacramento Department of Water Resources (2006); and
- ▶ *Stormwater Quality Design Manual for the Sacramento and South Placer Regions* (SSQP 2007).

Effects associated with drainage, hydrology, and water quality that could result from construction and operational activities related to buildout of the Proposed Action or Alternatives were evaluated based on expected construction practice, the materials used, and the locations and duration of the activities. The effects of the proposed development were compared to environmental baseline conditions (i.e., existing conditions) to determine the duration and magnitude of adverse effects.

Because the Final EIR has already been certified, all Final EIR Mitigation Measures, the Rezone and Tentative Large Lot Parcel Map Conditions of Approval, and the obligations found in the Development Agreement (collectively referred to as the project entitlements) are considered a part of the Proposed Action. Thus, these measures and requirements are considered when analyzing the significance of effects under the Proposed Action. Because the project entitlements were imposed on the Proposed Action by the County as part of its approval process, it is reasonable to assume that if one of the action alternatives were adopted, the County would impose similar conditions during the entitlement of the alternative.

THRESHOLDS OF SIGNIFICANCE

The determinations of the significance of effects for this analysis are based on professional standards regularly used in environmental review documents in the region. These thresholds encompass the factors taken into account under NEPA to determine the significance of an action in terms of its context and the intensity of its effects. These are also informed by the environmental checklist in Appendix G of the California Environmental Quality Act (CEQA) Guidelines. The alternatives under consideration were determined to result in a significant effect related to hydrology and water quality if they would do any of the following:

- ▶ violate any water quality standards or waste discharge requirements, including NPDES waste discharge or stormwater runoff requirements, state or Federal antidegradation policies, enforceable water quality standards contained in the Central Valley Regional Water Quality Control Board Basin Plan or statewide water quality control plans, or Federal rulemakings to establish water quality standards in California;
- ▶ substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a substantial lowering of the level of the local groundwater table;
- ▶ 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 that would result in substantial erosion or siltation on- or off-site; or

that would increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site;

- ▶ create or contribute runoff water that would exceed the capacity (peak flow) of existing or planned stormwater drainage systems;
- ▶ substantially degrade water quality;
- ▶ place within a 100-year (0.01 AEP) flood hazard area housing, or structures that would impede or redirect flood flows; or
- ▶ 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.

3.10.5 ENVIRONMENTAL CONSEQUENCES AND MITIGATION MEASURES

EFFECTS ANALYSIS

Effects that would occur under each alternative development scenario are identified as follows: NA (No Action), PA (Proposed Action), EDP (Expanded Drainage Preservation), EP (Expanded Preservation), P (Pilatus), and RC (Regional Conservation). The effects for each alternative are compared relative to the PA at the end of each effect conclusion (i.e., similar, greater, lesser).

EFFECT 3.10-1	Potential Temporary, Short-Term Construction-Related Drainage and Water Quality Effects. <i>Construction activities would involve extensive grading and movement of earth, which would substantially alter on-site drainage patterns and could generate sediment, erosion, and other nonpoint source pollutants in on-site stormwater that could drain to off-site areas and degrade local water quality.</i>
------------------	---

NA

Under the No Action Alternative, the Cordova Hills site would not be developed and no construction disturbances would occur. Therefore, there would **no indirect** or **direct** construction effects to drainage patterns or water quality. [*Lesser*]

Mitigation Measure: No mitigation measures are required.

PA

Implementation of the Proposed Action would entail earthmoving activities on approximately 1,981 acres. Construction activities associated with the Proposed Action, including vegetation removal, grading, staging, trenching, foundation excavation, and excavation of any on-site aggregate resources for use during the construction process, would expose soils to erosive forces and could transport sediment into local drainages, increasing turbidity, degrading water quality, and resulting in siltation to local waterways. Although the western portion of the Cordova Hills site is generally characterized as level to gently rolling terrain, substantial topographic changes occur along the eastern and southern portions of the Cordova Hills site, which slope southeast towards Carson Creek. Localized erosion hazards would be higher where the Cordova Hills site

topography is steeper. Intense rainfall and associated stormwater runoff could result in short periods of sheet erosion within areas of exposed or stockpiled soils. If uncontrolled, these soil materials could cause sedimentation and blockage of drainage channels. Further, the compaction of soils by heavy equipment may further reduce the infiltration capacity of soils and increase the potential for runoff and erosion.

Non-stormwater discharges could result from activities such as construction dewatering procedures, or discharge or accidental spills of hazardous substances such as fuels, oils, petroleum hydrocarbons, concrete, paints, solvents, cleaners, or other construction materials. This contaminated runoff could enter on-site drainage channels and ultimately drain off-site to downstream waterbodies, including Laguna Creek, Deer Creek, Carson Creek, and ultimately the Sacramento and Cosumnes Rivers. Erosion and construction-related wastes have the potential to temporarily degrade existing water quality and beneficial uses by altering the dissolved oxygen content, temperature, pH, suspended sediment and turbidity levels, or nutrient content, or by causing toxic effects in the aquatic environment. Therefore, if uncontrolled, construction activities could violate water quality standards or cause direct harm to aquatic organisms.

As described in the Cordova Hills Master Plan (2012:7-20), nonstructural as well as structural BMPs would be used during construction of the Proposed Action to decrease storm water discharge. The nonstructural measures could include, but are not limited to, grading controls such as timing, staging, setbacks and buffers, and restrictions on open areas. Other nonstructural measures could include housekeeping techniques involving limitations on material storage and disposal, soil stabilization of all roads and entrances, dust control, and mandatory site cleanup. Structural BMPs may include, but are not limited to, storm water retention or detention structures, infiltration of run-off on site, oil/water separation, and use of open vegetated swales and natural depressions.

As part of the CEQA EIR certification and project approval process, the project applicant committed to implementing various mitigation measures for the Proposed Action. The mitigation measures that are applicable to this effect that were incorporated into the Proposed Action by the EIR mitigation measures, conditions of approval, and development agreement (project entitlements) are listed below

- ▶ If construction activities encroach within the 250-foot buffer for vernal pools 358, 363, 370, 426 or 511 the applicant shall prepare a pesticide and pollution prevention plan. The plan shall include measures to reduce pollution run-off, pesticide drift, and other similar potential contaminants, to protect surrounding preserve areas from urban contaminants. Measures shall include the implementation of best management practices (e.g. straw wattles, silt fencing, and soil stabilization) for stormwater control. The plan shall be incorporated in the Operations and Management Plan which is a requirement of the Section 404 permit process. (*Final EIR Mitigation Measure BR-8*).

In addition to the mitigation measure from the CEQA EIR, the project applicant shall also implement the mitigation measures listed below.

Mitigation Measure: Implement Mitigation Measure 3.8-3.

Mitigation Measure 3.10-1: Prepare and Implement a Storm Water Pollution Prevention Plan and Associated Best Management Practices.

Prior to the issuance of grading permits, the project applicant for any particular discretionary development application disturbing 1 or more acres (including phased construction of smaller areas which are part of the larger project) shall obtain coverage under the SWRCB's NPDES stormwater permit for general construction activity (Order 2009-0009-DWQ), including preparation and submittal of a project-specific SWPPP at the time the Notice of Intent to discharge is filed. The project applicant shall also prepare and submit any other necessary erosion and sediment control and engineering plans and specifications for pollution prevention and control to the Sacramento County Community Development Department and the Sacramento County Department of Water Resources. The SWPPP and other appropriate plans shall identify and specify:

- ▶ the use of an effective combination of robust erosion and sediment control BMPs and construction techniques accepted by the County for use in the Cordova Hills site at the time of construction, that would reduce the potential for runoff and the release, mobilization, and exposure of pollutants, including legacy sources of mercury from project-related construction sites. These may include but will not be limited to temporary erosion control and soil stabilization measures, sedimentation ponds, inlet protection, perforated riser pipes, check dams, and silt fences;
- ▶ the implementation of approved local plans, non-stormwater management controls, permanent post-construction BMPs, and inspection and maintenance responsibilities;
- ▶ the pollutants that are likely to be used during construction that could be present in stormwater drainage and nonstormwater discharges, including fuels, lubricants, and other types of materials used for equipment operation;
- ▶ the means of waste disposal;
- ▶ spill prevention and contingency measures, including measures to prevent or clean up spills of hazardous waste and of hazardous materials used for equipment operation, and emergency procedures for responding to spills;
- ▶ personnel training requirements and procedures that would be used to ensure that workers are aware of permit requirements and proper installation methods for BMPs specified in the SWPPP; and
- ▶ the appropriate personnel responsible for supervisory duties related to implementation of the SWPPP.

Where applicable, BMPs identified in the SWPPP shall be in place throughout all site work and construction activities and shall be used in all subsequent site development activities. BMPs may include, but are not limited to, such measures as those listed below.

- ▶ Implementing temporary erosion and sediment control measures in disturbed areas to minimize discharge of sediment into nearby drainage conveyances, in compliance with state and local standards

in effect at the time of construction. These measures may include silt fences, staked straw bales or wattles, sediment/silt basins and traps, geofabric, sandbag dikes, and temporary vegetation.

- ▶ Establishing permanent vegetative cover to reduce erosion in areas disturbed by construction by slowing runoff velocities, trapping sediment, and enhancing filtration and transpiration.
- ▶ Using drainage swales, ditches, and earth dikes to control erosion and runoff by conveying surface runoff down sloping land, intercepting and diverting runoff to a watercourse or channel, preventing sheet flow over sloped surfaces, preventing runoff accumulation at the base of a grade, and avoiding flood damage along roadways and facility infrastructure.

A copy of the approved SWPPP shall be maintained and available at all times on the construction site.

Implementation: Project applicant.

Timing: Before approval of grading plans and building permits and during construction.

Enforcement: Sacramento County Department of Water Resources.

Under the Proposed Action, the project applicant would reduce construction-related temporary and short-term water quality effects in the vicinity of vernal pools by implementing Final EIR Mitigation Measure BR-8. Implementation of Mitigation Measures 3.8-3 and 3.10-1 would further reduce the short-term, temporary, construction-related drainage and water quality effects under the Proposed Action to a **less-than-significant** level because a grading and erosion control plan and a SWPPP, both containing BMPs specifically designed to prevent erosion and protect water quality, would be prepared, approved by Sacramento County and the Central Valley Regional Water Quality Control Board, and implemented. These plans are required by law to specify and implement water quality control measures pursuant to the SWRCB NPDES permit for construction activity (Order 2009-0009-DWQ); the *Stormwater Quality Design Manual for the Sacramento and South Placer Regions* (SSQP 2007); and the Sacramento County Land Grading and Erosion Control Ordinance (Chapter 16.44 of the Sacramento County Municipal Code). USACE does not have authority to enforce these mitigation measures; Sacramento County Department of Water Resources would be the enforcement agency. Because this mitigation measure identifies mechanisms to meet existing legal and regulatory requirements, it is likely that these mitigation measures would be implemented. No mitigation measures were identified to further reduce these effects.

EDP, EP

Implementation of the Expanded Drainage Preservation and Expanded Preservation Alternatives would result in construction activities on approximately 1,661 and 1,420 acres, respectively (as compared to approximately 1,981 acres under the Proposed Action). The same types of short-term, temporary, construction-related water quality effects would occur as described above for the Proposed Action. These **indirect** and **direct** effects would be **potentially significant**. [*Lesser*]

As part of the CEQA EIR certification and project approval process, various mitigation measures were incorporated into the project entitlements. Because these mitigation measures were incorporated into the Proposed Action, it is reasonable to assume that they would also be incorporated into the four action alternatives, if any of

those alternatives were adopted. The mitigation measures that are applicable to this effect that were incorporated into the Proposed Action by the project entitlements are listed below:

- ▶ If construction activities encroach within the 250-foot buffer for vernal pools 358, 363, 370, 426, or 511 the project applicant shall prepare a pesticide and pollution prevention plan. The plan shall include measures to reduce pollution run-off, pesticide drift, and other similar potential contaminants, to protect surrounding preserve areas from urban contaminants. Measures shall include the implementation of best management practices (e.g. straw wattles, silt fencing, and soil stabilization) for stormwater control. The plan shall be incorporated in the Operations and Management Plan which is a requirement of the Section 404 permit process. (*Final EIR Mitigation Measure BR-8*).

In addition to the mitigation measure from the CEQA EIR, the project applicant shall also implement the mitigation measures listed below.

Mitigation Measure: Implement Mitigation Measures 3.8-3 and 3.10-1.

A copy of the approved SWPPP shall be maintained and available at all times on the construction site.

Implementation: Project applicant.

Timing: Before approval of grading plans and building permits and during construction.

Enforcement: Sacramento County Department of Water Resources.

Under the EDP and EP alternatives, the project applicant would reduce construction-related temporary and short-term water quality effects in the vicinity of vernal pools by implementing Final EIR Mitigation Measure BR-8. Implementation of Mitigation Measures 3.8-3 and 3.10-1 would further reduce the short-term, temporary, construction-related drainage and water quality effects under the Proposed Action to a **less-than-significant** level because a grading and erosion control plan and a SWPPP, both containing BMPs specifically designed to prevent erosion and protect water quality, would be prepared, approved by Sacramento County and the Central Valley Regional Water Quality Control Board, and implemented. These plans are required by law to specify and implement water quality control measures pursuant to the SWRCB NPDES permit for construction activity (Order 2009-0009-DWQ); the *Stormwater Quality Design Manual for the Sacramento and South Placer Regions* (SSQP 2007); and the Sacramento County Land Grading and Erosion Control Ordinance (Chapter 16.44 of the Sacramento County Municipal Code). USACE does not have authority to enforce these mitigation measures; Sacramento County Department of Water Resources would be the enforcement agency. Because this mitigation measure identifies mechanisms to meet existing legal and regulatory requirements, it is likely that these mitigation measures would be implemented. No mitigation measures were identified to further reduce these effects.

P

Implementation of the Pilatus Alternative would result in construction activities on approximately 2,489 acres (as compared to approximately 1,981 acres under the Proposed Action). The same types of short-term, temporary, construction-related water quality effects would occur as described above for the Proposed Action. These **indirect** and **direct** effects would be **potentially significant**. [Greater]

As part of the CEQA EIR certification and project approval process, various mitigation measures were incorporated into the project entitlements. Because these mitigation measures were incorporated into the Proposed Action, it is reasonable to assume that they would also be incorporated into the four action alternatives, if any of those alternatives were adopted. The mitigation measures that are applicable to this effect that were incorporated into the Proposed Action by the project entitlements are listed below:

- ▶ If construction activities encroach within the 250-foot buffer for vernal pools 358, 363, 370, 426, or 511 the project applicant shall prepare a pesticide and pollution prevention plan. The plan shall include measures to reduce pollution run-off, pesticide drift, and other similar potential contaminants, to protect surrounding preserve areas from urban contaminants. Measures shall include the implementation of best management practices (e.g. straw wattles, silt fencing, and soil stabilization) for stormwater control. The plan shall be incorporated in the Operations and Management Plan which is a requirement of the Section 404 permit process. (*Final EIR Mitigation Measure BR-8*).

In addition to the mitigation measure from the CEQA EIR, the project applicant shall also implement the mitigation measures listed below.

Mitigation Measure: Implement Mitigation Measures 3.8-3 and 3.10-1.

A copy of the approved SWPPP shall be maintained and available at all times on the construction site.

Implementation: Project applicant.

Timing: Before approval of grading plans and building permits and during construction.

Enforcement: Sacramento County Department of Water Resources.

Under the Pilatus Alternative, the project applicant would reduce construction-related temporary and short-term water quality effects in the vicinity of vernal pools by implementing Final EIR Mitigation Measure BR-8. Implementation of Mitigation Measures 3.8-3 and 3.10-1 would further reduce the short-term, temporary, construction-related drainage and water quality effects under the Proposed Action to a **less-than-significant** level because a grading and erosion control plan and a SWPPP, both containing BMPs specifically designed to prevent erosion and protect water quality, would be prepared, approved by Sacramento County and the Central Valley Regional Water Quality Control Board, and implemented. These plans are required by law to specify and implement water quality control measures pursuant to the SWRCB NPDES permit for construction activity (Order 2009-0009-DWQ); the *Stormwater Quality Design Manual for the Sacramento and South Placer Regions* (SSQP 2007); and the Sacramento County Land Grading and Erosion Control Ordinance (Chapter 16.44 of the Sacramento County Municipal Code). USACE does not have authority to enforce these mitigation measures; Sacramento County Department of Water Resources would be the enforcement agency. Because this mitigation measure identifies mechanisms to meet existing legal and regulatory requirements, it is likely that these mitigation measures would be implemented. No mitigation measures were identified to further reduce these effects.

RC

Implementation of the Regional conservation Alternative would result in construction activities on approximately 1,969 acres (as compared to approximately 1,981 acres under the Proposed Action). The same types of short-term,

temporary, construction-related water quality effects would occur as described above for the Proposed Action. These **indirect** and **direct** effects would be **potentially significant**. *[Similar]*

As part of the CEQA EIR certification and project approval process, various mitigation measures were incorporated into the project entitlements. Because these mitigation measures were incorporated into the Proposed Action, it is reasonable to assume that they would also be incorporated into the four action alternatives, if any of those alternatives were adopted. The mitigation measures that are applicable to this effect that were incorporated into the Proposed Action by the project entitlements are listed below:

- ▶ If construction activities encroach within the 250-foot buffer for vernal pools 358, 363, 370, 426, or 511 the project applicant shall prepare a pesticide and pollution prevention plan. The plan shall include measures to reduce pollution run-off, pesticide drift, and other similar potential contaminants, to protect surrounding preserve areas from urban contaminants. Measures shall include the implementation of best management practices (e.g. straw wattles, silt fencing, and soil stabilization) for stormwater control. The plan shall be incorporated in the Operations and Management Plan which is a requirement of the Section 404 permit process. (*Final EIR Mitigation Measure BR-8*).

In addition to the mitigation measure from the CEQA EIR, the project applicant shall also implement the mitigation measures listed below.

Mitigation Measure: Implement Mitigation Measures 3.8-3 and 3.10-1.

A copy of the approved SWPPP shall be maintained and available at all times on the construction site.

Implementation: Project applicant.

Timing: Before approval of grading plans and building permits and during construction.

Enforcement: Sacramento County Department of Water Resources.

Implementing Final EIR Mitigation Measure BR-8 and Mitigation Measures 3.8-3 and 3.10-1 would reduce the significant short-term, temporary, construction-related drainage and water quality effects under the Regional Conservation Alternative to a **less-than-significant** level because a pesticide and pollution prevention plan would be prepared for activities in the vicinity of vernal pools, and a grading and erosion control plan and a SWPPP, both containing BMPs specifically designed to prevent erosion and protect water quality, would be prepared, approved by Sacramento County and the Central Valley Regional Water Quality Control Board, and implemented. These two plans are required by law to specify and implement water quality control measures pursuant to the SWRCB NPDES permit for construction activity (Order 2009-0009-DWQ); the *Stormwater Quality Design Manual for the Sacramento and South Placer Regions* (SSQP 2007); and the Sacramento County Land Grading and Erosion Control Ordinance (Chapter 16.44 of the Sacramento County Municipal Code). USACE does not have authority to enforce these mitigation measures; Sacramento County Department of Water Resources would be the enforcement agency. Because this mitigation measure identifies mechanisms to meet existing legal and regulatory requirements, it is likely that these mitigation measures would be implemented. No mitigation measures were identified to further reduce these effects.

EFFECT **Potential Increased Risk of Flooding and Hydromodification from Increased Stormwater Runoff.**
3.10-2 *Implementation of the Proposed Action or Alternatives would increase the amount of impervious surfaces, thereby increasing surface runoff. This increase in surface runoff would result in an increase in both the total volume and the peak discharge rate of stormwater runoff, and therefore could result in greater potential for on- and off-site flooding.*

NA

Under the No Action Alternative, the existing hydrology and drainage conditions at the Cordova Hills site would not be altered because no development would occur. Thus, **no indirect** or **direct** effects from increased flooding and hydromodification would occur. *[Lesser]*

Mitigation Measure: No mitigation measures are required.

PA

Implementation of the Proposed Action would entail development on approximately 2,129 acres of land, which has not been previously developed. The Proposed Action includes residential and commercial development, and supporting facilities and services, including parks, schools, and major circulation and roadway infrastructure. The various types of proposed land uses would each contribute different relative amounts of stormwater runoff corresponding to the percentage of impervious surface associated with each land use category, which ranges from 2 percent (wetlands/open space) to 95 percent (major roads and parking) (Sacramento County Department of Water Resources 2006:5-7). This increase in impervious surface would increase the peak discharge rate of stormwater runoff generated on the Cordova Hills site.

A Drainage Master Plan has been prepared by MacKay & Soms (2011) that details the proposed drainage system as shown in Exhibit 2-10 (see Chapter 2, “Description of the Proposed Action and Alternatives”). The proposed stormwater drainage system has been designed to satisfy the design criteria of the SSQP, FEMA National Flood Insurance Program requirements, and NPDES requirements. The Proposed Action would use an on-site conveyance and detention/water quality treatment system and would convey off-site flows through the property either through natural drainages (Upper Laguna Creek Tributary; Deer Creek Tributary) or through open drainage channels or underground pipe systems (Upper Laguna Creek-main branch).

Under the Proposed Action, the Deer Creek Tributary, which forms the largest creek corridor within the Cordova Hills site, would not be modified since it would be contained within a relatively wide preserve corridor with an approximate width equal to the 100-year floodplain. Bounding this preserve corridor would be two recreational trails on either side. In addition, storm detention/flow duration control/water quality basins would be incorporated into the buffer zone on either side of the creek corridor. At road crossings, the creek corridor generally narrows to approximately 200 feet wide. Road crossings would span the creek using bottomless CON/SPAN® arch culverts, or similar design. The Deer Creek tributary would meander through this corridor. All tributary channels to Deer Creek tributary would be converted to storm pipes or other storm drainage channels. They would continue to be tributary to the main Deer Creek tributary, but would first outfall into detention basins designed for flow duration control. The Carson Creek tributaries would be piped or channelized runoff would be conveyed to multiple detention basins. The detention basins would then release the runoff directly to each respective tributary before rejoining Carson Creek (cbec 2010).

The hydrologic analysis in the Drainage Master Plan was based on procedures outlined in the following standards and policies:

- ▶ Storm Drain Design Standards of the Municipal Services Agency of Sacramento County Department of Water Resources,
- ▶ Sacramento County Water Agency Drainage Ordinance,
- ▶ Sacramento City/County Drainage Manual Volume 2: Hydrology Standards,
- ▶ Sacramento County Water Agency Code Titles 1 and 2,
- ▶ Sacramento County Floodplain Management Ordinance,
- ▶ Stormwater Quality Design Manual for the Sacramento and South Placer Regions, and
- ▶ Sacramento County Department of Water Resources Plan Submittal Take-In Check List.

The USACE HEC-RAS program (version 4.1) was used to model the Proposed Action using the unsteady state routines to determine the peak flow and hydraulic grade line for the 10-year 24-hour, 100-year 24-hour, and 100-year 10-day design storms.

Because the on-site subsheds that are tributary to Carson Creek constitute only a very small portion of the much larger overall Carson Creek watershed, it was deemed impractical to prepare detailed hydraulic models of Carson Creek. For these subsheds, only SacCalc models for pre- and post-development conditions were run to establish peak runoff rates and associated detention and water quality volumes.

The following three scenarios were modeled:

1. **Existing Conditions:** This scenario establishes existing base flow conditions without development, and is defined by the current land uses and topography within the approximately 4,495-acre drainage study area.
2. **Developed Conditions without Detention Basins:** This scenario shows the projected flow conditions that would occur with development of the Proposed Action overlaid onto the existing conditions.
3. **Developed Conditions with Detention Basins:** In this scenario, flood control in the form of detention basins, plus modifications necessary to accommodate projected hydromodification, were then added to the model to reduce the peak runoff volumes to levels that would be at or below existing conditions.

Hydromodification

Potential changes to the hydrologic and geomorphic processes in a watershed as a result of impervious surfaces and drainage infrastructure from urbanization include increased runoff volumes and dry weather flows, increased frequency and number of runoff events, increased long-term cumulative duration of flows, as well as increased peak flows. These changes are referred to as “hydromodification.” Hydromodification intensifies the erosion and sediment transport process, and often leads to changes in stream channel geometry, and streambed and streambank properties, which can result in degradation and loss of riparian habitat, and downgradient sediment deposition causing flooding problems. Studies have preliminarily evaluated the hydrologic and geomorphic

condition of Upper Laguna Creek, the Deer Creek tributary, and the Carson Creek tributaries, as described above in Section 3.10.2, “Affected Environment – Stream Geomorphology” (cbec 2010).

One measurement used to evaluate the amounts of hydromodification in pre- and post-development scenarios is the erosion potential. While the index of work measures the amount of force applied to a channel and the sediment transport capacity at a given flow rate (generally measured in foot-pound-force per square foot), the erosion potential index measures the relative change in the amount of erosive force applied to the channel boundary (work) done by flows from a watershed that undergoes a change in land use or impervious surface (e.g., the relative change between existing conditions and developed conditions). An erosion potential of 1 would indicate no change in erosion potential due to hydromodification between two watershed scenarios. A study based on 45 stream channel sites in three San Francisco Bay Area watersheds showed that as the erosion potential begins to exceed 1.2 (i.e., a 20 percent increase) the probability of stream channel instabilities dramatically increases (Santa Clara Valley Urban Runoff Pollution Prevention Program 2005:3-17). A USACE study suggests a more conservative erosion potential target of 1 ± 10 percent (Geosyntec 2007:5-13).

A target index of 1 ± 20 percent was used in the analysis for the erosion potential of the Deer Creek tributary (consistent with the analysis prepared by Geosyntec [2007:5-14] in their report for the Laguna Creek watershed). Four scenarios were modeled: existing conditions (no development), proposed development with no detention basins, proposed development with detention basins, and proposed development with basins modified to incorporate flow duration control. To determine the total amount of work (erosive forces) that existing and proposed conditions runoff does on the receiving waters, the annualized hydrograph was then processed using Mike11 modeling software and the geo-referenced cross sections out of the HEC-RAS model. The total work resulting from post-development runoff hydrographs was then compared to that resulting from the existing conditions hydrographs in order to determine hydromodification requirements. Results of the analysis indicate that frequent flows from the 2-year through 10-year storms represent an extra volume of developed runoff that would be slowed by proposed detention basins, but would be prematurely released through the single-sized outlet control structures (if designed solely to reduce the 100-year peak flow). For the Deer Creek watershed, erosion potential ratios were 1.12 on average, but upwards of 25 percent of the cross sections exceeded an erosion potential ratio of 1.2 and approached values higher than 1.5. Therefore, these frequent flows would need to be controlled in order to minimize hydromodification effects. Although the hydromodification effects were not modeled for the Upper Laguna Creek and Carson Creek tributaries, cbec assessed the conditions of these two watersheds and offered recommendations similar to those for the Deer Creek watershed (cbec 2010:8-13).

Three approaches are typically used to manage the effects of hydromodification: flow controls to control the discharge rate into receiving waters, LID techniques to infiltrate excess runoff, and in-stream approaches to restore and stabilize streams. Due to USACE-required limitations on construction in the wetland preserve areas, in-stream approaches cannot be used. The effects on Upper Laguna Creek, the Deer Creek tributary, and the Carson Creek tributaries due to hydromodification from development would be primarily reduced by increasing the extended duration detention basin volume and by slowly metering out storm runoff from detention basins to match undeveloped runoff rates for storms ranging from 25 percent of the 2-year storm up to and including the 10-year storm using a flow duration control strategy. This would be achieved through adaptation of the detention basin outlet control structure to represent the required flow control release rate, and through manipulation of the footprint of the detention basins to provide additional storage for hydromodification purposes (cbec 2010:1-2, 11-13; MacKay & Somps 2012:17, 21). A typical drainage basin design and outlet structure configuration are shown in Exhibits K and L to the Drainage Master Plan (attached as Appendix I).

Each detention basin would include a flow duration control (FDC) outlet structure. Once through the FDC, runoff from up to the 10-year storm event would drop down into the detention basin discharge pipes. The detention basin discharge pipe outlet structures would terminate into energy dissipation structures, which would reestablish sheet flow discharge into the open space. The discharge may then be directed into an LID swale. Runoff resulting from storm events greater than the 10-year event would be allowed to spill out of the basins at calibrated rates across armored spillways of a specified width that are set at specific heights such that the cumulative discharge rates modeled in HEC-RAS at the downstream end of the Cordova Hills site are no greater than the existing conditions peak flow rates for the 10- and the 100-year design storm events.

LID features would also be incorporated into the design of the Proposed Action and Alternatives. As described on pages 2-7 through 2-12 of the *Cordova Hills Master Plan*, a variety of different LID features are proposed specific to residential areas, commercial and employment centers, and parks. These measures fall into the following broad categories:

- ▶ storm water retention or detention structures,
- ▶ infiltration of runoff on site; oil/water separation,
- ▶ use of open vegetated swales and natural depressions, and
- ▶ porous pavement and a combination of the above practices.

Modeling Results

Results of the HEC-RAS analyses under existing conditions for the 10-year 24-hour, 100-year 24-hour, and 100-year 10-day design storm events for the unnamed Upper Laguna Creek and Deer Creek Tributaries are contained in Appendices G and H, respectively, to the Drainage Master Plan (MacKay & Soms 2011). Results of the SacCalc analyses under existing conditions for the 10-year 24-hour, 100-year 24-hour, and 100-year 10-day design storm events for the Carson Creek subsheds are contained in Appendix E to the Drainage Master Plan (MacKay & Soms 2011).

The 100-year, 10-day storm was found to generate the largest detention volume with the exception of basins (B) B8, B14, and B17, in which the 100-year 10-day storm generated the larger detention volume requirements. All detention basins were sized based on the largest determined volume requirement to accommodate both flood flows and hydromodification requirements (see Table 3.10-4).

The off-site main branch of Upper Laguna Creek would be bypassed around the northwest corner of the Cordova Hills site to continue to drain directly into the future Sunridge area, mimicking how this area drains during existing conditions storm events. A proposed 4-foot-tall by 8-foot-wide reinforced concrete box culvert would be required to convey this 100-year runoff combined with the existing conditions runoff from sub-shed L6 beneath Grant Line Road. The on-site Upper Laguna Creek Tributary east of the main branch would continue to flow through the dual 62-inch-diameter CMPs beneath Grant Line Road and into the future SunCreek area, where it then converges with the main branch of Upper Laguna Creek.

Subsheds D9 OR and D19 OR within the unnamed Deer Creek Tributary shed area would be discharging peak storm drainage runoff that is in excess of pipe design capacity (i.e., “Nolte Flows”) directly into the unnamed Deer Creek Tributary rather than into detention basins. An overland release path would be provided for this excess runoff to be drained directly into the receiving water. Only runoff from events less than or equal to the design capacity of the underground pipe system (“Nolte flows”) would be conveyed to basins B8 and B18,

**Table 3.10-4
Modeled Peak Developed Conditions Storm Detention Basin Volume and Size^a**

Detention Basin Number	Flood Control Storage (acre-feet)	Hydromodification Storage (acre-feet)	Total Active Basin Storage (acre-feet)	Basin Size (acres)
Upper Laguna Creek, Main Branch				
B1	9.358	1.9	11.2	1.876
B2	6.254	1.3	7.5	1.173
Upper Laguna Creek Tributary				
B3	7.508	1.5	9.0	1.21
B4	28.19	5.6	33.8	4.33
B5	17.07	3.4	20.5	1.93
Unnamed Deer Creek Tributary^b				
B8 ^c			25.3	3.13
B9			9.1	1.5
B10			4.3	0.69
B11			7.6	1.19
B12			3.1	0.70
B13			8.2	1.27
B14 ^c			21.9	3.17
B15a			10.2	1.62
B15b			6.9	1.08
B16			14.8	2.17
B17 ^c			29.0	5.08
B18			11.6	1.73
B19			34.1	4.76
B32			6.8	1.07
Carson Creek				
B23	1.04	0.2	1.3	0.32
B24	3.95	0.8	4.7	0.73
B25	2.02	0.4	2.4	0.54
B26	1.20	0.2	1.4	0.30
B28	6.78	1.4	8.1	1.1
B29	2.02	0.4	2.4	0.47
B30	7.68	1.5	9.2	1.38

Notes:

^a The volume and 100-year water surface are controlled by the 100-year, 24-hour storm, unless noted.

^b Basins within the unnamed Deer Creek Tributary watershed were modeled with the flow duration control structures (for hydromodification) and associated basin volume/footprint increases incorporated into the model.

^c Denotes that the volume and 100-year water surface are controlled by the 100-year, 10-day storm.

Source: MacKay & Somps 2011:20

respectively, to allow for water quality treatment and appropriate flow duration control. The potential effects of this direct discharge into the receiving waters has been accounted for in adjacent detention basins so as to not increase downstream peak flows for the 10- and 100-year events above existing conditions. Potential effects of hydromodification within the receiving water due to these subsheds would be handled in adjacent basins in a similar fashion through additional flow duration control.

Summer nuisance flows have become an area of concern for Sacramento County. Summer nuisance flows occur during the dry (summer) season and are primarily generated from residential developments by over irrigation of landscaping, washing of vehicles, and other domestic uses that results in water running off of the development.

Ephemeral tributaries that did not typically receive water runoff during the summer could become a perennial tributary due to summer nuisance flows. Sacramento County and USACE have stated that for the Cordova Hills project, an existing ephemeral tributary should not become a perennial tributary after development occurs in the watershed. The Drainage Master Plan has addressed the effects of summer nuisance flows by designing percolation trenches into the detention basins. Summer nuisance flows that exceed the evaporation rate and percolation rate of the wet-water quality basin would be handled through a combination of the following:

- ▶ LID measures to capture and retain runoff throughout the Cordova Hills site,
- ▶ specially designed and constructed percolation boxes connected by small drainage pipes to pre-determined drainage inlets,
- ▶ percolation trenches incorporated into the bottom of detention basins, and
- ▶ installation of drainage facilities in areas of the Cordova Hills site that do not have high groundwater recharge potential.

Summer nuisance flows would be percolated into the ground through specially designed and constructed percolation trenches placed in the bottom of extended duration detention basins. The percolation trenches would be sized to percolate 100 percent of the summer nuisance flows. Four percolation trenches would be installed in basins within the Upper Laguna Creek watershed, and five percolation trenches each would be installed in basins in both the Deer Creek and Carson Creek watersheds (MacKay & Soms 2011:29). Calculations completed in the Drainage Master Plan show that the typical proposed detention basins can reduce the summer nuisance flow to a level that would not result in the conversion of existing ephemeral tributaries to perennial tributaries (MacKay & Soms 2011:29).

In addition to the use of extended duration detention basins, BMPs would be used within the developed areas, such as vegetated swales, infiltration trenches, and constructed wetland filter strips, to manage and treat storm water. Detention in parking areas, streets, paseos, and pedestrian corridors in the form of swales and small basins would also be provided. The primary existing drainage corridors along the Upper Laguna Creek and Deer Creek tributaries would also remain in place because this portion of the Cordova Hills site would remain in permanent open space and would continue to provide natural storage capacity.

County guidelines require that peak storm water flows (measured at the edge of a project) after development of the project (post-development) must not exceed pre-development peak flows.

Results of the HEC-RAS analyses under developed conditions, with and without detention basins, for the 10-year 24-hour, 100-year 24-hour, and 100-year 10-day design storm events for the unnamed Upper Laguna Creek and Deer Creek Tributaries are contained in Appendices I and J, respectively, to the Drainage Master Plan (MacKay & Soms 2011). Results of the SacCalc analyses under development conditions for the 10-year 24-hour, 100-year 24-hour, and 100-year 10-day design storm events for the Carson Creek subsheds are contained in Appendix E to the Drainage Master Plan (MacKay & Soms 2011).

Results of the HEC-RAS and SacCalc analyses contained in the Drainage Master Plan (MacKay & Soms 2011: Appendices E, G, H, I, and J) indicate that peak storm water flows after development of the Proposed Action would not exceed pre-development peak flows.

Conclusion

The proposed detention basins have been designed in such a way that adjustments in detention volumes can be made during final design (or changes in orifice sizes and weir heights) at the tentative map stage to satisfy adopted design standards (which include assuring that the proposed detention basins empty by gravity and that maintenance issues are minimized). The drainage elements and LID features listed above would address drainage, flood control, and hydromodification issues under the Proposed Action.

Modeling performed in the Drainage Master Plan and hydromodification analysis based on the present stage in the Cordova Hills planning process (MacKay & Soms 2012; cbec 2010) indicates that the proposed drainage plan would appropriately convey upstream off-site runoff, would appropriately detain on-site runoff in a manner that effectively meets current stormwater management criteria to acceptable levels, and that release rates from detention basins would be met to appropriately address hydromodification effects.

Since detailed lotting plans at the tentative map level have not yet been prepared, the associated final detailed calculations and plans cannot be prepared at this time.

As part of the CEQA EIR certification and project approval process, the project applicant committed to implementing various conditions of approval for the Proposed Action. The conditions of approval that are applicable to this effect that were incorporated into the Proposed Action Proposed Action by the EIR mitigation measures, conditions of approval, and development agreement (project entitlements) are listed below:

- ▶ Coincident with the approval of the improvement plans, provide drainage easements as needed and pay any fee required by the SCWA Code. Install facilities pursuant to the Sacramento County Floodplain Management Ordinance, SCWA Code, approved Drainage Master Plan, and Sacramento County Improvement Standards. All basins and channel alignments are contingent upon development interest. Any SCWA funding is contingent upon a need by SCWA, pursuant to title 2 of the SCWA Code. All drainage studies are subject to alternative analyses. Basin land shall not be credited within the Zone 11A fee program. (*Large Lot Tentative Map Condition of Approval*)
- ▶ The Sacramento County Department of Water Resources shall require an approved drainage study incorporating all the items contained in the latest version of the document “County of Sacramento Department Of Water Resources Drainage Development and Hydrology Section, Drainage Study Requirements” and all the requirements listed in the Sacramento County Drainage Improvement Standards, prior to recordation of the large lot map. The study shall describe permanent stormwater quality treatment facilities capable of

treating stormwater to the satisfaction of Sacramento County Department of Water Resources groundwater engineering for infiltration into the Mehrten Formation. The study must also identify, to the satisfaction of the Sacramento County Department of Water Resources, hydromodification mitigation measures and flood detention facilities, to be implemented by the Cordova Hills development, in conformance with applicable County ordinances and standards, and state and Federal law. (*Large Lot Tentative Map Condition of Approval*)

- ▶ An existing condition (preproject) LOMR, must be approved by FEMA prior to recordation of the first large lot final map, approval of improvement plans, or grading plans, whichever comes first. (*Large Lot Tentative Map Condition of Approval*)
- ▶ A CLOMR must be approved by FEMA for proposed development prior to approval of improvement plans, or grading plans, whichever comes first. Afterwards, a submittal to FEMA for a LOMR is required prior to final map recordation. The development related CLOMR/LOMR process may be tied to the scope of the development phases with Sacramento County Department of Water Resources approval. (*Large Lot Tentative Map Condition of Approval*)
- ▶ An approved LOMR for the developed condition shall be required prior to Building Permit issuance. (*Large Lot Tentative Map Condition of Approval*)
- ▶ Prior to the first large lot map recordation, annex to the County of Sacramento Stormwater Utility District pursuant to the Sacramento County Water Agency Code, and the Sacramento County Improvement Standards. (*Large Lot Tentative Map Condition of Approval*)
- ▶ There shall be no net loss of storage for any fill placed within the 100-year floodplain without in-kind excavation, unless documented and approved through the submittal and review of a comprehensive drainage study. (*Large Lot Tentative Map Condition of Approval*)

Because the project applicant has prepared a drainage plan to demonstrate that drainage and hydromodification issues would be appropriately addressed under the Proposed Action at the present level of planning, and because the above-listed conditions of approval have been incorporated into the Proposed Action requiring a final drainage study prior to recordation of large-lot subdivision maps, implementation of the Proposed Action would result in **less-than-significant, indirect** and **direct** effects related to stormwater runoff and the subsequent risk of flooding and/or hydromodification. No mitigation measures were identified to further reduce these effects.

EDP, EP

Implementation of the Expanded Drainage Preservation and Expanded Preservation Alternatives would entail development on approximately 1,661 and 1,420 acres of previously undeveloped land, respectively. The increase in impervious surface under these alternatives would increase the peak discharge rate of stormwater runoff generated on the Cordova Hills site. However, the amount of stormwater runoff would be lower under the Expanded Drainage Preservation and Expanded Preservation Alternatives than under the Proposed Action because of the decreased development areas (approximately 17 percent and 29 percent less than the Proposed Action, respectively) and associated decreases in impervious surfaces of residential and commercial land uses.

Drainage exhibits illustrating the conceptual locations of proposed detention basins under the Expanded Drainage Preservation and Expanded Preservation Alternatives are shown in Exhibits 2-16 and 2-20 in Chapter 2, “Description of the Proposed Action and Alternatives.”

To eliminate any flow increase, exceedances of the capacity (peak flow) of existing or planned stormwater drainage systems, or unacceptable hydromodification caused by development of the Expanded Drainage Preservation and Expanded Preservation Alternatives to Upper Laguna Creek, the Deer Creek tributary, or the Carson Creek tributaries, stormwater detention facilities and basin outlet control devices would have to be sized and constructed to maintain peak storm flows at no greater than the level existing before development. However, no modeling has been performed nor have stormwater drainage or conveyance plans been prepared or submitted to Sacramento County for review and approval for either the Expanded Drainage Preservation or Expanded Preservation Alternative. Therefore, this **indirect** and **direct** effect related to stormwater runoff and the subsequent risk of flooding and/or hydromodification is considered **potentially significant**. *[Lesser]*

As part of the CEQA EIR certification and project approval process, various conditions of approval were incorporated into the project entitlements. Because these conditions of approval were incorporated into the Proposed Action, it is reasonable to assume that they would also be incorporated into the four action alternatives, if any of those alternatives were adopted. The conditions of approval that are applicable to this effect that were incorporated into the Proposed Action by the project entitlements are listed below:

- ▶ Coincident with the approval of the improvement plans, provide drainage easements as needed and pay any fee required by the SCWA Code. Install facilities pursuant to the Sacramento County Floodplain Management Ordinance, SCWA Code, approved Drainage Master Plan, and Sacramento County Improvement Standards. All basins and channel alignments are contingent upon development interest. Any SCWA funding is contingent upon a need by SCWA, pursuant to title 2 of the SCWA Code. All drainage studies are subject to alternative analyses. Basin land shall not be credited within the Zone 11A fee program. *(Large Lot Tentative Map Condition of Approval)*
- ▶ The Sacramento County Department of Water Resources shall require an approved drainage study incorporating all the items contained in the latest version of the document *County of Sacramento Department Of Water Resources Drainage Development and Hydrology Section, Drainage Study Requirements* and all the requirements listed in the Sacramento County Drainage Improvement Standards, prior to recordation of the large lot map. The study shall describe permanent stormwater quality treatment facilities capable of treating stormwater to the satisfaction of Sacramento County Department of Water Resources groundwater engineering for infiltration into the Mehrten Formation. The study must also identify, to the satisfaction of the Sacramento County Department of Water Resources, hydromodification mitigation measures and flood detention facilities, to be implemented by the Cordova Hills development, in conformance with applicable County ordinances and standards, and state and Federal law. *(Large Lot Tentative Map Condition of Approval)*
- ▶ An existing condition (preproject) LOMR, must be approved by FEMA prior to recordation of the first large lot final map, approval of improvement plans, or grading plans, whichever comes first. *(Large Lot Tentative Map Condition of Approval)*

- ▶ A CLOMR must be approved by FEMA for proposed development prior to approval of improvement plans, or grading plans, whichever comes first. Afterwards, a submittal to FEMA for a LOMR is required prior to final map recordation. The development related CLOMR/LOMR process may be tied to the scope of the development phases with Sacramento County Department of Water Resources approval. (*Large Lot Tentative Map Condition of Approval*)
- ▶ An approved LOMR for the developed condition shall be required prior to Building Permit issuance. (*Large Lot Tentative Map Condition of Approval*)
- ▶ Prior to the first large lot map recordation, annex to the County of Sacramento Stormwater Utility District pursuant to the Sacramento County Water Agency Code, and the Sacramento County Improvement Standards. (*Large Lot Tentative Map Condition of Approval*)

There shall be no net loss of storage for any fill placed within the 100-year floodplain without in-kind excavation, unless documented and approved through the submittal and review of a comprehensive drainage study. (*Large Lot Tentative Map Condition of Approval*) Implementation of the above-listed conditions of approval would reduce the significant effects associated with increased risk of flooding and hydromodification from increased stormwater runoff to a **less-than-significant** level under the Expanded Drainage Preservation and Expanded Preservation Alternatives because the project applicant would demonstrate to the appropriate regulatory agency that the project would conform with applicable state and local regulations regulating surface water runoff, including the procedures outlined in the *Sacramento City/County Drainage Manual* (Sacramento County Department of Water Resources 2006), which are designed to meet or exceed applicable state and local regulations pertaining to stormwater runoff. Specific design standards as required in this mitigation measure would, when implemented, provide flood protection to meet FEMA 100-year (0.01 AEP) flood protection criteria, would safely convey on-site and off-site flows through the Cordova Hills and Pilatus sites, would reduce the effects of hydromodification on stream channel geomorphology, and would prevent substantial increased flood hazard on downstream areas by limiting peak discharges of flood flows to levels that would be at or below pre-project conditions. No mitigation measures were identified to further reduce these effects.

P

Implementation of the Pilatus Alternative would entail development on approximately 2,495 acres of previously undeveloped land. The increase in impervious surface under the Pilatus Alternative would increase the peak discharge rate of stormwater runoff generated on the Cordova Hills and Pilatus sites. The amount of stormwater runoff would be higher under the Pilatus Alternative than under the Proposed Action because of the increased development area (approximately 26 percent greater than the Proposed Action) and associated increases in impervious surfaces of residential and commercial land uses.

A drainage exhibit illustrating the conceptual locations of proposed detention basins under the Pilatus Alternative is shown in Exhibit 2-24 in Chapter 2, “Description of the Proposed Action and Alternatives.” In addition to the detention basins and conveyance facilities on the Cordova Hills site, an estimated eight additional detention basins would have to be constructed on the northern portion of the Pilatus site along the Deer Creek tributary.

To eliminate any flow increase, exceedances of the capacity (peak flow) of existing or planned stormwater drainage systems, or unacceptable hydromodification caused by development of the Pilatus Alternative to Upper Laguna Creek, the Deer Creek tributary, or the Carson Creek tributaries, stormwater detention facilities and basin

outlet control devices would have to be sized constructed to maintain peak storm flows at no greater than the level existing before development. In addition, an entirely new and additional drainage and conveyance system would have to be constructed for the northern portion of the Pilatus site. No modeling has been performed nor have stormwater drainage or conveyance plans been prepared or submitted to Sacramento County for review and approval for the Pilatus Alternative. Therefore, this **direct** and **indirect** effect is considered **potentially significant**. *[Greater]*

As part of the CEQA EIR certification and project approval process, various conditions of approval were incorporated into the project entitlements. Because these conditions of approval were incorporated into the Proposed Action, it is reasonable to assume that they would also be incorporated into the four action alternatives, if any of those alternatives were adopted. The conditions of approval that are applicable to this effect that were incorporated into the Proposed Action by the project entitlements are listed below:

- ▶ Coincident with the approval of the improvement plans, provide drainage easements as needed and pay any fee required by the SCWA Code. Install facilities pursuant to the Sacramento County Floodplain Management Ordinance, SCWA Code, approved Drainage Master Plan, and Sacramento County Improvement Standards. All basins and channel alignments are contingent upon development interest. Any SCWA funding is contingent upon a need by SCWA, pursuant to title 2 of the SCWA Code. All drainage studies are subject to alternative analyses. Basin land shall not be credited within the Zone 11A fee program. *(Large Lot Tentative Map Condition of Approval)*
- ▶ The Sacramento County Department of Water Resources shall require an approved drainage study incorporating all the items contained in the latest version of the document *County of Sacramento Department Of Water Resources Drainage Development and Hydrology Section, Drainage Study Requirements* and all the requirements listed in the Sacramento County Drainage Improvement Standards, prior to recordation of the large lot map. The study shall describe permanent stormwater quality treatment facilities capable of treating stormwater to the satisfaction of Sacramento County Department of Water Resources groundwater engineering for infiltration into the Mehrten Formation. The study must also identify, to the satisfaction of the Sacramento County Department of Water Resources, hydromodification mitigation measures and flood detention facilities, to be implemented by the Cordova Hills development, in conformance with applicable County ordinances and standards, and state and Federal law. *(Large Lot Tentative Map Condition of Approval)*
- ▶ An existing condition (preproject) LOMR, must be approved by FEMA prior to recordation of the first large lot final map, approval of improvement plans, or grading plans, whichever comes first. *(Large Lot Tentative Map Condition of Approval)*
- ▶ A CLOMR must be approved by FEMA for proposed development prior to approval of improvement plans, or grading plans, whichever comes first. Afterwards, a submittal to FEMA for a LOMR is required prior to final map recordation. The development related CLOMR/LOMR process may be tied to the scope of the development phases with Sacramento County Department of Water Resources approval. *(Large Lot Tentative Map Condition of Approval)*
- ▶ An approved LOMR for the developed condition shall be required prior to Building Permit issuance. *(Large Lot Tentative Map Condition of Approval)*

- ▶ Prior to the first large lot map recordation, annex to the County of Sacramento Stormwater Utility District pursuant to the Sacramento County Water Agency Code, and the Sacramento County Improvement Standards. (*Large Lot Tentative Map Condition of Approval*)
- ▶ There shall be no net loss of storage for any fill placed within the 100-year floodplain without in-kind excavation, unless documented and approved through the submittal and review of a comprehensive drainage study. (*Large Lot Tentative Map Condition of Approval*)

Implementation of the above-listed conditions of approval would reduce the significant effects associated with increased risk of flooding and hydromodification from increased stormwater runoff to a **less-than-significant** level under the Pilatus Alternative because the project applicant would demonstrate to the appropriate regulatory agency that the project would conform with applicable state and local regulations regulating surface water runoff, including the procedures outlined in the *Sacramento City/County Drainage Manual* (Sacramento County Department of Water Resources 2006), which are designed to meet or exceed applicable state and local regulations pertaining to stormwater runoff. Specific design standards as required in this mitigation measure would, when implemented, provide flood protection to meet FEMA 100-year (0.01 AEP) flood protection criteria, would safely convey on-site and off-site flows through the Cordova Hills and Pilatus sites, would reduce the effects of hydromodification on stream channel geomorphology, and would prevent substantial increased flood hazard on downstream areas by limiting peak discharges of flood flows to levels that would be at or below pre-project conditions. No mitigation measures were identified to further reduce these effects.

RC

Implementation of the Regional Conservation Alternative would entail development on approximately 1,969 acres of previously undeveloped land (as compared to approximately 1,981 under the Proposed Action). The increase in impervious surfaces that would be created under the Regional Conservation Alternative would increase the peak discharge rate of stormwater runoff generated on the Cordova Hills site. However, the amount of stormwater runoff would be substantially the same under the Regional Conservation Alternative as under the Proposed Action because of the similarly sized development area.

A drainage exhibit illustrating the conceptual locations of proposed detention basins under the Regional Conservation Alternative is shown in Exhibit 2-28 in Chapter 2, “Description of the Proposed Action and Alternatives.”

To eliminate any flow increase, exceedances of the capacity (peak flow) of existing or planned stormwater drainage systems, or unacceptable hydromodification caused by development of the Regional Conservation Alternative to Upper Laguna Creek, Deer Creek, or Carson Creek, stormwater detention facilities and basin outlet control devices would have to be sized and constructed to maintain peak storm flows at no greater than the level existing before development. However, no modeling has been performed nor have stormwater drainage or conveyance plans been prepared or submitted to Sacramento County for review and approval for the Regional Conservation Alternative. Therefore, this **direct** and **indirect** effect is considered **potentially significant**.

[Similar]

As part of the CEQA EIR certification and project approval process, various conditions of approval were incorporated into the project entitlements. Because these conditions of approval were incorporated into the Proposed Action, it is reasonable to assume that they would also be incorporated into the four action alternatives,

if any of those alternatives were adopted. The conditions of approval that are applicable to this effect that were incorporated into the Proposed Action by the project entitlements are listed below:

- ▶ Coincident with the approval of the improvement plans, provide drainage easements as needed and pay any fee required by the SCWA Code. Install facilities pursuant to the Sacramento County Floodplain Management Ordinance, SCWA Code, approved Drainage Master Plan, and Sacramento County Improvement Standards. All basins and channel alignments are contingent upon development interest. Any SCWA funding is contingent upon a need by SCWA, pursuant to title 2 of the SCWA Code. All drainage studies are subject to alternative analyses. Basin land shall not be credited within the Zone 11A fee program. *(Large Lot Tentative Map Condition of Approval)*
- ▶ The Sacramento County Department of Water Resources shall require an approved drainage study incorporating all the items contained in the latest version of the document *County of Sacramento Department Of Water Resources Drainage Development and Hydrology Section, Drainage Study Requirements* and all the requirements listed in the Sacramento County Drainage Improvement Standards, prior to recordation of the large lot map. The study shall describe permanent stormwater quality treatment facilities capable of treating stormwater to the satisfaction of Sacramento County Department of Water Resources groundwater engineering for infiltration into the Mehrten Formation. The study must also identify, to the satisfaction of the Sacramento County Department of Water Resources, hydromodification mitigation measures and flood detention facilities, to be implemented by the Cordova Hills development, in conformance with applicable County ordinances and standards, and state and Federal law. *(Large Lot Tentative Map Condition of Approval)*
- ▶ An existing condition (preproject) LOMR, must be approved by FEMA prior to recordation of the first large lot final map, approval of improvement plans, or grading plans, whichever comes first. *(Large Lot Tentative Map Condition of Approval)*
- ▶ A CLOMR must be approved by FEMA for proposed development prior to approval of improvement plans, or grading plans, whichever comes first. Afterwards, a submittal to FEMA for a LOMR is required prior to final map recordation. The development related CLOMR/LOMR process may be tied to the scope of the development phases with Sacramento County Department of Water Resources approval. *(Large Lot Tentative Map Condition of Approval)*
- ▶ An approved LOMR for the developed condition shall be required prior to Building Permit issuance. *(Large Lot Tentative Map Condition of Approval)*
- ▶ Prior to the first large lot map recordation, annex to the County of Sacramento Stormwater Utility District pursuant to the Sacramento County Water Agency Code, and the Sacramento County Improvement Standards. *(Large Lot Tentative Map Condition of Approval)*
- ▶ There shall be no net loss of storage for any fill placed within the 100-year floodplain without in-kind excavation, unless documented and approved through the submittal and review of a comprehensive drainage study. *(Large Lot Tentative Map Condition of Approval)*

Implementation of the above-listed conditions of approval would reduce the significant effects associated with increased risk of flooding and hydromodification from increased stormwater runoff to a **less-than-significant**

level under the Regional Conservation Alternative because the project applicant would demonstrate to the appropriate regulatory agency that the project would conform with applicable state and local regulations regulating surface water runoff, including the procedures outlined in the *Sacramento City/County Drainage Manual* (Sacramento County Department of Water Resources 2006), which are designed to meet or exceed applicable state and local regulations pertaining to stormwater runoff. Specific design standards as required in this mitigation measure would, when implemented, provide flood protection to meet FEMA 100-year (0.01 AEP) flood protection criteria, would safely convey on-site and off-site flows through the Cordova Hills and Pilatus sites, would reduce the effects of hydromodification on stream channel geomorphology, and would prevent substantial increased flood hazard on downstream areas by limiting peak discharges of flood flows to levels that would be at or below pre-project conditions. No mitigation measures were identified to further reduce these effects.

EFFECT **Long-Term Operational Water Quality and Hydrology Effects from Urban Runoff.** *Project*
3.10-3 *implementation would convert a large area of largely undeveloped land to residential and commercial*
uses, thereby changing the amount and timing of potential long-term operational pollutant discharges in
stormwater and other urban runoff to both on- and off-site drainages.

NA

Under the No Action Alternative, the Cordova Hills site would not be developed and there would be no changes in long-term water quality and hydrology relating to runoff. Thus, there would be **no indirect** or **direct** effects under the No Action Alternative. *[Lesser]*

Mitigation Measure: No mitigation measures are required.

PA

Surface water quality throughout the region is threatened by development, stormwater runoff, and increased diversions into both surface and sub-surface sources. New developments, infrastructure improvements, redevelopment projects of existing land uses, and comprehensive planning efforts in master planned new growth areas are described in the Sacramento County General Plan as having an effect on water quality by both reducing potential supply as well as creating a source for increased pollutant runoff. Development of the Proposed Action would result in the conversion of primarily undeveloped land to urban land uses, which would alter the types, quantities, and timing of contaminant discharges in stormwater runoff. Development of the Proposed Action would result in changes to land use, natural vegetation, and infiltration characteristics of the Cordova Hills site and would introduce new sources of water pollutants, thereby producing “urban runoff.” Pollutants contained within urban runoff may include but are not limited to sediment, oxygen-demanding substances (e.g., organic matter), nutrients (primarily nitrogen and phosphorus), heavy metals, bacteria, oil and grease, and toxic chemicals, all of which can degrade receiving water quality.

Overall, the potential for the Proposed Action to cause or contribute to long-term discharges of urban contaminants (e.g., oil and grease, fuel, trash) into the stormwater drainage system and ultimate receiving waters would increase compared to existing conditions. Some contaminants associated with existing on-site agricultural activities (e.g., sediment, nutrients, pathogens, and agricultural chemicals) would decrease as these uses are phased out during development. The potential discharges of contaminated urban runoff from paved and

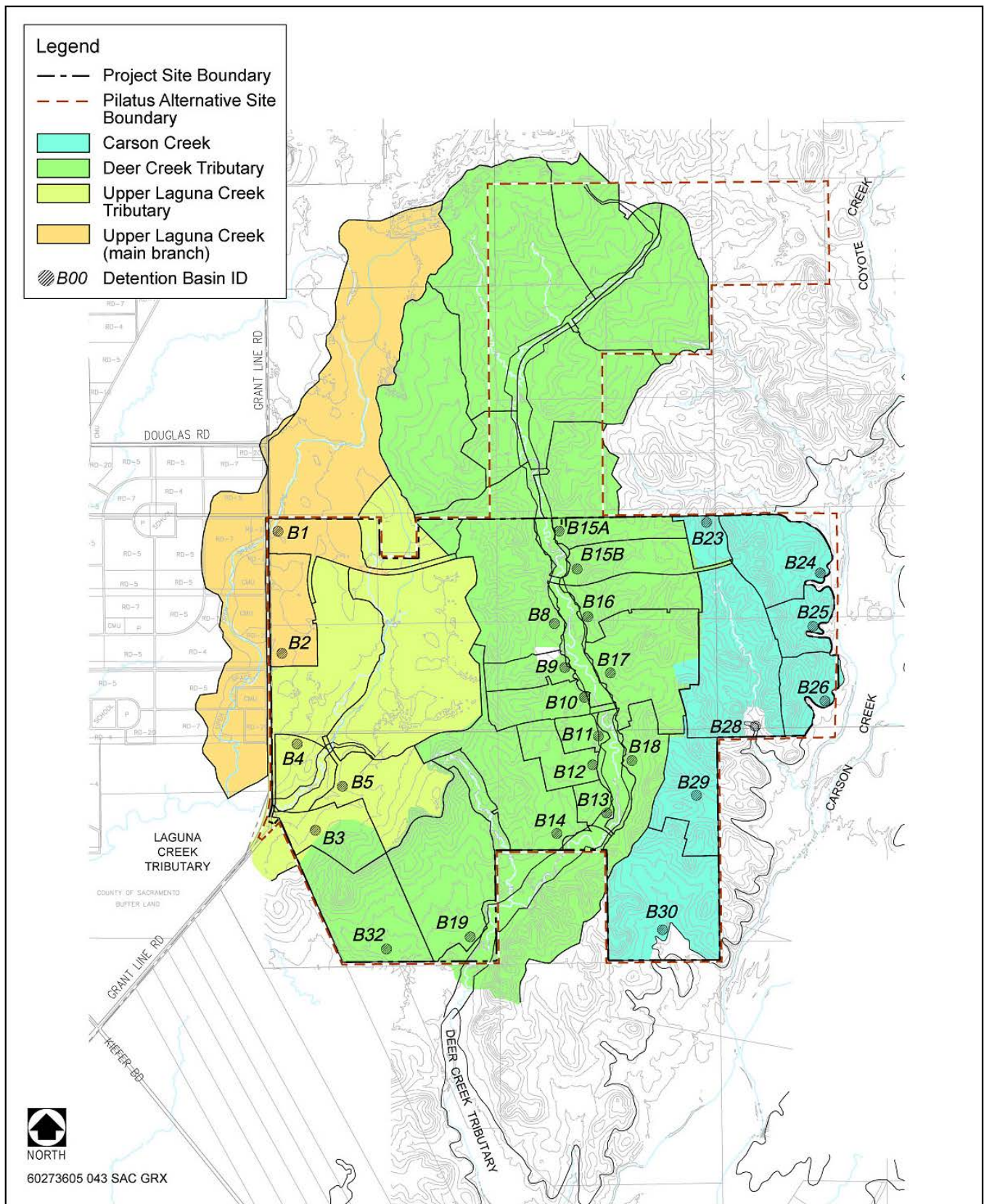
landscaped areas could increase or could cause or contribute to adverse effects on aquatic organisms in receiving waters. New residential uses within the Cordova Hills site would generate urban runoff from streets, driveways, and parking areas. Landscaped areas may produce fertilizer wastes and/or bacterial contamination from animal excrement. New commercial development can generate urban runoff from parking areas as well as any areas of hazardous materials storage exposed to rainfall.

Urban contaminants typically accumulate during the dry season and may be washed off when adequate rainfall returns in the fall to produce a “first flush” of runoff. The amount of contaminants discharged in stormwater drainage from developed areas varies based on a variety of factors, including the intensity of urban uses such as vehicle traffic, types of activities occurring on site (e.g., residential vs. commercial), types of contaminants used on site (e.g., pesticides, herbicides, cleaning agents, or petroleum byproducts), contaminants deposited on paved surfaces, and the amount of rainfall.

Several policies have also been incorporated into the *Cordova Hills Master Plan* (2012:4-48) to protect water quality during operations:

- ▶ Provide drainage easements and install facilities pursuant to the Sacramento County Floodplain Management Ordinance, Sacramento County Water Agency Code, and Sacramento County Improvement Standards, including any fee required by the Sacramento County Water Agency Code. Label the private drainage system on the improvement plans and provide a copy of an approved and executed private maintenance covenant to the Sacramento County Department of Water Resources.
- ▶ If the total area of the developed or redeveloped impervious surfaces (building rooftop, flat work, and parking areas) equals or exceeds 1.0 acres, incorporate permanent stormwater quality treatment measures in conformance with applicable County ordinances and standards, and state and Federal law.

The *Cordova Hills Master Plan* (2012:2-8 through 2-12, 8-14 through 8-16) describes that stormwater and other drainage would be carried in subsurface pipes to the detention basins throughout the Cordova Hills site where it would be treated prior to release. Detention facilities would be located as shown in Exhibit 2-10 (in Chapter 2, “Description of the Proposed Action and Alternatives) and in Exhibit 3.10-3, where they would intercept runoff from the adjacent development areas before the water enters the proposed preserve areas. Stormwater quality features would be designed to reflect the water volumes, terrain, and specific conditions at each site. Storm water and urban nuisance run-off water would be detained in multipurpose water quality treatment basins prior to release to the open space drainage corridor. Bio-filtration would typically involve marshy areas and grass swales that trap pollutants. The detention/water quality basins may incorporate permanent wet basins in the design. Storm water quality would be addressed through a combination of at-the-source treatment via LID measures and water quality treatment basins at the point of discharge to regulated waters. LID components that have localized detention and water quality benefits would be incorporated. These include detention in parking areas and the streets, paseos, and pedestrian corridors that include vegetated swales and small basins. Water quality and detention features would be integrated with parking areas and site landscaping where feasible and soils permit. In addition, all facilities that discharge water to the proposed preserve areas would be designed to avoid soil erosion through the use of velocity dissipation devices and other erosion controls.



Source: MacKay & Soms 2011, Adapted by AECOM in 2013

Exhibit 3.10-3

Post-Development Watershed Map

**Table 3.10-5
Cordova Hills Site Water Quality Basins and Volumes**

Basin Number	Basin Shed	Total Basin Area (acres)	Water Quality Volume Dry (acre-feet)	Water Quality Volume Wet (acre-feet)
B23	C6b	25.19	0.63	0.79
B24	C7d	92.30	2.31	2.88
B25	C8d	42.82	0.96	1.20
B26	C9e	47.91	1.12	1.40
B28	C10i	169.79	4.81	6.01
B29	C11e	79.02	2.50	3.13
B30	C12j	169.14	4.51	5.64
B8	D12e	147.76	4.93	6.16
B9	D14c	33.57	0.84	1.05
B10	D16d	47.81	1.59	1.99
B11	D18b	19.70	0.57	0.72
B12	D20d	43.01	1.76	2.20
B13	D23b	19.44	0.50	0.63
B14	D25j	129.89	5.95	7.44
B15a	D11b	40.91	1.40	1.75
B15b	D11d	60.37	1.66	2.08
B16	D13d	64.69	2.26	2.83
B17	D15i	131.80	4.39	5.49
B18	D19f	64.01	2.24	2.80
B19	D31i	157.51	4.46	5.58
B31	D32	95.02	0.63	0.79
B1	L6g	58.3	3.60	4.49
B2	L7b	63.5	4.02	5.03
B4	L4h	171.6	6.72	8.40
B5	L3d	98.4	3.61	4.51
B6	L9e	62.8	1.20	1.50
Totals		2136.26	69.17	86.49

Notes: B = basin number; C = Carson Creek subshed; D = Deer Creek subshed; L = Laguna Creek subshed
Source: MacKay & Somps 2012:25

Table 3.10-5 shows the preliminary water quality volumes required within each proposed detention basin. The final water quality basin sizing and design configuration for each watershed would be determined during the final design stages (i.e., when small-lot tentative subdivision maps and/or improvement plans are submitted). The water quality treatment volumes are based on wet basin design parameters identified in the *Stormwater Quality Design Manual for the Sacramento and South Placer Regions* (SSQP 2007), which is designed as ‘dead storage’ located below the flow line of the outlet works of each basin and as such is additive to the flood control and hydromodification volume requirements.

Water quality BMPs such as vegetated swales, constructed wetlands, and infiltration trenches, including the water quality component of the detention basins shown in Table 3.10-5 for the Proposed Action, have been shown to be successful in controlling water quality and avoiding water quality effects (SSQP 2007:VS-1, CWB-1, IT-1, DB-1). Pollutants are removed from stormwater in detention basins through gravitational settling and biological processes depending on the type of basin. Some basins may incorporate permanent wet detention which may enhance pollutant removal through biological and chemical processes (SSQP 2007:DB-2).

Since detailed lotting plans at the tentative map level have not yet been prepared, the associated final detailed water quality calculations and plans cannot be prepared at this time.

As part of the CEQA EIR certification and project approval process, the project applicant committed to implementing various mitigation measures and conditions of approval for the Proposed Action. The mitigation measures and conditions of approval that are applicable to this effect that were incorporated into the Proposed Action by the EIR mitigation measures, conditions of approval, and development agreement (project entitlements) are listed below:

- ▶ If construction activities encroach within the 250-foot buffer for vernal pools 358, 363, 370, 426 or 511 the applicant shall prepare a pesticide and pollution prevention plan. The plan shall include measures to reduce pollution run-off, pesticide drift, and other similar potential contaminants, to protect surrounding preserve areas from urban contaminants. Measures shall include the implementation of best management practices (e.g. straw wattles, silt fencing, and soil stabilization) for stormwater control. The plan shall be incorporated in the Operations and Management Plan which is a requirement of the Section 404 permit process. (*Final EIR Mitigation Measure BR-8*)
- ▶ Coincident with the approval of the improvement plans, provide drainage easements as needed and pay any fee required by the SCWA Code. Install facilities pursuant to the Sacramento County Floodplain Management Ordinance, SCWA Code, approved Drainage Master Plan, and Sacramento County Improvement Standards. All basins and channel alignments are contingent upon development interest. Any SCWA funding is contingent upon a need by SCWA, pursuant to title 2 of the SCWA Code. All drainage studies are subject to alternative analyses. Basin land shall not be credited within the Zone 11A fee program. (*Large Lot Tentative Map Condition of Approval*)
- ▶ The Sacramento County Department of Water Resources shall require an approved drainage study incorporating all the items contained in the latest version of the document “County of Sacramento Department of Water Resources Drainage Development and Hydrology Section, Drainage Study Requirements” and all the requirements listed in the Sacramento County Drainage Improvement Standards, prior to recordation of the large lot map. The study shall describe permanent stormwater quality treatment facilities capable of treating stormwater to the satisfaction of Sacramento County Department of Water Resources groundwater engineering for infiltration into the Mehrten Formation. The study must also identify, to the satisfaction of the Sacramento County Department of Water Resources, hydromodification mitigation measures and flood detention facilities, to be implemented by the Cordova Hills development, in conformance with applicable County ordinances and standards, and state and Federal law. (*Large Lot Tentative Map Condition of Approval*)

- ▶ Provide a permanent concrete stamp, or other permanently applied message to the satisfaction of Sacramento County Department of Water Resources not including paint, which reads “No Dumping-Flows to Creek” or other approved message at each storm drain inlet in the site improvement plans. (*Large Lot Tentative Map Condition of Approval*)

Because the project applicant has prepared a drainage plan to demonstrate that water quality issues would be appropriately addressed under the Proposed Action at the present level of planning, and because Final Mitigation Measure BR-8 and the above-listed conditions of approval have been incorporated into the Proposed Action requiring a final drainage study prior to recordation of large-lot subdivision maps along with a pesticide and pollution prevention plan, implementation of the Proposed Action would result in **less-than-significant, indirect** effects related to long-term operational water quality. Other **indirect** water quality effects to wetlands and special-status species are evaluated in Section 3.4, “Biological Resources.” **No direct** effects would occur. No other mitigation measures were identified to further reduce these effects.

EDP, EP

The amount of contaminants discharged in stormwater drainage would likely be lower under the Expanded Drainage Preservation and Expanded Preservation Alternatives than under the Proposed Action because of the decreased acreage (approximately 16 percent and 28 percent less than the Proposed Action, respectively) and overall amount (e.g., number of dwelling units) of residential land uses. Further, the contaminant amounts would likely be lower under these alternatives as compared to the Proposed Action, because each would result in a reduced acreage of commercial land uses.

Drainage exhibits illustrating conceptual locations of proposed detention basins under the Expanded Drainage Preservation and Expanded Preservation Alternatives are shown in Exhibits 2-16 and 2-20 in Chapter 2, “Description of the Proposed Action and Alternatives.”

However, because water quality calculations, and design plans and specifications related to water quality facilities have not been prepared or submitted to or approved by the County (in order to obtain building permits), implementation of the Expanded Drainage Preservation and Expanded Preservation Alternatives could result in **potentially significant, indirect** effects related to the potential for contaminants to enter receiving waters, thus resulting in adverse effects from long-term urban runoff. Other **indirect** water quality effects to wetlands and special-status species are evaluated in Section 3.4, “Biological Resources.” **No direct** effects would occur.

[Lesser]

As part of the CEQA EIR certification and project approval process, various mitigation measures and conditions of approval were incorporated into the project entitlements. Because these mitigation measures and conditions of approval were incorporated into the Proposed Action, it is reasonable to assume that they would also be incorporated into the four action alternatives, if any of those alternatives were adopted. The mitigation measures and conditions of approval that are applicable to this effect that were incorporated into the Proposed Action by the project entitlements are listed below:

- ▶ If construction activities encroach within the 250-foot buffer for vernal pools 358, 363, 370, 426 or 511 the applicant shall prepare a pesticide and pollution prevention plan. The plan shall include measures to reduce pollution run-off, pesticide drift, and other similar potential contaminates, to protect surrounding preserve areas from urban contaminates. Measures shall include the implementation of best management practices (e.g.

straw wattles, silt fencing, and soil stabilization) for stormwater control. The plan shall be incorporated in the Operations and Management Plan which is a requirement of the Section 404 permit process. (*Final EIR Mitigation Measure BR-8*)

- ▶ Coincident with the approval of the improvement plans, provide drainage easements as needed and pay any fee required by the SCWA Code. Install facilities pursuant to the Sacramento County Floodplain Management Ordinance, SCWA Code, approved Drainage Master Plan, and Sacramento County Improvement Standards. All basins and channel alignments are contingent upon development interest. Any SCWA funding is contingent upon a need by SCWA, pursuant to title 2 of the SCWA Code. All drainage studies are subject to alternative analyses. Basin land shall not be credited within the Zone 11A fee program. (*Large Lot Tentative Map Condition of Approval*)
- ▶ The Sacramento County Department of Water Resources shall require an approved drainage study incorporating all the items contained in the latest version of the document “County of Sacramento Department of Water Resources Drainage Development and Hydrology Section, Drainage Study Requirements” and all the requirements listed in the Sacramento County Drainage Improvement Standards, prior to recordation of the large lot map. The study shall describe permanent stormwater quality treatment facilities capable of treating stormwater to the satisfaction of Sacramento County Department of Water Resources groundwater engineering for infiltration into the Mehrten Formation. The study must also identify, to the satisfaction of the Sacramento County Department of Water Resources, hydromodification mitigation measures and flood detention facilities, to be implemented by the Cordova Hills development, in conformance with applicable County ordinances and standards, and state and Federal law. (*Large Lot Tentative Map Condition of Approval*)

Provide a permanent concrete stamp, or other permanently applied message to the satisfaction of Sacramento County Department of Water Resources not including paint, which reads “No Dumping-Flows to Creek” or other approved message at each storm drain inlet in the site improvement plans. (*Large Lot Tentative Map Condition of Approval*) Implementation of Final EIR Mitigation Measure BR-8 along with the above-listed conditions of approval would reduce the potentially significant long-term water quality effects of urban runoff to a **less-than-significant** level under the Expanded Drainage Preservation and Expanded Preservation Alternatives because the project applicant would develop and implement a BMP and water quality maintenance plan that would demonstrate to Sacramento County that the project would conform to applicable state and local regulations restricting surface water runoff including the *Stormwater Quality Design Manual for the Sacramento and South Placer Regions* (SSQP 2007) and the *Hydromodification Management Plan* (SSQP 2011). The permanent BMPs proposed for the stormwater treatment system and described in detail in the Stormwater Quality Design Manual have been shown to be effective in reducing contaminant levels in urban runoff if designed, constructed, and maintained properly (EPA 1999, California Stormwater Quality Association 2009) (see Table 3.10-6). No other mitigation measures were identified to further reduce these effects.

P

The amount of contaminants discharged in stormwater drainage would be higher under the Pilatus Alternative than under the Proposed Action because of the increased acreage (approximately 26 percent greater than the Proposed Action) and overall amount (e.g., number of dwelling units) of residential land uses. Further, the

contaminant amounts would likely be higher than the Proposed Action, because this alternative would result in a substantially higher acreage of commercial land uses.

A drainage exhibit illustrating conceptual locations of proposed detention basins under the Pilatus Alternative is shown in Exhibits 2-24 in Chapter 2, "Description of the Proposed Action and Alternatives." In addition to the detention basins and conveyance facilities on the Pilatus site, an estimated eight additional detention basins would have to be constructed on the northern portion of the Pilatus site along the Deer Creek tributary.

However, because water quality calculations, and design plans and specifications related to water quality facilities have not been prepared or submitted to or approved by the County, implementation of the Pilatus Alternative could result in **potentially significant, indirect** effects related to the potential for contaminants to enter receiving waters, thus resulting in adverse effects from long-term urban runoff. Other **indirect** water quality effects to wetlands and special-status species are evaluated in Section 3.4, "Biological Resources." **No direct** effects would occur. *[Greater]*

As part of the CEQA EIR certification and project approval process, various mitigation measures and conditions of approval were incorporated into the project entitlements. Because these mitigation measures and conditions of approval were incorporated into the Proposed Action, it is reasonable to assume that they would also be incorporated into the four action alternatives, if any of those alternatives were adopted. The mitigation measures and conditions of approval that are applicable to this effect that were incorporated into the Proposed Action by the project entitlements are listed below:

- ▶ If construction activities encroach within the 250-foot buffer for vernal pools 358, 363, 370, 426, or 511 the project applicant shall prepare a pesticide and pollution prevention plan. The plan shall include measures to reduce pollution run-off, pesticide drift, and other similar potential contaminants, to protect surrounding preserve areas from urban contaminants. Measures shall include the implementation of best management practices (e.g. straw wattles, silt fencing, and soil stabilization) for stormwater control. The plan shall be incorporated in the Operations and Management Plan which is a requirement of the Section 404 permit process. *(Final EIR Mitigation Measure BR-8)*
- ▶ Coincident with the approval of the improvement plans, provide drainage easements as needed and pay any fee required by the SCWA Code. Install facilities pursuant to the Sacramento County Floodplain Management Ordinance, SCWA Code, approved Drainage Master Plan, and Sacramento County Improvement Standards. All basins and channel alignments are contingent upon development interest. Any SCWA funding is contingent upon a need by SCWA, pursuant to title 2 of the SCWA Code. All drainage studies are subject to alternative analyses. Basin land shall not be credited within the Zone 11A fee program. *(Large Lot Tentative Map Condition of Approval)*
- ▶ The Sacramento County Department of Water Resources shall require an approved drainage study incorporating all the items contained in the latest version of the document "County of Sacramento Department of Water Resources Drainage Development and Hydrology Section, Drainage Study Requirements" and all the requirements listed in the Sacramento County Drainage Improvement Standards, prior to recordation of the large lot map. The study shall describe permanent stormwater quality treatment facilities capable of treating stormwater to the satisfaction of Sacramento County Department of Water Resources groundwater engineering for infiltration into the Mehrten Formation. The study must also identify, to the satisfaction of the

Sacramento County Department of Water Resources, hydromodification mitigation measures and flood detention facilities, to be implemented by the Cordova Hills development, in conformance with applicable County ordinances and standards, and state and Federal law. (*Large Lot Tentative Map Condition of Approval*)

- ▶ Provide a permanent concrete stamp, or other permanently applied message to the satisfaction of Sacramento County Department of Water Resources not including paint, which reads “No Dumping-Flows to Creek” or other approved message at each storm drain inlet in the site improvement plans. (*Large Lot Tentative Map Condition of Approval*)

Implementation of Final EIR Mitigation Measure BR-8 along with the above-listed conditions of approval would reduce the potentially significant long-term water quality effects of urban runoff to a **less-than-significant** level under Pilatus Alternative because the project applicant would develop and implement a BMP and water quality maintenance plan that would demonstrate to Sacramento County that the project would conform to applicable state and local regulations restricting surface water runoff including the *Stormwater Quality Design Manual for the Sacramento and South Placer Regions* (SSQP 2007) and the *Hydromodification Management Plan* (SSQP 2011). The permanent BMPs proposed for the stormwater treatment system and described in detail in the Stormwater Quality Design Manual have been shown to be effective in reducing contaminant levels in urban runoff if designed, constructed, and maintained properly (EPA 1999, California Stormwater Quality Association 2009) (see Table 3.10-6). No other mitigation measures were identified to further reduce these effects.

**Table 3.10-6
Expected Pollutant Removal Efficiency of Structural BMPs**

BMP Type	Typical Pollutant Removal (percent)				
	Suspended Solids	Nitrogen	Phosphorus	Pathogens	Metals
Dry detention basins	30–65	15–45	15–45	<30	15–45
Wet detention/retention basins	50–80	30–65	30–65	<30	50–80
Constructed wetlands	50–80	<30	15–45	<30	50–80
Infiltration basins	50–80	50–80	50–80	65–100	50–80
Infiltration trenches, dry wells	50–80	50–80	15–45	65–100	50–80
Porous pavement	65–100	65–100	30–65	65–100	65–100
Grassed swales	30–65	15–45	15–45	<30	15–45
Vegetated filter strips	50–80	50–80	50–80	<30	50–80
Surface sand filters	50–80	<30	50–80	<30	50–80
Other media filters	65–100	15–45	<30	<30	50–80

Note: BMP = best management practice
Source: U.S. EPA 1999:Table 5-7

RC

The amount of contaminants discharged in stormwater drainage would be similar under the Regional Conservation Alternative as compared to the Proposed Action because of the similar amount of developed acreage and overall similar amount (e.g., number of dwelling units) of residential land uses. Further, the contaminant

amounts would likely be similar to the Proposed Action, because this alternative would result in a similar amount of commercial land uses.

A drainage exhibit illustrating the conceptual locations of proposed detention basins under the Regional Conservation Alternative is shown in Exhibit 2-28 in Chapter 2, “Description of the Proposed Action and Alternatives.”

However, because water quality calculations, and design plans and specifications related to water quality facilities have not been prepared or submitted to or approved by the County, implementation of the Regional Conservation Alternative could result in **potentially significant, indirect** effects related to the potential for contaminants to enter receiving waters, thus resulting in adverse effects from long-term urban runoff. Other **indirect** water quality effects to wetlands and special-status species are evaluated in Section 3.4, “Biological Resources.” **No direct** effects would occur. *[Similar]*

As part of the CEQA EIR certification and project approval process, various mitigation measures and conditions of approval were incorporated into the project entitlements. Because these mitigation measures and conditions of approval were incorporated into the Proposed Action, it is reasonable to assume that they would also be incorporated into the four action alternatives, if any of those alternatives were adopted. The mitigation measures and conditions of approval that are applicable to this effect that were incorporated into the Proposed Action by the project entitlements are listed below:

- ▶ If construction activities encroach within the 250-foot buffer for vernal pools 358, 363, 370, 426, or 511 the project applicant shall prepare a pesticide and pollution prevention plan. The plan shall include measures to reduce pollution run-off, pesticide drift, and other similar potential contaminates, to protect surrounding preserve areas from urban contaminates. Measures shall include the implementation of best management practices (e.g. straw wattles, silt fencing, and soil stabilization) for stormwater control. The plan shall be incorporated in the Operations and Management Plan which is a requirement of the Section 404 permit process. *(Final EIR Mitigation Measure BR-8)*
- ▶ Coincident with the approval of the improvement plans, provide drainage easements as needed and pay any fee required by the SCWA Code. Install facilities pursuant to the Sacramento County Floodplain Management Ordinance, SCWA Code, approved Drainage Master Plan, and Sacramento County Improvement Standards. All basins and channel alignments are contingent upon development interest. Any SCWA funding is contingent upon a need by SCWA, pursuant to title 2 of the SCWA Code. All drainage studies are subject to alternative analyses. Basin land shall not be credited within the Zone 11A fee program. *(Large Lot Tentative Map Condition of Approval)*
- ▶ The Sacramento County Department of Water Resources shall require an approved drainage study incorporating all the items contained in the latest version of the document “County of Sacramento Department of Water Resources Drainage Development and Hydrology Section, Drainage Study Requirements” and all the requirements listed in the Sacramento County Drainage Improvement Standards, prior to recordation of the large lot map. The study shall describe permanent stormwater quality treatment facilities capable of treating stormwater to the satisfaction of Sacramento County Department of Water Resources groundwater engineering for infiltration into the Mehrten Formation. The study must also identify, to the satisfaction of the Sacramento County Department of Water Resources, hydromodification mitigation measures and flood

detention facilities, to be implemented by the Cordova Hills development, in conformance with applicable County ordinances and standards, and state and Federal law. (*Large Lot Tentative Map Condition of Approval*)

- ▶ Provide a permanent concrete stamp, or other permanently applied message to the satisfaction of Sacramento County Department of Water Resources not including paint, which reads “No Dumping-Flows to Creek” or other approved message at each storm drain inlet in the site improvement plans. (*Large Lot Tentative Map Condition of Approval*)

Implementation of Final EIR Mitigation Measure BR-8 along with the above-listed conditions of approval would reduce the potentially significant long-term water quality effects of urban runoff to a **less-than-significant** level under the Regional Conservation Alternative because the project applicant would develop and implement a BMP and water quality maintenance plan that would demonstrate to Sacramento County that the project would conform to applicable state and local regulations restricting surface water runoff including the *Stormwater Quality Design Manual for the Sacramento and South Placer Regions* (SSQP 2007) and the *Hydromodification Management Plan* (SSQP 2011). The permanent BMPs proposed for the stormwater treatment system and described in detail in the Stormwater Quality Design Manual have been shown to be effective in reducing contaminant levels in urban runoff if designed, constructed, and maintained properly (EPA 1999, California Stormwater Quality Association 2009) (see Table 3.10-6). No other mitigation measures were identified to further reduce these effects.

EFFECT **Potential Exposure of People or Structures to a Significant Risk of Flooding as a Result of the**
3.10-4 **Failure of a Levee or Dam.** *The Cordova Hills and Pilatus sites are not in an area protected by levees and are not located within the Folsom Dam inundation zone.*

NA

Under the No Action Alternative, no development would occur at the Cordova Hills or Pilatus sites. Therefore, there would be **no indirect** or **direct** effects to people or structures related to flooding as a result of the failure of a levee or dam. [*Lesser*]

Mitigation Measure: No mitigation measures are required.

PA, EDP, EP, P, RC

For planning purposes, the State Office of Emergency Services (OES), with information from the U.S. Bureau of Reclamation and DWR, has the responsibility to provide local governments with critical hazard response information, including information related to potential flooding from levee failure or dam inundation.

The Proposed Action and Alternatives would include detention basins that would primarily be constructed above the original ground surface and would have a levee or dam structure that would regulate flows before entering the preserve. These detention basins would have a broad, flat slope and would not fall under Division of Safety of Dams (DSOD) jurisdiction. The Cordova Hills and Pilatus sites are not in an area protected by levees and no new levees or dams are proposed as part of the Proposed Action or Alternatives that would be considered under DSOD jurisdiction for dam safety.

Although the Folsom Dam is located approximately 12 miles north of the Cordova Hills and Pilatus sites, neither the Cordova Hills nor the Pilatus site are located within the OES dam inundation zones. While a relatively large portion of Sacramento County would be inundated with water in the event of a dam or dike failure, the Cordova Hills area is outside of the mapped inundation area (County of Sacramento 2011b:384, Figure III-4).

Implementation of the alternatives under consideration would do nothing to increase the potential for dam failure. In addition, a dam failure plan, the flooding ALERT system, and evacuation procedures are integrated into Sacramento County's *Emergency Operations Plan* (Sacramento County Emergency Operations Office 2008) and *Evacuation Plan* (James Lee Witt Associates 2008). Therefore, **no indirect** or **direct** effects would occur.

[Similar]

Mitigation Measure: No mitigation measures are required.

EFFECT 3.10-5	Potential Effects from New Impervious Surfaces on Groundwater Recharge and Aquifer Volume. <i>Shallow and deep percolation of rainwater and water used for landscape irrigation and related runoff and consequent depth to groundwater would not be substantially affected by the development of additional impervious surfaces because of the low permeability of existing on-site soils.</i>
------------------	---

NA

Under the No Action Alternative, no development would occur at the Cordova Hills site; therefore, there would be **no indirect** or **direct** effects on groundwater recharge or aquifer volume from new impervious surfaces.

[Lesser]

Mitigation Measure: No mitigation measures are required.

PA, EDP, EP, P, RC

Development of the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives would increase the amount of impervious surfaces and the associated amount of surface runoff. Table 3.10-7 shows the approximate amount of total acreage at the Cordova Hills and Pilatus sites that would be developed with residential and commercial land uses, as well as schools and infrastructure, as part of the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives. The remaining acreage would be primarily retained as open space (including a wetland preserve and associated wetland preserve buffer area located along the existing drainages of Upper Laguna Creek and Deer Creek) and agriculture. Although parks are not included in Table 3.10-7 because facilities with associated impervious surfaces would be developed, portions of the total park acreage on the Cordova Hills and Pilatus sites would also include open space that would permit water infiltration via landscape irrigation.

The Expanded Preservation Alternative would result in the smallest increase in impervious surfaces. The Pilatus Alternative would result in greatest increase in impervious surfaces due to the higher acreage of urban development that is proposed.

In the Central Groundwater Basin, recharge of the aquifer system occurs along active river and stream channels where extensive sand and gravel deposits exist, particularly along the American, Cosumnes, and Sacramento River channels. Additional recharge occurs along the eastern boundary of Sacramento County at the transition point from the consolidated rocks of the Sierra Nevada to the alluvial-deposited basin sediments (SCWA et al.

**Table 3.10-7
Amount of Developed and Undeveloped Areas by Alternative**

Alternative	Total Acreage	Developed Acreage (approximate)	Open Space (acres)	Agriculture (acres)
Proposed Action	2,668	1,981	539	184
Expanded Drainage Preservation	2,668	1,661	926	78
Expanded Preservation	2,668	1,420	1,193	55
Pilatus	2,668	1,797	787	75
	882	692	170	25
Pilatus Total	3,550	2,489	957	100
Regional Conservation	2,668	1,969	505	194

Sources: Land Use Plans prepared by MacKay & Somps, Conwy LLC, and William Hezmalhalch Architects Inc. 2012 (see Chapter 2, "Description of the Proposed Action and Alternatives")

2006:2-26). This recharge is classified as subsurface recharge along with underground flow into and out of the Central Groundwater Basin with adjacent groundwater basins. Other sources of recharge include deep percolation from applied surface water and precipitation. Induced recharge can occur from recharge basins and injection of water through wells. Due to soil characteristics in the Cordova Hills vicinity, groundwater recharge capabilities are considered low (City of Rancho Cordova 2006:4.9-12). The specific hydrologic soils groups found in the Cordova Hills and Pilatus sites primarily consist of Group D soils, which have the lowest infiltration rates; therefore, recharge capabilities on the Cordova Hills and Pilatus sites are generally considered to be poor. However, those portions of the Cordova Hills and Pilatus sites that are along tributaries to Upper Laguna Creek, Deer Creek, and Carson Creek consist of Group B and C soils, which have a moderate to high infiltration rate (and therefore a correspondingly higher recharge potential).

Thus, soils in the Cordova Hills and Pilatus sites generally have a poor capacity for groundwater recharge, with most of the substantial recharge occurring along active stream channels. Only small amounts of precipitation per year are expected to infiltrate to the groundwater aquifer under undeveloped conditions, with the remaining water running off or consumed through evapotranspiration. Those areas within the Cordova Hills and Pilatus sites that are most conducive to groundwater recharge (i.e., tributaries of Upper Laguna Creek, Deer Creek, and Carson Creek), would generally be maintained in open space and would continue to allow for infiltration. Detention basins and percolation trenches proposed as part of the Proposed Action and Alternatives would also be designed to infiltrate excess runoff and percolate nuisance flows. Furthermore, increased seasonal groundwater recharge from landscape irrigation activities would occur with the transition of the Cordova Hills and Pilatus sites from primarily dry land farming and grazing lands. Urban land uses result in application of water, in addition to precipitation, for outdoor use. A portion of this water, although restricted by the soil conditions described above, reaches the aquifer as recharge. It should be noted, however, that indoor uses of water would not contribute to local groundwater recharge, as this water is discharged to the Sacramento River after treatment at the Sacramento Regional Wastewater Treatment Plant. Therefore, for the reasons stated above, the **direct** effects to groundwater recharge and aquifer volume from development of new impervious surfaces would be **less than significant**. **No indirect** effects would occur. No mitigation measures were identified to further reduce these effects. *[Similar]*

3.10.6 RESIDUAL SIGNIFICANT EFFECTS

All effects associated with flooding from failure of a dam or levee and substantial inference with groundwater recharge would be less than significant. Implementation of Final EIR Mitigation Measure BR-8 and the associated conditions of approval, along with Mitigation Measures 3.8-3 and 3.10-1, would reduce all other hydrology and water quality effects to a less-than-significant level because the project applicant would prepare drainage plans demonstrating to the appropriate regulatory agency that the project would conform with applicable state and local regulations regulating surface water runoff, hydromodification, and water quality. Therefore, no residual significant effects would occur.

3.10.7 CUMULATIVE EFFECTS

Local hydrology, drainage, and water quality conditions are often affected by regional activities. Past and present projects from areas within the Sierra Nevada mountains (e.g., the construction of dams and reservoirs, mining operations, logging operations, and urban development) and projects within the Delta (e.g., water supply diversions, agricultural diversions, flood control projects, urban development, and river channelization) affect hydrology and water quality conditions in Sacramento County. The following evaluation of cumulative hydrology, drainage, and water quality effects is made in light of the extent to which local and regional activities can affect hydrologic conditions in Sacramento County. However, the focus is on effects to water bodies in the project vicinity and immediately upstream and downstream (e.g., the Laguna Creek, Deer Creek, and Carson Creek tributaries) and how the Cordova Hills project and other foreseeable projects may affect the hydrology, drainage, and water quality conditions locally.

POTENTIAL TEMPORARY, SHORT-TERM CONSTRUCTION-RELATED DRAINAGE AND WATER QUALITY EFFECTS

Construction activities during implementation of the Proposed Action or Alternatives would involve extensive grading and movement of earth. Substantial construction-related alteration of on-site drainages could result in soil erosion and stormwater discharges of suspended solids, increased turbidity, and potential mobilization of other pollutants from construction sites. This contaminated runoff could enter tributaries to Upper Laguna Creek, Deer Creek, Carson Creek, or other on-site drainage channels and ultimately drain off site. Intense rainfall and associated stormwater runoff, particularly in areas of steep topography on the Cordova Hills site, could result in short periods of sheet erosion within areas of exposed or stockpiled soils. If uncontrolled, these soil materials could cause sedimentation and blockage of drainage channels. Accidental spills of construction-related contaminants, such as fuels, oils, paints, solvents, cleaners, and concrete, could occur during construction activities, resulting in surface soil contamination. The same potential for construction-related alteration of on-site drainages to result in soil erosion and stormwater discharges of suspended solids, increased turbidity, and potential mobilization of other pollutants from accidental spills would also occur under the other foreseeable projects. Implementation of Final EIR Mitigation Measure BR-8 and associated conditions of approval and Mitigation Measures 3.8-3 and 3.10-1 would reduce the effects of the Proposed Action or Alternatives to a less-than-significant level. Each project that would discharge stormwater runoff would also be required by law to comply with NPDES discharge permits from the Central Valley Regional Water Quality Control Board, which also includes the requirements to prepare SWPPPs and implement BMPs. Therefore, the Cordova Hills project would not result in a cumulatively considerable contribution to a significant cumulative effect related to construction-generated runoff and water quality effects to receiving water bodies.

POTENTIAL INCREASED RISK OF FLOODING AND HYDROMODIFICATION FROM INCREASED STORMWATER RUNOFF

The drainage facilities identified as part of the Proposed Action (and required as part of Final EIR Mitigation Measure BR-8 for the other four action alternatives) would be constructed to safely control and convey stormwater runoff and to satisfy the design criteria of the *Stormwater Quality Design Manual for the Sacramento and South Placer Regions* (SSQP 2007), FEMA National Flood Insurance Program requirements, and NPDES permit requirements. Proposed detention/water quality basins and outlet controls would reduce peak runoff leaving the site to match or be less than the pre-development flow rates. Modeling results for the Proposed Action indicate that the 100-year (0.01 AEP) and 10-year storm events would remain at or below existing conditions. Similar modeling would be required for the other four action alternatives as part of Final EIR Mitigation Measure BR-8. Detention basins would include percolation trenches to reduce potential effects to existing stream channels from summer nuisance flows. Any future development upstream of the Cordova Hills and Pilatus sites would be required to meet similar standards through Sacramento County, FEMA, and Central Valley Regional Water Quality Control Board requirements. While the other foreseeable projects may place housing within a 100-year floodplain, each of the other foreseeable projects would be required to satisfy the design criteria of the *Stormwater Quality Design Manual for the Sacramento and South Placer Regions* (SSQP 2007), FEMA National Flood Insurance Program requirements, and NPDES requirements, including protection of residents and workers from 100-year storm events. Therefore, the Cordova Hills project would not result in a cumulatively considerable contribution to a significant cumulative effect related to increased risk of flooding and hydromodification from increased stormwater runoff.

LONG-TERM OPERATIONAL WATER QUALITY AND HYDROLOGY EFFECTS FROM URBAN RUNOFF

The Proposed Action or Alternatives, along with several other planned projects in the vicinity, would have the potential to increase stormwater runoff through the creation of new impervious surfaces. This increase in impervious surfaces could cause or contribute to long-term operational discharges of urban contaminants (e.g., sediment, oil and grease, fuel) to the Laguna Creek, Deer Creek, and Carson Creek tributaries and associated watersheds. Under the Proposed Action, all drainage runoff would enter detention basins where it would be treated prior to release. Under the other four action alternatives, implementation of Final EIR Mitigation Measure BR-8 would require that all drainage runoff enter detention basins where it would also be treated prior to release. Detention basins and other stormwater quality treatment techniques (BMPs) would use treatment methodologies as described in the *Stormwater Quality Design Manual for the Sacramento and South Placer Regions* (SSQP 2007) and would be required to comply with the Sacramento NPDES MS4 Permit. In addition, detention basins for the Proposed Action have been sized such that the flow rates exiting the Cordova Hills site boundaries would not exceed the existing conditions flow rates and outlet control structures have designed to meter the release rates so they match the pre-development flow rates for the same sized drainage shed area. The same conditions would occur under the other four action alternatives with implementation of Final EIR Mitigation Measure BR-8. Although there are no assurances that the other foreseeable projects would incorporate the same degree or methods of long-term treatment and hydromodification controls as the Cordova Hills project, each project that would discharge stormwater runoff would be required to comply with the Sacramento NPDES MS4 Permit from the Central Valley Regional Water Quality Control Board and associated requirements of the design criteria identified in the *Stormwater Quality Design Manual for the Sacramento and South Placer Regions* (SSQP 2007). Therefore, the Cordova Hills project would not result in a cumulatively considerable contribution to a significant cumulative effect related to long-term operational runoff and water quality effects to receiving water bodies.

POTENTIAL EXPOSURE OF PEOPLE OR STRUCTURES TO A SIGNIFICANT RISK OF FLOODING AS A RESULT OF THE FAILURE OF A LEVEE OR DAM

The Cordova Hills and Pilatus sites are not in an area protected by levees and are not located within the Folsom Dam inundation zone. However, the other foreseeable projects that are located north of White Rock Road would be located within the Folsom Dam inundation zone. Some of the other foreseeable projects are located in areas that are adjacent to or protected by local levees. While a relatively large portion of Sacramento County would be inundated with water in the event of failure of Folsom Dam, Sacramento County permits development within the Folsom Dam inundation zone. Development of those other foreseeable projects that are within the inundation zone would do nothing to increase the potential for dam failure. In addition, a dam failure plan, the flooding ALERT system, and evacuation procedures are integrated into Sacramento County's *Emergency Operations Plan* (Sacramento County Emergency Operations Office 2008) and *Evacuation Plan* (James Lee Witt Associates 2008). Therefore, while development of some the other foreseeable projects would place a greater number of people overall within the Folsom Dam inundation zone, the Cordova Hills project is outside of the inundation zone, and therefore would have no cumulative effect related to significant risk of flooding as a result of the failure of a levee or dam.

POTENTIAL EFFECTS FROM NEW IMPERVIOUS SURFACES ON GROUNDWATER RECHARGE AND AQUIFER VOLUME

Changes in groundwater levels as a result of increased impervious surfaces have the potential to occur in the Cordova Hills vicinity as planned urban development continues to occur in the area. Proposed development under the Cordova Hills project and other foreseeable projects would include increases in impervious surfaces and surface runoff generated by proposed development. However, soils in the Cordova Hills site and the surrounding area overall have a poor capacity for groundwater recharge, with most of the substantial recharge occurring along active stream channels. Most of the areas within the Cordova Hills and Pilatus sites that are most conducive to groundwater recharge, such as the Upper Laguna and Deer Creek tributary corridors, would be maintained as open space and therefore would allow for continued infiltration and groundwater recharge. Detention basins and LID features proposed as part of the Proposed Action (and required as part of Final EIR Mitigation Measure BR-8 for the other four action alternatives), as well as landscape irrigation activities, would contribute to groundwater recharge if they are sited or occur in areas that have conducive soils. The same is true for the other foreseeable projects in the vicinity, which are also located primarily within soils with low infiltration rates (i.e., Group D). The primary groundwater recharge opportunities at the other foreseeable project sites occur along natural watercourses, most of which are required by USACE for every project to be maintained as open space. Because recharge would continue to occur in the areas most conducive to water infiltration (i.e., Group B and C soils), implementation of the Proposed Action or Alternatives would not result in a net lowering of aquifer volume. Therefore, the Proposed Action or Alternatives would not result in a cumulatively considerable contribution to a significant cumulative effect related to substantial decreases in groundwater recharge and aquifer volume.

3.11 NOISE

3.11.1 INTRODUCTION

This section presents acoustical fundamentals and terminology relevant to the alternatives under consideration; a summary of the existing (ambient) acoustical conditions in the vicinity of the Cordova Hills and Pilatus sites; pertinent regulations; and an analysis of noise exposure effects. Feasible mitigation measures are recommended, where appropriate, to reduce adverse effects.

3.11.2 ACOUSTICAL FUNDAMENTALS AND TERMINOLOGY

SOUND, NOISE, AND ACOUSTICS

Sound can be described as the mechanical energy of a vibrating object transmitted by pressure waves through a liquid or gaseous medium (e.g., air). Noise is often defined as unwanted sound (i.e., loud, unexpected, or annoying sound). Acoustics is generally defined as the physics of sound. In acoustics, the fundamental scientific model consists of a sound (or noise) source, a receiver, and the propagation path(s) between the two. The loudness of the sound source and obstructions and atmospheric factors affecting the propagation path to the receiver determines the sound level and characteristics of the sound perceived by the receiver. Acoustics primarily addresses the propagation and control of sound.

FREQUENCY

The number of sound pressure peaks traveling past a given point in a single second is referred to as the frequency, expressed in cycles per second or Hertz (Hz). A given sound may consist of energy at a single frequency (pure tone) or in many frequencies over a broad frequency range (frequency band). Human hearing is generally affected by sound frequencies between 20 Hz and 20,000 Hz (20 kHz).

AMPLITUDE

The amplitude of pressure waves generated by a sound source determines the perceived loudness of that source. Sound pressure amplitude is measured in micro-Pascals (μPa). One μPa is approximately one hundred billionths (0.0000000001) of normal atmospheric pressure. Sound pressure amplitudes for different kinds of noise environments can range from less than 100 μPa to 100,000,000 μPa . Because of this huge range of values, sound is rarely expressed in terms of pressure. Instead, a logarithmic scale is used to describe sound pressure level (SPL) in terms of the decibel (dB). The threshold of human hearing (near total silence) is approximately 0 dB which corresponds to 20 μPa .

ADDITION OF DECIBELS

Because the decibel is a logarithmic unit, SPL cannot be added or subtracted through ordinary arithmetic means. Given the logarithmic nature of the metric, a doubling of sound energy corresponds to a 3 dB increase in SPL. In other words, when two sources are each producing sound of the same loudness, the resulting sound level at a given distance would be approximately 3 dB higher than one of the sources under the same conditions. For example, if one automobile produces an SPL of 70 dB when it passes an observer, two cars passing simultaneously would not produce 140 dB; rather, they would combine to produce 73 dB. Three sources of equal

loudness together produce a sound level of approximately 5 dB louder than one source, and ten sources of equal loudness together produce a sound level of approximately 10 dB louder than the single source.

A-WEIGHTED DECIBELS

Exhibit 3.11-1 illustrates sound levels associated with common sources of sound. The perceived loudness of sounds is dependent on many factors, including sound pressure level and frequency content. However, within the usual range of environmental sound levels, perception of loudness is relatively predictable, and can be approximated by frequency filtering using the standardized A-weighting network. There is a strong correlation between A-weighted sound levels (expressed as dBA) and community response to noise. For this reason, the A-weighted sound level has become the standard descriptor for environmental noise assessment. All sound levels reported in this section are A-weighted.

HUMAN RESPONSE TO CHANGES IN NOISE LEVELS

As discussed above, doubling sound energy results in a 3 dB increase in sound level. However, given a sound level change measured with precise instrumentation, the subjective human perception of a doubling of loudness will usually be different than what is measured.

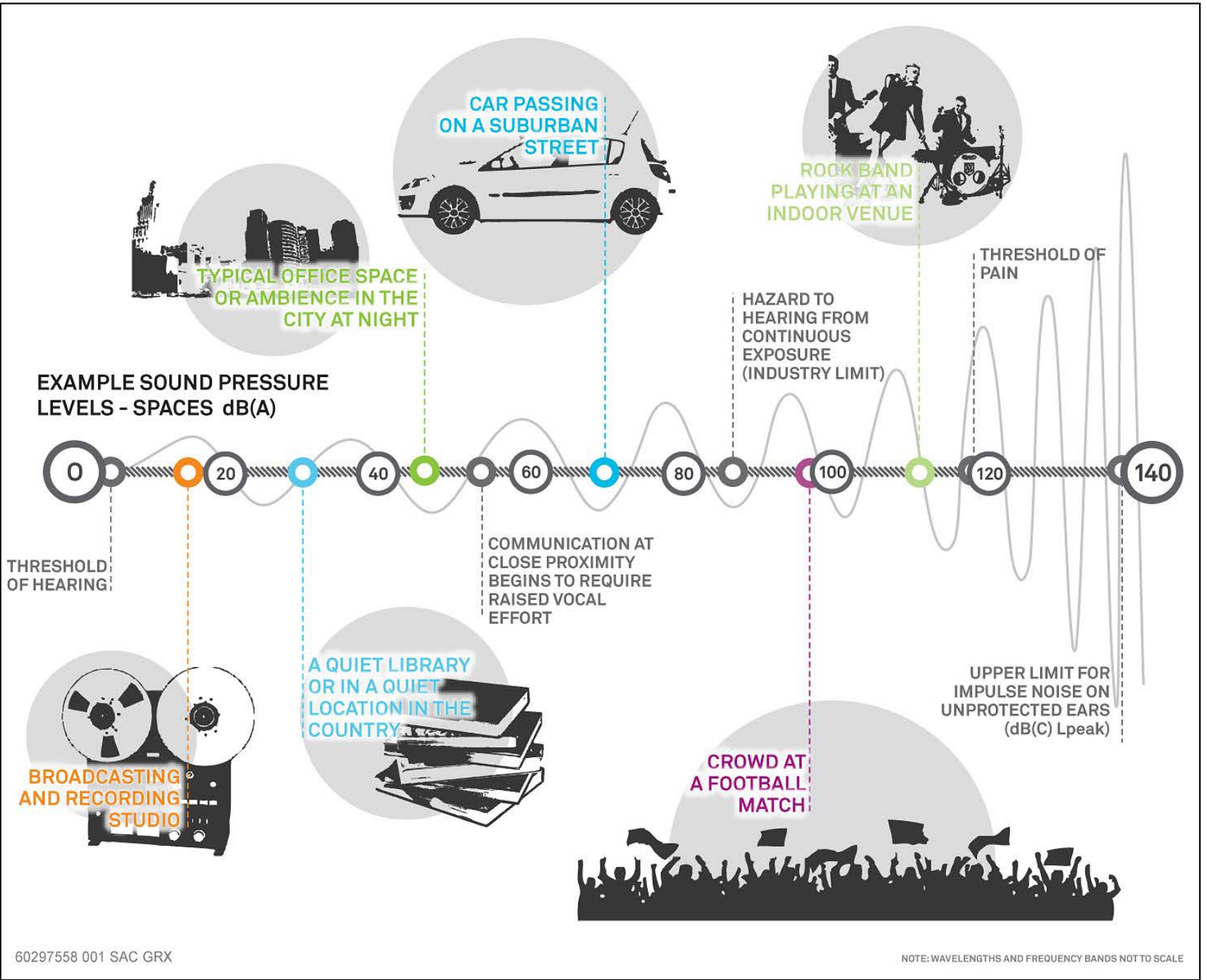
Under controlled conditions in a laboratory setting, the trained, healthy human ear is able to discern 1 dB changes in sound levels when exposed to steady, single-frequency (“pure-tone”) signals in the mid-frequency range (1,000 Hz–8,000 Hz). In typical noisy environments, changes in sound level of 1 to 2 dB are generally not perceptible. However, it is widely accepted that people are able to begin to detect sound level increases of 3 dB in typical noisy environments. Furthermore, a 5 dB increase is generally perceived as a distinctly noticeable increase, and a 10 dB increase is generally perceived as a doubling of loudness. Therefore, a doubling of sound energy that would result in a 3 dB increase in SPL would generally be perceived as barely detectable (see Table 3.11-1).

Noise Level Increase (dB)	Human Perception (typical)
up to about 3	not perceptible
about 3	barely perceptible
about 6	distinctly noticeable
about 10	twice as loud
about 20	four times as loud

Note: dB = decibel
Source: Egan 1988

NOISE-SENSITIVE LAND USES

Noise-sensitive land uses are generally defined as locations where people reside or where the presence of unwanted sound (noise) could adversely affect the use of the land. Noise-sensitive land uses typically include residences, hospitals, schools, transient lodging, libraries, places of worship, and certain types of recreational uses.



Source: AECOM 2013
 Exhibit 3.11-1

Common Sound Levels and Sources

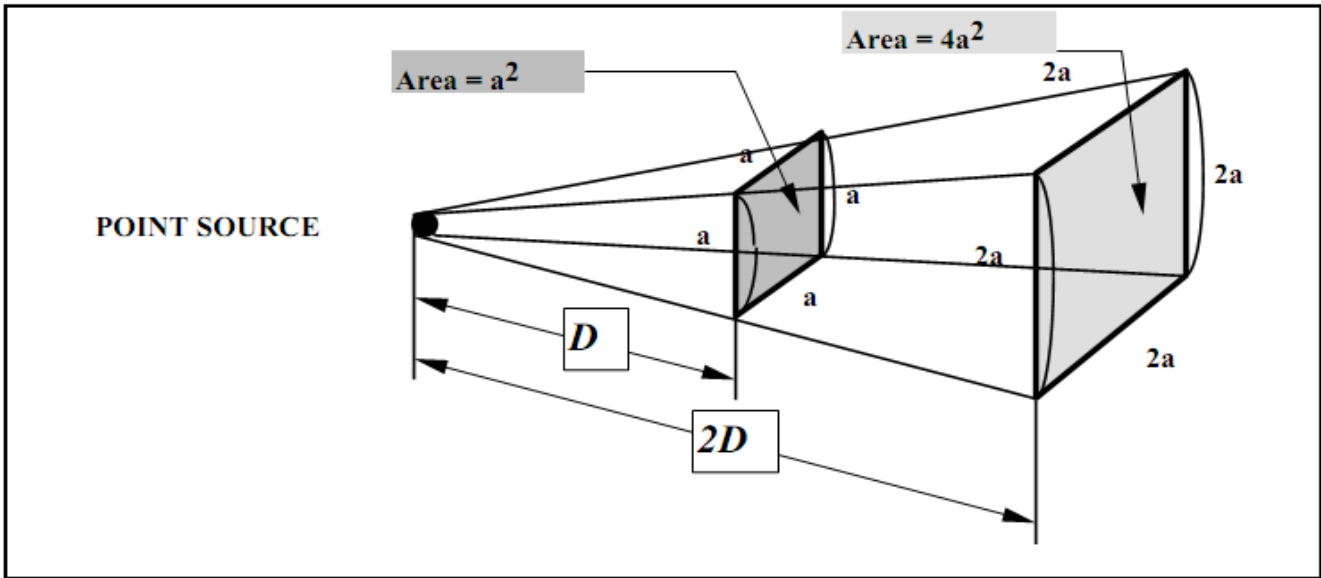
SOUND DESCRIPTORS

Sound in our daily environments fluctuates over time. Some fluctuations are minor, but some are substantial. Some sound levels occur in regular patterns, but others are random. Some sound levels fluctuate rapidly, but others slowly. Various sound descriptors have been developed to describe time-varying sound levels. The following are the sound descriptors most commonly used in environmental noise analysis:

- ▶ **Equivalent Sound Level (L_{eq}):** The L_{eq} represents an average of the sound energy occurring over a specified time period. In effect, the L_{eq} is the steady-state sound level containing the same acoustic energy as the time-varying sound that actually occurs during the same period. The 1-hour, A-weighted equivalent sound level ($L_{eq}[h]$) is the energy average of A-weighted sound levels occurring during a 1-hour period, and is the basis for noise abatement criteria (NAC) used by the California Department of Transportation (Caltrans) and the Federal Highway Administration (FHWA). This descriptor is often found in local general plans and municipal code criteria.
- ▶ **Percentile-Exceeded Sound Level (L_n):** The L_n represents the sound level exceeded “n” percentage of a specified period (e.g., L_{10} is the sound level exceeded 10 percent of the time, and L_{90} is the sound level exceeded 90 percent of the time). Like $L_{eq}[h]$, L_n criteria are often found in local general plan and municipal code standards.
- ▶ **Maximum Sound Level (L_{max}):** The L_{max} is the highest instantaneous sound level measured during a specified period. Like $L_{eq}[h]$ and L_n , L_{max} criteria are often found in local general plan and municipal code standards.
- ▶ **Sound Exposure Level (SEL):** The equivalent sound level over a 1-second time interval for a discrete sound event (e.g., aircraft overflight).
- ▶ **Day-Night Average Level (L_{dn}):** The L_{dn} is the energy-average of A-weighted sound levels occurring over a 24-hour period, with a 10-dB penalty applied to A-weighted sound levels occurring during nighttime hours (10 p.m. to 7 a.m.). The L_{dn} is often noted as the DNL. The L_{dn}/DNL is the basis for most transportation noise standards in California.
- ▶ **Community Noise Equivalent Level (CNEL):** Similar to L_{dn} , CNEL is the energy-average of the A-weighted sound levels occurring over a 24-hour period, with a 10-dB penalty applied to A-weighted sound levels occurring during the nighttime hours (10 p.m. to 7 a.m.), and a 5-dB penalty applied to the A-weighted sound levels occurring during evening hours (7 p.m. to 10 p.m.). The CNEL is usually within 1 dB of the L_{dn} , and for all intents and purposes, the two are interchangeable.

SOUND PROPAGATION

Sound from a localized source (i.e., point source) propagates uniformly outward in a spherical pattern; therefore, this type of propagation is called *spherical spreading*. The sound level attenuates (or decreases) at a rate of 6 dB for each doubling of distance from a point/stationary source as its energy is continuously spread out over a spherical surface (see Exhibit 3.11-2).

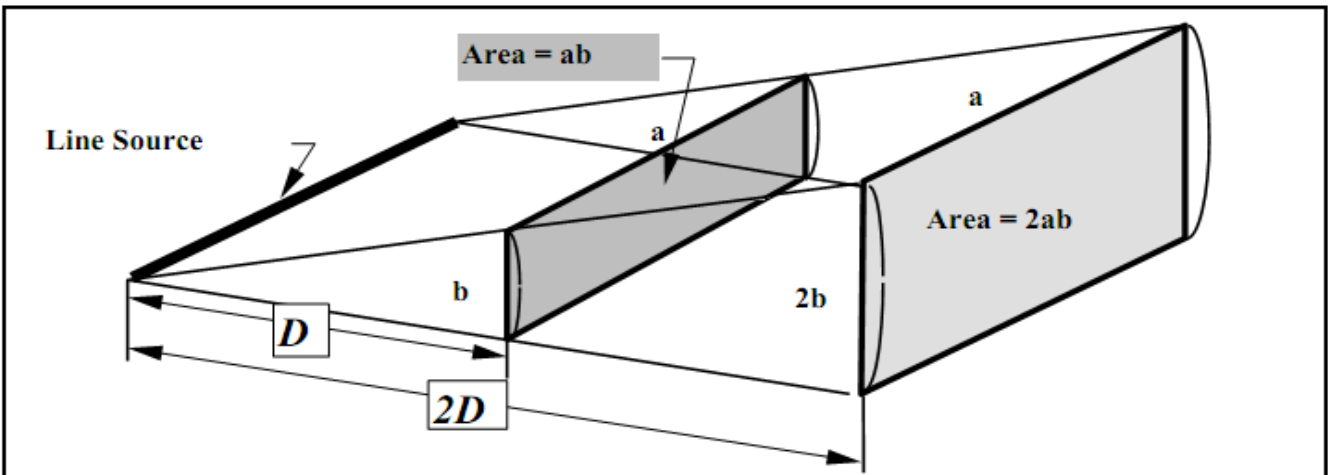


Source: Caltrans 2009

Exhibit 3.11-2

Point Source Spreading with Distance

Roadways and highways, and to some extent, moving trains, consist of several localized noise sources on a defined path, and hence are treated as “line” sources, which approximate the effect of several point sources. Sound from a line source propagates over a cylindrical surface, often referred to as *cylindrical spreading* (Exhibit 3.11-3). Sound levels attenuate at a rate of 3 dB for each doubling of distance from a line source.



Source: Caltrans TeNS, 2009

Exhibit 3.11-3

Line Source Spreading with Distance

NOISE LEVEL REDUCTION METHODS

There are a variety of site design considerations which may reduce sound transmission and noise level effects. Many of these elements are presented below.

Setback/Distance

Sound exposure may be reduced by increasing the distance between the sound source(s) and receiving use(s). Setbacks can take the form of intervening open space, frontage roads, recreational areas, and storage yards (buffer land uses). The sound attenuation produced from increased distance is typically limited by spherical or cylindrical spreading loss (see above), or 3-6 dB per doubling of distance added between the source and receiver.

Intervening Barriers

Shielding from sound can be achieved by placing walls, berms, or other structures (e.g., buildings) between the sound source and receiver. The effectiveness of the barrier is a function of how well it increases the distance the sound must travel between the source and receiver; that is, the path length distance. With this in mind, barriers are most effective when placed close to either the source or receiver (i.e., longer sound travel path). An intermediate barrier location yields a smaller path length difference for a given increase in barrier height than does a location closer to either the source or the receiver.

For maximum acoustical insulation effectiveness, barriers must be continuous without gaps or holes along their length and height. To ensure that sound transmission through the barrier is not perceived, barrier mass should be about 4 pounds per square foot, although a lesser mass may be acceptable if the barrier material provides sufficient transmission loss in the frequency range of concern. Satisfaction of the above criteria requires substantial and well-fitted barrier materials, placed to intercept line-of-sight to all major sound sources/receivers. Masonry construction generally provides sufficient mass, longevity, and ease of maintenance for most development.

Noise barriers may limit pedestrian access, and are generally not visually appealing when compared to alternatives without barriers. They may create the impression of community division.

Site Design

Building design and layout may be used as a tool to shield noise-sensitive receivers from particular sound sources. For example, carports or garage structures may be used to shield sensitive residence. The location of these structures not only increases the setback distance between the source and receiver, but may provide an effective noise-insulating barrier as well. Placement of outdoor activity areas within the shielded portion of a building complex, such as a central courtyard, can be an effective method toward providing a quiet retreat in an otherwise noisy environment. This design technique is often used in multifamily developments. Patios or balconies can be placed on the side of a building opposite the primary sound source, and "wing walls" can be added to buildings or patios to help shield sensitive outdoor recreation areas. Another example is the development of commercial uses between an arterial roadway and residential properties. Of course, care should be taken not to swap one source of noise for another (e.g., commercial operations noise for traffic noise).

Building Layout and Construction

The layout of noise-sensitive rooms (e.g., living rooms, bedrooms) relative to less noise-sensitive rooms (e.g., closets, bathrooms) should be considered for developments exposed to elevated environmental sound levels. Exterior-to-interior noise level reduction may be obtained through acoustical design of building façades. Standard residential building construction will generally provide 10 to 15 dB of exterior-to-interior noise level reduction with open windows/doors, and approximately 25 to 30 dB with windows/doors closed. For maximum acoustical

insulation (i.e., windows/doors closed), appropriate mechanical systems must be provided to adequately refresh and condition room air.

Where greater noise level reduction is required, acoustical treatment of the building façade may be necessary. Generally, the weakest acoustical link in the façade is the window glazing. Therefore, the reduction of window glazing area may provide the most significant acoustical insulation improvement. Alternatively, the use of acoustical glazing in place of standard glazing may be appropriate and effective. Sound transmitted through wall partitions can be reduced by increasing wall mass (e.g., using stucco or brick in lieu of wood siding); and/or isolating individual wall panels by using double- or staggered-stud framing, mounting interior sheetrock on resilient channels, or using acoustical sheetrock systems. Sound insulation for exterior doors is generally provided by reducing overall door area, using solid-core or more massive door assemblies, and by installing appropriate perimeter and threshold seals. Acoustical roof/ceiling improvement may include the use of additional plywood roof sheathing layers, additional ceiling sheetrock layers, acoustical plywood (roof), acoustical drywall (ceiling), or resilient channels at the ceiling.

Intervening Vegetation

Trees and other vegetation are often thought to provide substantial sound attenuation. However, approximately 100 feet of dense foliage (so that no visual path extends through the foliage) is generally required to achieve a 5 dB attenuation of traffic noise. Thus, the use of vegetation as a noise barrier should not be considered unless large tracts of dense foliage are part of the existing or proposed landscape.

Vegetation can be used to acoustically “soften” intervening ground between a sound source and receiver, increasing the ground absorption of sound and thus increasing the attenuation of sound with distance. The planting of intervening trees and shrubs may offer aesthetic and psychological value (i.e., “out of sight, out of mind”), which may reduce adverse public reaction to sound levels by removing the source from view, even if sound levels are largely unaffected by the abatement effort. However, it should be noted that trees planted on the top of a noise control berm may slightly degrade the acoustical insulation performance of the barrier due to the reflection of high frequency sound by the foliage in a downward direction over the barrier.

VIBRATION

Vibration is the periodic oscillation of a medium or object. The rumbling sound caused by the vibration of room surfaces is called structureborne noise. Sources of groundborne vibrations include natural phenomena (e.g., earthquakes, volcanic eruptions, sea waves, and landslides) or humanmade causes (e.g., explosions, machinery, traffic, trains, and construction equipment). Vibration sources may be continuous, such as factory machinery, or transient, such as explosions. As is the case with airborne sound, groundborne vibration may be described by amplitude and frequency.

Vibration amplitudes are usually expressed in peak particle velocity (PPV) or root mean squared (RMS), as in RMS vibration velocity. The PPV and RMS velocity are normally described in inches per second (in/sec). PPV is defined as the maximum instantaneous positive or negative peak of a vibration signal. PPV is often used in monitoring of blasting vibration because it is related to the stresses that are experienced by buildings (Federal Transit Administration [FTA] 2006, Caltrans 2004).

Although PPV is appropriate for evaluating the potential for building damage, it is not always suitable for evaluating human response. It takes some time for the human body to respond to vibration signals. In a sense, the human body responds to average vibration amplitude. The RMS of a signal is the average of the squared amplitude of the signal, typically calculated over a 1-second period. As with airborne sound, the RMS velocity is often expressed in decibel notation as vibration decibels (VdB), which serves to compress the range of numbers required to describe vibration (FTA 2006). This is based on a reference value of 1 μ inch/second.

The typical background vibration-velocity level in residential areas is approximately 50 VdB. Groundborne vibration is normally perceptible to humans at approximately 65 VdB. For most people, a vibration-velocity level of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible levels (FTA 2006).

Typical outdoor sources of perceptible groundborne vibration are construction equipment, steel-wheeled trains, and traffic on rough roads. If a roadway is smooth, the groundborne vibration is rarely perceptible. The range of interest is from approximately 50 VdB, which is the typical background vibration-velocity level, to 100 VdB, which is the general threshold where minor damage can occur in fragile buildings. Construction activities can generate groundborne vibrations, which can pose a risk to nearby structures. Constant or transient vibrations can weaken structures, crack facades, and disturb occupants (FTA 2006).

Construction vibrations can be transient, random, or continuous. Transient construction vibrations are generated by blasting, impact pile driving, and wrecking balls. Continuous vibrations result from vibratory pile drivers, large pumps, and compressors. Random vibration can result from jackhammers, pavement breakers, and heavy construction equipment. Table 3.11-2 describes the general human response to different levels of groundborne vibration-velocity levels.

Table 3.11-2 Human Response to Different Levels of Groundborne Noise and Vibration	
Vibration-Velocity Level	Human Reaction
65 VdB	Approximate threshold of perception.
75 VdB	Approximate dividing line between barely perceptible and distinctly perceptible. Many people find that transportation-related vibration at this level is unacceptable.
85 VdB	Vibration acceptable only if there are an infrequent number of events per day.
Note: VdB = vibration decibels referenced to 1 μ inch/second and based on the root mean square (RMS) velocity amplitude. Source: FTA 2006	

3.11.3 AFFECTED ENVIRONMENT

PROJECT LOCATION

The Cordova Hills site is located on the east side of Grant Line Road and south of Glory Road. The Pilatus site also includes areas north and east of Glory Road. Glory Road is currently a private gravel road serving only a few properties, and carries minimal traffic. Grant Line Road is a two-lane thoroughfare which carries approximately 6,500 daily trips in the Cordova Hills vicinity. The Cordova Hills and Pilatus sites are located within Sacramento

County, but are bordered to the west by the City of Rancho Cordova (west side of Grant Line Road). The Cordova Hills and Pilatus sites consist of vacant land.

EXISTING NOISE-SENSITIVE USES

Cordova Hills Site

Existing noise-sensitive uses in the Cordova Hills vicinity consist of three rural residences immediately adjacent to one another on Glory Road, on the northern border of the Cordova Hills site. There are two rural residences approximately 0.5 mile east of the Cordova Hills site, on the opposite side of Carson Creek, in addition to the Carson Creek Junior/Senior High School (approximately 0.2 mile east of the Cordova Hills site). Finally, there is one rural residence approximately 0.3 mile west of the Cordova Hills site, on the opposite side of Grant Line Road.

Pilatus Site

There are several rural residences on Pleasant Hill Lane on the eastern border of the Pilatus site. There is one rural residence on the east side and one on the west side of Grant Line Road, approximately 0.2 and 0.6 mile north of the Pilatus site, respectively.

PROPOSED DEVELOPMENT (OUTSIDE OF CORDOVA HILLS AND PILATUS SITES)

The Cordova Hills and Pilatus sites are adjacent to the Rancho Cordova city limits on the west, along Grant Line Road. The Rancho Cordova General Plan Land Use Policy Map (adopted June 26, 2006) designates the area along Grant Line Road, between Chrysanthy Boulevard and Douglas Road, as Low Density Residential with a node of Commercial at the intersection of Grant Line Road and Douglas Road (north of the Cordova Hills site and immediately west of the Pilatus site). This development along Grant Line Road would be part of the Sunridge Specific Plan, which encompasses approximately 2,606 acres west of Grant Line Road. The Sunridge project would be primarily residential, consisting of mostly single-family residential units, some multi-family garden apartments, townhomes, and condominiums. Another approved project, the SunCreek Specific Plan, lies south of the approved Sunridge Specific Plan and would contain similar uses. A portion of the SunCreek Specific Plan would be constructed along Grant Line Road, directly west of the Cordova Hills site.

EXISTING NOISE SOURCES AND AMBIENT NOISE ENVIRONMENT

Primary sources of noise in the Cordova Hills vicinity consist of traffic on Grant Line Road, operations at Kiefer Landfill, and aircraft operations at Mather Airport. Noise is also generated by the Teichert Aggregate operations north of the Pilatus site, and by the Prairie City State Vehicular Recreation Area (SVRA). These sources, along with noise measurements taken at the Cordova Hills site, are discussed below.

Noise Level Measurements

All noise level measurements were completed using Larson-Davis Laboratories (LDL) Model 820 precision (Class 1) integrating sound level meters equipped with PCB Model 377B02 1/2-inch microphones. The measurement instrumentation was calibrated in the field before use with an LDL Model CAL200 acoustical calibrator.

Ambient noise level measurement surveys were conducted on the Cordova Hills site on April 10 and 11, 2013. Twenty-four-hour noise level measurements were completed at two locations as shown in Exhibit 3.11-4. Site 1 was located approximately 4,000 feet east of Grant Line Road, toward the center of the western half of the Cordova Hills site. This location provided an overall assessment of existing noise exposure at the quietest areas of the Cordova Hills site, and provided the best opportunity to record existing aircraft overflight event noise level data. Site 2 was located approximately 700 feet northeast of the existing edge of Kiefer Landfill, on the southwest boundary of the Cordova Hills site. This location was used to document existing noise exposure from the landfill. Measured hourly noise level data is summarized in Table 3.11-3 and Exhibits 3.11-5 and 3.11-6.

In addition to collecting hourly noise level data, the measurement equipment was programmed to record noise level events exceeding specified level and duration thresholds. In this case, the measurement thresholds were set to exclude most traffic- and nature-related events, but to capture substantial aircraft overflight events. Within the 24-hour period starting at 3 p.m. on April 10, 2013, a total of two possible aircraft events were recorded at measurement Site 1. These events produced SELs of 79-80 dB.

Existing Noise Sources

Traffic

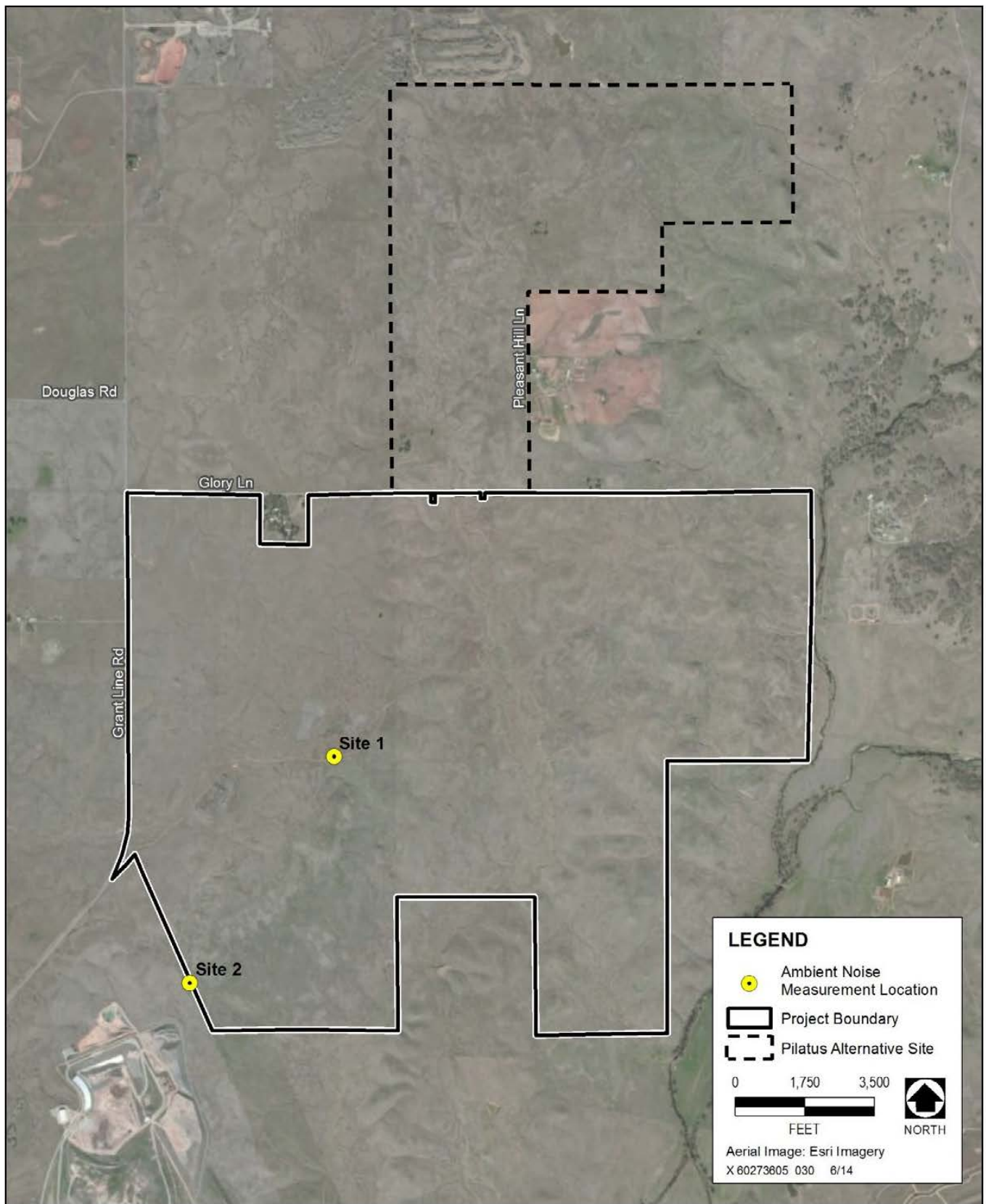
To predict existing traffic noise levels on roadways in the vicinity of the Cordova Hills and Pilatus sites, the FHWA Highway Traffic Noise Prediction Model methodology (FHWA-RD-77-108) was used. Traffic noise level modeling used the California Vehicle Noise Reference Energy Mean Emissions Levels (Calveno REMELs) for automobiles, medium-duty trucks, and heavy-duty trucks, and considered vehicle volume, speed, roadway configuration, distance to the receiver, and the acoustical characteristics of the Cordova Hills and Pilatus sites. The FHWA Model was developed to predict hourly L_{eq} values for free-flowing traffic conditions. A day/night traffic distribution of 87 percent/13 percent was factored into the calculations to determine L_{dn} . Additionally, a medium/heavy truck split of 2 percent/1 percent (percent of the average daily traffic [ADT]) was assumed along with traffic speeds of 35-55 miles per hour (mph) for studied roadways. Truck split information was provided by the project traffic engineer, while traffic speed information was obtained during AECOM site visits and from review of available photographs along the roadways in the vicinity of the Cordova Hills and Pilatus sites.

Traffic volumes for existing conditions were obtained from the project traffic engineer and from the transportation section of this EIS. All traffic volumes were provided in terms of the ADT.

Table 3.11-4 shows the calculated, existing traffic noise levels in terms of L_{dn} at a reference distance of 75 feet from the centerlines of existing roadways. This is considered to be the baseline condition. The table also includes the distances to existing traffic noise contours. As shown, existing traffic noise levels along some roadways currently exceeds Sacramento County's 65 dB L_{dn} land use compatibility limit for residential (noise-sensitive) uses (see the "Regulatory Framework/Applicable Laws, Regulations, Plans, and Policies," subsection below).

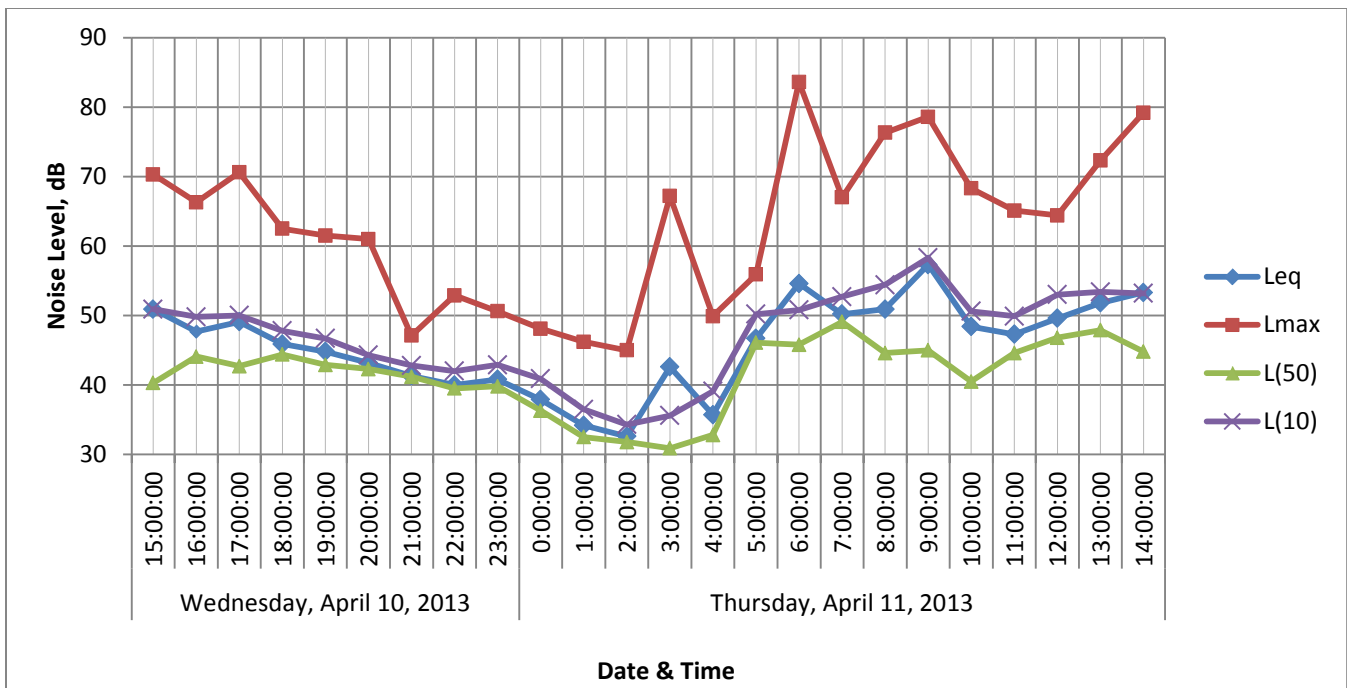
Kiefer Landfill

Kiefer Landfill is immediately adjacent to the southwest boundary of the Cordova Hills site. As shown in Table 3.11-3 and Exhibit 3.11-6, at the southwest corner of the Cordova Hills site near Kiefer Landfill (measurement Site 2), hourly noise levels from approximately 6 a.m. to 2 p.m. were in the range of 40-50 dB L_{50} and 81-84 dB L_{max} . The measurement site was approximately 825 feet from the existing edge of primary landfill



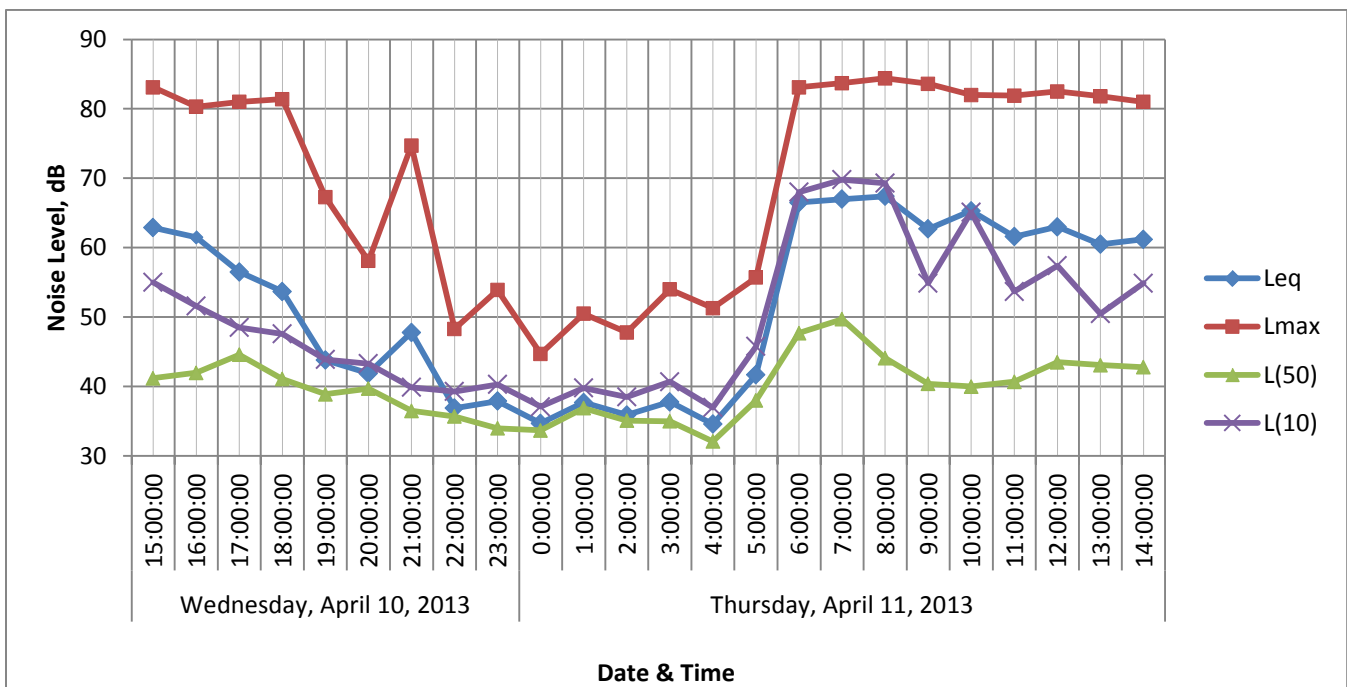
Source: AECOM 2013

Exhibit 3.11-4 Ambient Noise Level Measurement Locations at the Cordova Hills Site



Source: AECOM 2013

Exhibit 3.11-5 Summary of Cordova Hills Site Ambient Noise Level Measurement Results – Site 1



Source: AECOM 2013

Exhibit 3.11-6 Summary of Cordova Hills Site Ambient Noise Level Measurement Results – Site 2

**Table 3.11-3
Summary of Cordova Hills Site Ambient Noise Level Measurement Results – April 10-11, 2013**

Measurement Site	Hourly Noise Level, dB – Arithmetic Average (Range)								L _{dn} , dB
	Daytime Hours (7 a.m.-10 p.m.)				Nighttime Hours (10 p.m.-7 a.m.)				
	L _{eq}	L ₅₀	L ₁₀	L _{max}	L _{eq}	L ₅₀	L ₁₀	L _{max}	
1	49 (41-57)	44 (40-49)	51 (43-58)	67 (47-79)	41 (33-55)	37 (31-46)	41 (34-51)	55 (45-84)	54
2	58 (42-67)	42 (37-50)	54 (40-70)	79 (58-84)	40 (35-67)	36 (32-48)	43 (37-68)	54 (45-83)	65

Notes: dB = decibel; L₁₀ = sound level exceeded 10 percent of the time; L₅₀ = sound level exceeded 50 percent of the time; L_{dn} = day-night average level; L_{eq} = equivalent sound level; L_{max} = maximum sound level.
All average noise levels are arithmetic averages.
Source: AECOM 2013

**Table 3.11-4
Summary of Existing Traffic Noise Levels and Contour Distances**

Roadway	Roadway Segment	Noise Level (dB L _{dn} at 75 Feet)	Contour Distance (Feet)		
			70 dB L _{dn}	65 dB L _{dn}	60 dB L _{dn}
Grant Line Road	Sheldon Road to Calvine Road	62.7	25	53	114
Grant Line Road	Calvine Road to Sunrise Boulevard	65.8	39	84	182
Grant Line Road	Sunrise Boulevard to Jackson Road/SR 16	65.4	37	80	172
Grant Line Road	Jackson Road/SR 16 to Kiefer Boulevard	65.4	37	79	171
Grant Line Road	Kiefer Boulevard to University Boulevard	64.6	33	70	151
Grant Line Road	University Boulevard to Chrysanthy Boulevard	64.6	33	70	151
Grant Line Road	Chrysanthy Boulevard to North Loop	64.6	33	70	151
Grant Line Road	North Loop to Douglas Road	64.6	33	70	151
Grant Line Road	Douglas Road to White Rock Road	66.3	42	91	196
White Rock Road	Kilgore Road to Sunrise Boulevard	70.8	84	181	391
White Rock Road	Sunrise Boulevard to Fitzgerald Road	66.4	43	92	199
White Rock Road	Fitzgerald Road to Grant Line Road	61.8	21	46	98
White Rock Road	Grant Line Road to Prairie City Road	66.4	43	93	200
White Rock Road	Prairie City Road to Scott Road (West)	64.9	34	74	159
White Rock Road	Scott Road (West) to Scott Road (East)	64.9	34	74	159
White Rock Road	Scott Road (East) to County Line	65.2	36	77	166
Jackson Road/SR 16	Watt Avenue to Bradshaw Road	67.5	51	110	238
Jackson Road/SR 16	Bradshaw Road to Excelsior Road	66.8	46	98	212
Jackson Road/SR 16	Excelsior Road to Eagles Nest Road	66.1	41	88	191
Jackson Road/SR 16	Eagles Nest Road to Sunrise Boulevard	66.1	41	88	191
Jackson Road/SR 16	Sunrise Boulevard to Grant Line Road	67.6	52	111	240
Douglas Road	Mather Boulevard to Eagles Nest Road	62.4	23	50	108
Douglas Road	Eagles Nest Road to Sunrise Boulevard	62.2	23	49	106
Douglas Road	Sunrise Boulevard to Rancho Cordova Parkway	60.7	18	39	83

**Table 3.11-4
Summary of Existing Traffic Noise Levels and Contour Distances**

Roadway	Roadway Segment	Noise Level (dB L _{dn} at 75 Feet)	Contour Distance (Feet)		
			70 dB L _{dn}	65 dB L _{dn}	60 dB L _{dn}
Douglas Road	Rancho Cordova Parkway to Grant Line Road	57.9	12	25	54
Kiefer Boulevard	Grant Line Road to Jackson Road/SR 16	58.9	14	29	63
Sunrise Boulevard	U.S. 50 to Folsom Boulevard	71.6	96	207	446
Sunrise Boulevard	Folsom Boulevard to White Rock Road	71.2	90	194	418
Sunrise Boulevard	White Rock Road to Douglas Road	68.8	62	133	288
Sunrise Boulevard	Jackson Road/SR 16 to Florin Road	64.7	33	72	154
Mather Boulevard	Douglas Road to Femoyer Street	59.8	16	34	73
Zinfandel Drive	U.S. 50 to White Rock Road	70.6	82	178	383
Prairie City Road	U.S. 50 to White Rock Road	62.0	22	47	101
Scott Road	U.S. 50 to White Rock Road	61.1	19	41	88

Notes: dB = decibels; L_{dn} = day-night average level; SR = State Route; U.S. 50 = U.S. Highway 50
 Numbers in **bold** indicate noise levels above 65 dB L_{dn}
 Source: Data compiled by AECOM in 2013

operations. It is assumed, given the location of the measurement site relative to the landfill, and the general operating hours of the landfill, that these noise levels were primarily created by landfill operations. This noise level data was used to assess landfill-related noise levels at the closest noise-sensitive receptors on the Cordova Hills site.

Aircraft (Mather Field)

Mather Airport is located approximately 4 miles west of the Cordova Hills and Pilatus sites. According to the *Mather Airport Comprehensive Land Use Plan*, at the nearest point, the Cordova Hills and Pilatus sites are located approximately 2.25 miles outside the 60 dB CNEL noise contour for Mather Airport (Sacramento Area Council of Governments [SACOG] 1997). Noise events were recorded at measurement Site 1 that produced SELs of 79-80 dB. It is assumed for purposes of this analysis that these noise events were aircraft overflights related to Mather Field.

Prairie City State Vehicular Recreation Area

The Prairie City SRVA is a facility managed by California State Parks that serves recreational and competition users of off-road motorcycles, four wheel drive, and all-terrain vehicles (ATVs). The southern boundary of the SVRA is located approximately 1 mile north of the northern Pilatus site boundary.

Teichert Aggregate Facility

Teichert Aggregates owns and operates a processing facility located at 3417 Grant Line Road. The aggregate processing equipment is located approximately 1 mile northwest of the northern Pilatus site boundary.

3.11.4 REGULATORY FRAMEWORK/APPLICABLE LAWS, REGULATIONS, PLANS, AND POLICIES

State laws and regulations are provided for informational purposes and to assist with NEPA review. USACE has considered state, regional, and local plans and ordinances as a part of the environmental review process for this EIS, such as the Sacramento County General Plan Noise Element, Noise Control Ordinance, Mather Comprehensive Land Use Plan, and the Mather Airfield Airport Planning Policy Area.

Sacramento County certified an EIR and approved the Proposed Action in January 2013. State, regional, and local plans, policies, laws, and ordinances were considered in the EIR and adopted mitigation measures have been incorporated into the Proposed Action.

FEDERAL PLANS, POLICIES, REGULATIONS, AND LAWS

U.S. Environmental Protection Agency

The U.S. Environmental Protection Agency (EPA) Office of Noise Abatement and Control was originally established to coordinate Federal noise control activities. After inception, the EPA’s Office of Noise Abatement and Control issued regulations under the Federal Noise Control Act of 1972, establishing programs and guidelines to identify and address the effects of noise on public health and welfare, and the environment. A summary of the EPA’s recommended guidelines for noise levels considered safe for community exposure are presented below in Table 3.11-5 (EPA 1974). To prevent hearing loss over a person’s lifetime, the yearly average L_{eq} should not exceed 70 dB. To minimize interference and annoyance, noise levels should not exceed 55 dB L_{dn} at outdoor activity areas and 45 dB L_{dn} within residential structures.

Effect	Level	Area
Hearing loss	$L_{eq(24)} \leq 70$ dB	All areas.
Outdoor activity interference and annoyance	$L_{dn} \leq 55$ dB	Outdoor areas of residences and farms, and other areas where people spend widely varying amounts of time or where quiet is a basis for use.
	$L_{eq(24)} \leq 55$ dB	Outdoor areas where people spend limited amounts of time, such as school yards, and playgrounds.
Indoor activity interference and annoyance	$L_{dn} \leq 45$ dB	Indoor residential areas.
	$L_{eq(24)} \leq 45$ dB	Other indoor areas with human activities such as schools.

Notes: dB = decibel; $L_{eq(24)}$ = equivalent noise level (the sound energy averaged over a 24-hour period); L_{dn} = day-night Average Level; \leq = less than or equal to
 Sources: U.S. Environmental Protection Agency 1974:3

EPA administrators determined in 1981 that subjective issues such as noise would be better addressed at lower levels of government. Consequently, in 1982 responsibilities for regulating noise control policies were transferred to state and local governments. However, noise control guidelines and regulations contained in the rulings by the EPA in prior years are still upheld by designated Federal agencies, allowing more individualized control for specific issues by designated Federal, state, and local government agencies.

U.S. Department of Housing and Urban Development

The U.S. Department of Housing and Urban Development (HUD), in its efforts to “provide decent housing and a suitable living environment for all Americans,” has established an “acceptable” exterior noise exposure limit for compatibility with residential uses, of 65 dB L_{dn} or less. HUD has established an interior noise exposure limit of 45 dB L_{dn}. These criteria are consistent with most local general plan criteria, including the City of Rancho Cordova and the County of Sacramento as presented below.

Federal Transit Administration Groundborne Vibration Guidelines

To address the human response to groundborne vibration, the FTA has guidelines for maximum-acceptable vibration criteria for different types of land uses. Maximum acceptable vibration criteria based on the frequency of an event are applied to different types of land uses to address the human response to groundborne vibration (FTA 2006). These guidelines recommend 65 VdB, referenced to 1 μin/sec and based on the velocity amplitude for land uses where low ambient vibration is essential for interior operations (e.g., hospitals, high-tech manufacturing, and laboratory facilities); 80 VdB for residential uses and buildings where people normally sleep; and 83 VdB for institutional land uses with primarily daytime operations (e.g., schools, churches, clinics, and offices) (FTA 2006). Table 3.11-6 summarizes the FTA guidelines.

Land Use Category	Effect Levels (VdB; relative to 1 microinch per second)		
	Frequent Events ¹	Occasional Events ²	Infrequent Events ³
Category 1: Buildings where vibration would interfere with interior operations	65 ⁴	65 ⁴	65 ⁴
Category 2: Residences and buildings where people normally sleep	72	75	80
Category 3: Institutional land uses with primarily daytime uses	75	78	83

Notes: VdB = vibration decibels

¹ Defined as more than 70 vibration events of the same source per day. Most rapid transit projects fall into this category.

² Defined as between 30 and 70 vibration events of the same source per day. Most commuter trunk lines have this many operations.

³ Defined as fewer than 30 vibration events of the same kind per day. This category includes most commuter rail branch lines.

⁴ This criterion limit is based on levels that are acceptable for most moderately sensitive equipment such as optical microscopes. Vibration-sensitive manufacturing or research will require detailed evaluation to define the acceptable vibration levels. Ensuring lower vibration levels in a building often requires special design of the heating, ventilation, and air conditioning systems and stiffened floors.

Source: FTA 2006:8-3

Standards have also been established to address the potential for construction-caused vibration annoyance or interference. The primary concern related to construction vibration is the potential to cause structural damage to buildings by the operation of heavy-duty construction equipment. Varying criteria have been developed to address the appropriate level of vibration that is considered acceptable before it may result in damage to structures or varying building types (FTA 2006). Table 3.11-7 shows the allowable project contribution vibration level thresholds determined to be acceptable for different building types.

Table 3.11-7 Summary of Federal Transit Administration Vibration Damage Criteria		
Building Category	PPV (in/sec)	Approximate L _v ¹
Reinforced concrete, steel, or timber (no plaster)	0.5	102
Engineered concrete and masonry (no plaster)	0.3	98
Nonengineered timber and masonry buildings	0.2	94
Buildings extremely susceptible to vibration damage	0.12	90

Notes: in/sec = inches per second; PPV = peak particle velocity
¹ Root mean square velocity in decibels (VdB) referenced to 1 microinch per second.
Source: FTA 2006:12-13

The criteria established by FTA provide the basis for what would be considered acceptable vibration levels generated by a project and perceived by adjacent or on-site receptors.

STATE PLANS, POLICIES, REGULATIONS, AND LAWS

California Department of Public Health

The California Department of Public Health (CDPH) Office of Noise Control has studied the relationship between noise levels and different land uses. As a result, the CDPH has established four categories for judging the severity of noise intrusion on specified land uses. Noise in the “normally acceptable” category places no undue burden on affected receivers and would require no mitigation. As noise levels increase into the “conditionally acceptable” range, some mitigation of noise levels (as established by an acoustical study) may be warranted. At the next level, noise intrusion is classified as “normally unacceptable” and would require noise level reduction measures to avoid adverse community effects. Finally, noise levels in the “clearly unacceptable” category are so severe that they cannot be mitigated.

California General Plan Guidelines

The State of California *General Plan Guidelines* (Governor’s Office of Planning and Research 2003) established guidelines for consideration in city and county general plan noise elements, including sound level/land-use compatibility guidelines broken into the acceptability categories presented above (i.e., normally acceptable, conditionally acceptable, normally unacceptable, and clearly unacceptable). The state guidelines identify noise levels below 60 dB L_{dn} as being “normally acceptable” for low-density residential uses. Noise levels between 55-70 dB L_{dn} are considered “conditionally acceptable.” The overlapping range of noise levels is intended to indicate that local conditions, including ambient noise levels and community attitudes toward dominant sound sources, should be considered in evaluating land-use compatibility. Compliance with the guidelines by cities and counties is not required, but it is quite common.

Title 24, California Code of Regulations

Title 24 of the California Code of Regulations establishes standards governing interior noise levels that apply to all new multifamily residential units in California. The standards require that acoustical studies be performed prior to construction at building locations where the existing noise environment exceeds 60 dB L_{dn}. Such

acoustical studies are required to establish mitigation measures that will limit maximum noise levels to 45 dB L_{dn} within habitable rooms.

Assembly Bill 2274

Noise emissions from recreational off-road vehicles are governed in California by Assembly Bill (AB) 2274, Chapter 563, enacted in September 2002, and enforced by California State Parks. AB 2274 limits the noise level produced by recreational off-road vehicles manufactured after 1998 and vehicles defined as competition vehicles that were manufactured after 1986 to 96 dB at 20 inches from the exhaust pipe.

REGIONAL AND LOCAL PLANS, POLICIES, REGULATIONS, AND ORDINANCES

Mather Airport Comprehensive Land Use Plan

The State of California regulates airports under the authority of the Airport Land Use Commission Law, Chapter 4, Article 3.5, of the California Public Utilities Code. The primary purposes of the Airport Land Use Commission Law are as follows:

- ▶ Protect public health, safety, and welfare through the adoption of land use standards that minimize the public's exposure to safety hazards and excessive levels of noise.
- ▶ Prevent the encroachment of incompatible land uses around public-use airports, thereby preserving the utility of these airports into the future.

SACOG has been designated as the Airport Land Use Commission (ALUC) for Sacramento, Sutter, Yolo, and Yuba Counties. The ALUC is an autonomous agency and does not have jurisdiction over the operation of any airport; however, the ALUC is required to prepare a Comprehensive Land Use Plan (CLUP) for each public airport within its jurisdiction.

A CLUP designates planning boundaries (zones) around the airport and provides guidelines that define compatible types and patterns of future land use. These guidelines fall into three categories: 1) provide height restrictions that aim to protect the navigable airspace around airports for aircraft safety, 2) provide for noise compatibility by minimizing the number of people exposed to noise from aircraft operations, and 3) provide for the safety of people on the ground by minimizing the number of people exposed to hazards related to aircraft operations and accidents.

In May 1996, the ALUC prepared a draft Mather Airport CLUP Update to establish new height, noise, and safety zones for Mather Airport based on its projected buildout use as a County-operated aviation facility (rather than a military airfield). An amended version of the CLUP was adopted by the ALUC Board on May 15, 1997. The Sacramento County Board of Supervisors approved a package of amendments to the Sacramento County General Plan that included this amended version of the Mather Field CLUP.

The following information is from the noise section of the 1997 Mather CLUP. Airport noise is of concern since most complaints are related to noises generated by aircraft operations. The noise exposure has the potential to interfere with sleep, conversation, school, business, and recreational activities. The effect of noise interference on normal activities is most often described in terms of annoyance. Annoyance is a measure of the general adverse reaction people have to noise that causes interference to their normal lives. Currently, the best measure of this

response to noise is the percentage of the affected population that can be characterized as “highly annoyed” by long-term exposure to noise at a specified level. Community response is a term used to describe annoyance of groups of people exposed to noise sources in residential settings.

There is variability in the way individuals react to noise that makes it impossible to accurately predict how an individual will react to a given noise. However, when an affected area is considered as a whole, trends start to emerge that relate noise to annoyance on a community level. The studies of community reaction to noise have shown that the community response to aircraft noise is affected not only by how loud the noise is (individual events), but also how often the noise occurs (how many events). It is noted in the Mather CLUP that complaints are not an accurate measure of effect. Annoyance can exist without complaints and complaints can occur without annoyance; thus, complaints are an inadequate indicator of the full extent of noise effects on a community or group of people.

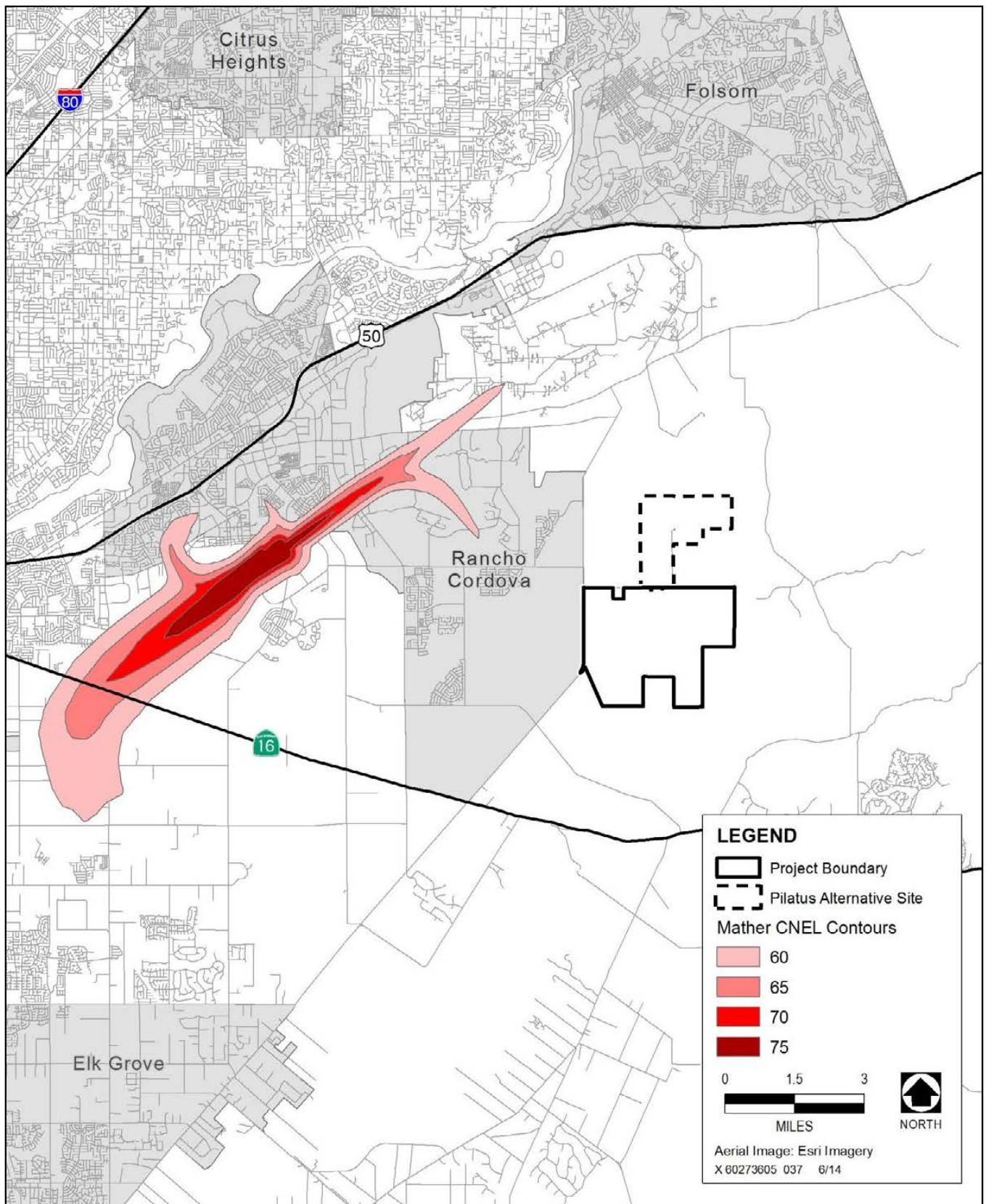
Based on studies of environmental noise exposure, the State of California has established noise standards within the California Code of Regulations, Title 21, Subchapter 6. These standards designate the CNEL as the noise rating method to be used at airports in California. Most commercial, industrial, and recreational uses are compatible with noise levels up to 70 dB CNEL. The State has deemed the following land uses to be incompatible aircraft noise levels in excess of 65 dB CNEL:

- ▶ residential dwellings;
- ▶ public and private schools;
- ▶ hospitals and convalescent homes; and
- ▶ churches, synagogues, temples and other places of worship.

The Cordova Hills and Pilatus sites are located outside of the 60 dB CNEL aircraft noise level contour, as shown in Exhibit 3.11-7. Therefore, development of the Proposed Action or Alternatives is not considered an incompatible use per the Airport Land Use Commission Law, Chapter 4, Article 3.5, of the California Public Utilities Code.

Mather Airport Planning Policy Area

The Cordova Hills and Pilatus sites are located within the Mather Airport Planning Policy Area (APPA) as shown in Exhibit 3.11-8. The Mather APPA was adopted on April 19, 2006 by the Sacramento County Board of Supervisors (Resolution 2006-1378). The APPA boundary is the area around Mather Airport that contains the 55 dB CNEL aircraft noise level contour and most of the portions of flight tracks for large aircraft flying below 3,000 feet above ground level. Within this area, residential development would be allowed, but a disclosure notice to potential homebuyers that addresses aircraft overflight and related noise beyond the normally mapped noise exposure contours would be required. This disclosure notice includes a seller’s real estate disclosure statement, a subdivision white paper disclosure, recorded deed notices, and a grant of avigation easement. Thus, development within the APPA is not restricted, but there would be conditions that residential development must be contingent upon the requirement of a disclosure notice to prospective buyers. The disclosure would identify the property as located within the APPA and that aircraft can be expected to regularly fly at varying altitudes below 3,000 feet above ground level in that area. The granting of an avigation easement would also be required to further ensure that all future home buyers are aware of potential aircraft overflights.



Source: County of Sacramento 2012

Exhibit 3.11-7

Mather Airport Noise Level Contour Map



02/24/2006



LEGEND

Landuse

- Rural Residential
- Very Low Density Residential
- Low Density Residential
- Medium Density Residential
- Medium High Density Residential
- High Density Residential
- High-Intensity Office
- Moderate-Intensity Office
- Community/Neighborhood Commercial/Office
- Regional Commercial/Office
- Community/Neighborhood Retail
- Regional Retail
- Light Industrial
- Heavy Industrial
- Public/Quasi-Public
- Mixed Use
- Urban Reserve
- Agriculture
- Open Space
- Forest
- Water
- APPA with - Recommended Flight Track Inclusion

LANDUSE Sources:

SACOG - Sacramento, El Dorado, Placer Counties
 CASIL - Amador, San Joaquin Counties

Source: County of Sacramento 2012

Exhibit 3.11-8

Mather Airport Planning Policy Area

Sacramento County General Plan

The goals presented in the *Sacramento County 2030 General Plan* (General Plan) (County of Sacramento 2011) Noise Element are to: 1) protect the citizens of Sacramento County exposure to excessive noise levels, and 2) protect the economic base of Sacramento County by preventing incompatible land uses from encroaching upon existing planned noise-producing uses. The General Plan defines a noise-sensitive outdoor area as the primary activity area associated with any given land use at which noise sensitivity exists. Noise sensitivity generally occurs in locations where there is an expectation of relative quiet, or where noise could interfere with a given activity. For example, a residential backyard would be considered a primary activity area since loud noise could interfere with the ability to engage in normal conversation.

The General Plan Noise Element establishes noise level criteria to aid in determining land use compatibility by defining the limits of noise levels for sensitive land uses as follows.

- ▶ Policy NO-1. The noise level standards for noise-sensitive areas of new uses affected by traffic or train noise sources in Sacramento County are shown in Table 3.11-8. Where the noise level standards of Table 3.11-8 are predicted to be exceeded at new uses proposed within Sacramento County, appropriate noise mitigation measures shall be included in the project design to reduce projected noise levels to a state of compliance with the Table 3.11-8 standards. These standards apply only to traffic or train noise at proposed new noise-sensitive uses.

Table 3.11-8 Noise Standards for New Uses Affected by Traffic and Train/Rail Noise – Sacramento County General Plan Noise Element			
New Land Use	Sensitive ¹ Outdoor Area (dB, L _{dn})	Sensitive Interior ² Area (dB, L _{dn})	Notes
All residential	65	45	5
Transient lodging	65	45	3,5
Hospitals and nursing homes	65	45	3,4,5
Theaters and auditoriums	None	35	3
Churches, meeting halls, schools, libraries	65	40	3
Office buildings	65	45	3
Commercial buildings	None	50	3
Playgrounds, parks	70	None	
Industry	65	50	3

Notes: dB = decibel; L_{dn} = day-night average level

¹ Sensitive areas are defined in the "Acoustic Terminology," section of the County Noise Element.

² Interior noise level standards are applied within noise-sensitive rooms of the given land uses, with windows and doors in the closed position.

³ Where there are no sensitive exterior spaces proposed for these uses, only the interior noise level standards shall apply.

⁴ Hospitals are often noise-generating uses. The exterior noise level standards for hospitals are applicable only at clearly identified areas designated for outdoor relaxation either by hospital staff or patients.

⁵ If this use is affected by railroad noise, a maximum (L_{max}) noise level standard of 70 dB shall be applied to all sleeping rooms to reduce the potential for sleep disturbance during nighttime train passages.

Source: County of Sacramento 2011

- ▶ **Policy NO-4.** New residential development within adopted Airport Policy Area boundaries, but outside of the 60 dB CNEL aircraft noise level contour, shall be subject to the following conditions.
 - Provide minimum noise insulation to 45 dB CNEL within new residential dwellings, including detached single-family dwellings, with windows closed in any habitable room.
 - Notification in the Public Report prepared by the California Department of Real Estate disclosing the fact to prospective buyers that the parcel is located within an Airport Policy Area.
 - An Avigation Easement shall be prepared by the Sacramento County Counsel’s Office granted to the County of Sacramento, recorded with the Sacramento County Recorder, and filed with Department of Airports. The Avigation Easement shall acknowledge the property location within an Airport Planning Policy Area and shall grant the right of flight and unobstructed passage of all aircraft into and out of the subject Airport.

- ▶ **Policy NO-5.** The interior and exterior noise level standards for noise-sensitive areas of new uses affected by existing non-transportation noise sources in Sacramento County are shown in Table 3.11-9. Where the noise level standards of Table 3.11-9 are predicted to be exceeded at a proposed noise-sensitive area due to existing non-transportation noise sources, appropriate noise mitigation measures shall be included in the project design to reduce projected noise levels to a state of compliance with the Table 3.11-9 standards within sensitive areas.

Table 3.11-9 Summary of Non-Transportation Noise Level Standards – Sacramento County General Plan Noise Element			
New Land Use	Noise Level – L ₅₀ /L _{max} (dB)		
	Outdoor Area		Interior
	Daytime (7 a.m.-10 p.m.)	Nighttime (10 p.m.-7 a.m.)	Day and Night
All residential	55/75	50/70	35/55
Transient lodging	55/75	--	35/55
Hospitals and nursing homes	55/75	--	35/55
Theaters and auditoriums	--	--	30/50
Churches, meeting halls, schools, libraries	55/75	--	35/60
Office buildings	60/75	--	45/65
Commercial buildings	--	--	45/65
Playgrounds, parks	65/75	--	--
Industry	60/80	--	50/70

Notes: -- = no applicable standard; dB = decibel; L₅₀ = sound level exceeded 50 percent of the time; L_{max} = maximum sound level
 The standards shall be reduced by 5 dB for sounds consisting primarily of speech or music, or for recurring impulsive sounds. If the existing ambient noise level exceeds the standards, then the noise level standards shall be increased at 5 dB increments to encompass the ambient noise level.
 Interior noise level standards are applied within noise-sensitive areas of the various land uses, with windows and doors in the closed position.
 Outdoor activity areas of non-residential facilities are not commonly used during nighttime hours.
 Hospitals are often noise-generating uses. The exterior noise level standards for hospitals are applicable only at clearly identified areas

designated for outdoor relaxation by either hospital staff or patients.

Where median noise level (L_{50}) data is not available for a particular noise source, average (L_{eq}) values may be substituted for the standards of this table provided the noise source in question operates for at least 30 minutes of an hour. If the source in question operates less than 30 minutes per hour, then the maximum noise level standards shown would apply.

Source: County of Sacramento 2011

- ▶ **Policy NO-6.** Where a project would consist of or include non-transportation noise sources, the noise generation of those sources shall be mitigated so as not to exceed the interior and exterior noise level standards of Table 3.11-9 at existing noise-sensitive areas in the project vicinity.
- ▶ **Policy NO-7.** The “last use there” shall be responsible for noise mitigation. However, if a noise-generating use is proposed adjacent to lands zoned for uses which may have sensitivity to noise, then the noise generating use shall be responsible for mitigating its noise generation to a state of compliance with the Table 3.11-9 standards at the property line of the generating use in anticipation of the future neighboring development.
- ▶ **Policy NO-8.** Noise associated with construction activities shall adhere to the County Code requirements. Specifically, Section 6.68.090(e) addresses construction noise within the County.
- ▶ **Policy NO-9.** For capacity enhancing roadway or rail projects, or the construction of new roadways or railways, a noise analysis shall be prepared in accordance with NO-12 below. If projected, post-project traffic noise levels at existing uses exceed the noise standards of Table 3.11-9, then feasible methods of reducing noise levels to those consistent with the Table 3.11-9 standards shall be assessed as part of the noise analysis. In the case of existing residential uses, sensitive outdoor areas shall be mitigated to 60 dB L_{dn} , when possible, through the application of feasible methods to reduce noise levels. If 60 dB L_{dn} cannot be achieved after the application of all feasible methods of reducing noise, then noise levels up to 65 dB L_{dn} will be allowed.

If pre-project traffic noise levels for existing uses already exceed the noise standards of Table 3.11-9 and the increase is significant as defined below, feasible methods of reducing noise to levels consistent with the Table 3.11-9 standards should be applied. In no case shall the long-term noise exposure for non-industrial uses be greater than 75 dB L_{dn} .

A significant noise level increase relative to roadway or train noise sources is defined as shown in Table 3.11-10:

Preproject (Ambient) Noise Environment (L_{dn})	Significant Increase
Less than 60 dB	5+ dB
60-65 dB	3+ dB
Greater than 65 dB	1.5+ dB

Notes: dB = decibel; L_{dn} = day-night average level
Source: County of Sacramento 2011

- ▶ Policy NO-12. All acoustical analyses prepared to determine compliance with the noise level standards contained within the Noise Element of the General Plan shall be prepared in accordance with the following.
 - Be the responsibility of the applicant.
 - Be prepared by qualified persons experienced in the fields of environmental noise assessment and architectural acoustics.
 - Include representative noise level measurements with sufficient sampling periods and locations to adequately describe local conditions.
 - Estimate projected future (20 year) noise levels in terms of the standards of Table 3.11-8 and Table 3.11-9, and compare those levels to the adopted policies of the Noise Element.
 - Recommend appropriate mitigation to achieve compliance with the adopted policies and standards of the Noise Element.
 - Estimate interior and exterior noise exposure after the prescribed mitigation measures have been implemented.
- ▶ Policy NO-13. Where noise mitigation measures are required to satisfy the noise level standards of this Noise Element, emphasis shall be placed on the use of setbacks and site design to the extent feasible, prior to consideration of the use of noise barriers.

Sacramento County Noise Control Ordinance

Exterior Noise

The Sacramento County Noise Control Ordinance, Chapter 6.68.070, *Exterior Noise Standards* establishes limits for exterior noise levels at designated agricultural-residential and residential properties. The ordinance does not apply to noise levels at agriculturally zoned properties. Most of the properties surrounding the Cordova Hills and Pilatus sites are zoned for agricultural use; however, some of the properties along Grant Line Road, Douglas Road, and other County roadways near the Cordova Hills and Pilatus sites are zoned residential. These residential properties are protected by the Noise Control Ordinance.

The standards found in the County's Noise Control Ordinance are based on the duration of noise on private property over a given 1-hour period. The ordinance is primarily concerned with regulating noise other than that generated by transportation sources (e.g., traffic, trains, aircraft); that is, it is established to address noise from stationary, non-transportation sources. The ordinance limits noise exposure based on duration, type of noise, tonal characteristics of the noise, the ambient noise level, and time of day. Table 3.11-11 summarizes the Sacramento County Noise Ordinance standards.

In recognition of ambient noise, the ordinance allows the standards set forth in Table 3.11-11 to be adjusted upward in 5 dB increments to encompass the ambient noise level. For example, if the measured ambient noise level for a given hour was 57 dB L₅₀, the daytime L₅₀ noise standard would be increased to 60 dB. The Noise Control Ordinance also states that each of the standards identified in Table 3.11-11 should be reduced by 5 dB for impulsive or simple-tone noises, or for noises consisting primarily of speech or music.

**Table 3.11-11
Sacramento County Noise Ordinance Criteria**

Cumulative Duration of the Intrusive Sound	Noise Level Descriptor	Noise Level Limit (dB)	
		Daytime (7 a.m.–10 p.m.)	Nighttime (10 p.m.–7 a.m.)
30-60 minutes per hour	L ₅₀	55	50
15-30 minutes per hour	L ₂₅	60	55
5-15 minutes per hour	L ₀₈	65	60
1-5 minutes per hour	L ₀₂	70	65
Anytime	L _{max}	75	70

Note: dB = decibel

Source: County of Sacramento, Noise Control Ordinance, Chapter 6.68.070

Applicable Exemption

The Sacramento County Noise Control Ordinance, Chapter 6.68.090, *Exemptions* establishes exemptions to the Chapter 6.68.070 exterior noise exposure limits. Specifically, Section 6.68.090(e) exempts construction noise based on the following.

Noise sources associated with construction, repair, remodeling, demolition, paving or grading of any real property, provided said activities do not take place between the hours of 8 p.m. to 6 a.m. on weekdays and Friday commencing at 8 p.m. through 7 a.m. Saturday; Saturdays commencing at 8 p.m. through 7 a.m. on Sunday and on Sunday after the hour of 8 p.m. Provided, however, when an unforeseen or unavoidable condition occurs during a construction project and the nature of the project necessitates that work in process be continued until a specific phase is completed, the contractor or owner shall be allowed to continue work after 8 p.m. and to operated machinery and equipment necessary until completion of the specific work in progress can be brought to conclusion under conditions which will not jeopardize inspection acceptance or create undue financial hardship for the contractor or owner.

3.11.5 ANALYSIS METHODOLOGY

TRAFFIC NOISE

The FHWA Model was used to calculate traffic noise in the vicinity of the Cordova Hills and Pilatus sites under cumulative conditions at buildout of the Proposed Action or Alternatives. The roadways analyzed were consistent with those analyzed in Section 3.15, “Traffic and Transportation.” Roadway segment traffic volumes (ADT) and assumed traffic speeds, fleet mixes (i.e., percent auto, medium truck, and heavy truck), and day/night traffic splits were used to assess traffic noise exposure at a distance of 100 feet from each roadway segment centerline. Additionally, the FHWA Model was used to estimate the locations of the 70 dB L_{dn}, 65 dB L_{dn}, and 60 dB L_{dn} traffic noise contours for the studied roadway segments, and traffic noise levels were assessed for specific receiver locations in the study area, as required. The FHWA Model was calibrated based on short-term traffic noise-level measurements and concurrent traffic counts for select roadway segments. All modeled traffic noise levels were assumed to be conservative since the noise level reduction effects of topographical shielding, excess ground absorption, and atmospheric absorption were not considered in the analyses. Traffic modeling was

prepared to illustrate the contribution of the Proposed Action or Alternatives to cumulative conditions in 2035. This cumulative plus project modeling was used for all traffic noise analysis.

CONSTRUCTION NOISE

Noise associated with construction of the Proposed Action or Alternatives was assessed using the FHWA's Roadway Construction Noise Model (RCNM) and heavy equipment/equipment usage factors for assumed worst-case construction operations. Likewise, construction-related noise effects were assessed based on FHWA RCNM recommendations summarized in the *Roadway Construction Noise Model User's Guide* (FHWA 2006). Construction noise calculated at the closest existing residential use should not exceed the ambient (measured) $L_{10} + 5$ dB. In this case, the effect of construction noise at existing and proposed residential uses in the Cordova Hills and Pilatus sites would be considered significant at levels of 56 dB L_{10} (5 dB added to the average, measured, daytime L_{10} at Site 1 [see Table 3.11-3]) or higher.

STATIONARY, OFF-SITE NOISE SOURCES

Noise levels associated with the existing operations at the nearby Kiefer Landfill were measured at the boundary of the Cordova Hills site closest to the landfill. Accounting for attenuation due to distance, these noise levels were projected outward to the closest proposed noise-sensitive uses of the Proposed Action or Alternatives. Resulting noise levels were compared to the applicable Sacramento County noise level criteria to assess the potential for noise effects on the Cordova Hills and Pilatus sites from this stationary noise source. Noise levels associated with the Teichert Aggregates site and the Prairie City SVRA were not measured due to their distance to the Cordova Hills site.

STATIONARY, ON-SITE NOISE SOURCES

Noise exposure and potential noise exposure effects from stationary, on-site noise sources associated with the alternatives under consideration were assessed qualitatively. For example, potential noise exposure from operations of flex commercial or school uses at adjacent residential uses were examined.

AIRCRAFT NOISE

As presented above, existing aircraft-related noise exposure from operations at Mather Airport does not exceed the residential land-use compatibility threshold of 60 dB CNEL. Therefore, development of the Proposed Action or Alternatives is not considered to be incompatible relative to aircraft noise exposure. However, single-event aircraft operations in the vicinity of the Cordova Hills and Pilatus sites may produce SELs as high as 80 dB during a typical day. These events may have an adverse effect on residential uses with respect to sleep disturbance (noise). This potential effect was addressed based on the measured single-event aircraft noise levels on the Cordova Hills and Pilatus sites and application of the American National Standards Institute, Inc. (ANSI) and Acoustical Society of America (ASA) Standard Method 12.9-2008/Part 6 (ANSI/ASA S12.9-2008/Part 6). This analysis addressed the probability of awakening (sleep disturbance) as a function of noise and operations levels of aircraft overflights in the vicinity of the Cordova Hills or Pilatus sites.

Because the Final EIR has already been certified, all Final EIR Mitigation Measures, the Rezone and Tentative Large Lot Parcel Map Conditions of Approval, and the obligations found in the Development Agreement (collectively referred to as the project entitlements) are considered a part of the Proposed Action. Thus, these

measures and requirements are considered when analyzing the significance of effects under the Proposed Action. Because the project entitlements were imposed on the Proposed Action by the County as part of its approval process, it is reasonable to assume that if one of the action alternatives were adopted, the County would impose similar conditions during the entitlement of the alternative.

THRESHOLDS OF SIGNIFICANCE

The determinations of the significance of effects for this analysis are based on professional standards regularly used in environmental review documents in the region. These thresholds encompass the factors taken into account under NEPA to determine the significance of an action in terms of its context and the intensity of its effects. These are also informed by the environmental checklist in Appendix G of the State CEQA Guidelines. The alternatives under consideration were determined to result in a significant effect related to noise if they would do any of the following:

- ▶ expose people to or generate noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
- ▶ expose people to or generate excessive ground-borne vibration or ground-borne noise levels;
- ▶ produce a substantial permanent increase in noise levels relative to the ambient condition in the project vicinity;
- ▶ produce a substantial temporary or periodic increase in noise levels relative to the ambient condition in the project vicinity;
- ▶ expose people residing or working in the project area to excessive aircraft noise levels (applicable to projects located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport); or
- ▶ expose people residing or working in the project area to excessive aircraft noise levels (applicable to projects located within the vicinity of a private airstrip).

Operational Exposure to Groundborne Noise and Vibration—Daily operation of the Proposed Action or Alternatives would not expose people or structures to excessive groundborne vibration or groundborne noise levels. Operational groundborne vibration in the vicinity of the Cordova Hills or Pilatus sites would be generated by vehicular travel on the local roadways and access streets. Although vehicular traffic generates ground vibration, the pneumatic tires and suspension systems attenuate the vibration forces to the point that the resulting ground vibration is almost always below the threshold of human perception. When vibration from vehicular traffic is perceptible, the cause usually can be traced to irregularities in the roadway surface such as potholes or misaligned expansion joints. Although there would be vibration from truck deliveries at the Cordova Hills and Pilatus sites, typical groundborne vibration caused by trucks is less than 65 VdB at 50 feet (FTA 2006:7-5). The nearest sensitive uses along the roads within and surrounding the Cordova Hills and Pilatus sites would be approximately 75 feet. Therefore, truck-related vibration levels would not be perceptible by sensitive receptors, and this issue is not addressed further in this EIS.

Exposure to Noise from Private Airstrips—The Cordova Hills and Pilatus sites are not located in the vicinity of a private airstrip, and thus would not expose people to excessive aircraft noise levels from such a facility.

Therefore, this issue is not addressed further in this EIS. Noise from single-event aircraft overflights is evaluated below in Section 3.11.6.

3.11.6 ENVIRONMENTAL CONSEQUENCES AND MITIGATION MEASURES

EFFECTS ANALYSIS

Effects that would occur under each alternative development scenario are identified as follows: NA (No Action), PA (Proposed Action), EDP (Expanded Drainage Preservation), EP (Expanded Preservation), P (Pilatus), and RC (Regional Conservation). The effects for each alternative are compared relative to the PA at the end of each effect conclusion (i.e., similar, greater, lesser).

EFFECT 3.11-1 **Expose Proposed On-Site Noise-Sensitive Uses to Traffic Noise Levels in Excess of Applicable Standards.** *Implementation of the Proposed Action or Alternatives would place noise-sensitive uses in areas with existing and future traffic noise – attributable both to project traffic as well as traffic from existing and future development – which may adversely affect future noise-sensitive uses on the Cordova Hills and Pilatus sites.*

NA

Under the No Project Alternative, no development would occur. Thus, there would be **no indirect** or **direct** effects related to traffic noise exposure under the No Action Alternative. *[Lesser]*

Mitigation Measure: No mitigation measures are required.

PA

As presented in Section 3.11.4, “Regulatory Framework/Applicable Laws, Regulations, Plans, and Policies,” noise-sensitive land uses (i.e., residential) are generally compatible with exterior traffic-related noise exposure that does not exceed 60 dB L_{dn}. Where it is not possible to reduce exterior traffic noise exposure to 60 dB L_{dn} or less by incorporating a practical application of the best available noise-reduction technology, an exterior traffic-related noise level of up to 65 dB L_{dn} would be allowed under the Sacramento County General Plan, Noise Element. Traffic noise levels for the Cumulative Plus Project condition were calculated for the Proposed Action using the analysis methodology presented in Section 3.11.5. Calculated traffic noise levels for the evaluated roadways are summarized in Table 3.11-12. As shown, traffic noise levels along portions of Grant Line Road on the west side of the Cordova Hills site, and North Loop Road, and University Boulevard within the Cordova Hills site, could exceed the applicable 65 dB L_{dn} land use compatibility limit for residential uses.

**Table 3.11-12
Summary of Traffic Noise Levels – Cumulative Plus Project (Proposed Action)**

Roadway	Roadway Segment	Noise Level dB L _{dn} at 75 Feet ¹	Contour Distance, Feet		
			70 dB L _{dn}	65 dB L _{dn}	60 dB L _{dn}
Grant Line Road	Kiefer Boulevard to University Boulevard (future)	71.4	93	200	430
Grant Line Road	University Boulevard (future) to Chrysanthy Boulevard (future)	70.7	83	179	386
Grant Line Road	Chrysanthy Boulevard (future) to North Loop Road (future)	70.1	76	164	354
Grant Line Road	North Loop Road (future) to Douglas Road	73.0	119	257	553
North Loop Road	Grant Line Road to Town Center Drive	66.2	42	90	194
North Loop Road	Town Center Drive to Street A	65.0	35	75	161
North Loop Road	Street A to Street D	63.3	27	57	124
North Loop Road	Street D to Street F	59.1	14	30	65
North Loop Road	Street F to University Boulevard	53.4	6	13	27
Chrysanthy Boulevard	Grant Line Road to Town Center Drive	63.1	26	56	121
University Boulevard	Grant Line Road to Town Center Drive	65.7	39	83	179
University Boulevard	Town Center Drive to Street A	62.5	24	51	110
University Boulevard	Street A to Street C	59.3	14	31	67
University Boulevard	Street C to Street D	58.3	12	27	58
University Boulevard	Street D to Street E	57.6	11	24	52
University Boulevard	Street E to North Loop Road	55.5	8	17	37
Town Center Drive	North Loop Road to Chrysanthy Boulevard	58.5	13	28	59
Town Center Drive	Chrysanthy Boulevard to University Boulevard	56.0	9	19	40
Street A	North Loop Road to University Boulevard	59.2	14	31	66
Street A	University Boulevard to Street B	58.7	13	29	62
Street A	Street B to Street D	55.8	8	18	39
Street D	North Loop Road to University Boulevard	61.1	19	41	89
Street D	University Boulevard to Street A	57.8	11	25	53
Street E	University Boulevard to Street A	53.7	6	13	28

Notes: dB = decibel; L_{dn} = day-night average level

numbers in **bold** indicate noise levels above 65 dB L_{dn}

¹ Modeling traffic noise at this distance (75 feet) is representative of the area's residential outdoor activity distances to the roadway's centerlines.

Source: Data modeled by AECOM in 2014

As part of the CEQA EIR certification and project approval process, the project applicant committed to implementing various mitigation measures for the Proposed Action. The mitigation measures that are applicable to future traffic noise effects that were incorporated into the Proposed Action by the EIR mitigation measures, conditions of approval, and development agreement (project entitlements) are listed below:

- ▶ All residential development projects exposed to greater than 65 dB L_{dn} at the property line shall be designed and constructed to reduce noise levels to within General Plan Noise Element standards for exterior activity areas. Potential options for achieving compliance with noise standards include, but are not limited to, noise barriers, increased setbacks, and/or strategic placement of structures. An acoustical analysis substantiating the required noise level reduction, prepared by a qualified acoustical consultant shall be submitted to and verified by the Division of Environmental Review and Assessment prior to the issuance of any building permits for affected sites (*Final EIR Mitigation Measure NO-1*).
- ▶ All residential development projects exposed to greater than 70 dB L_{dn} at the property line shall be designed and constructed to achieve an interior noise level of 45 dB L_{dn} or less. Potential options for achieving compliance with noise standards include, but are not limited to, noise barriers, increased setbacks, strategic placement of structures and/or enhanced building construction techniques. An acoustical analysis substantiating the required noise level reduction, prepared by a qualified acoustical consultant, shall be submitted to and verified by the Division of Environmental Review and Assessment prior to the issuance of any building permits for the site (*Final EIR Mitigation Measure NO-2*).
- ▶ Non-residential development projects such as churches, libraries, meeting halls, and schools exposed to greater than 60 dB L_{dn} , and all non-residential development projects such as transient lodging, hospitals and nursing homes, and office buildings exposed to greater than 65 dB L_{dn} at the property line shall demonstrate that interior noise volumes will not exceed General Plan Noise Element standards for non-residential uses exposed to traffic noise. This may be accomplished by providing documentation that the type of use is within acceptable limits based on the location of the identified noise contours and assuming standard exterior-to-interior attenuation of 25 dB. If this cannot be demonstrated, an acoustical analysis substantiating the required noise level reduction, prepared by a qualified acoustical consultant, shall be submitted to and verified by the Division of Environmental Review and Assessment prior to the issuance of any building permits for affected sites. Potential options for achieving compliance with noise standards include, but are not limited to, noise barriers, increased setbacks, strategic placement of structures and/or enhanced building construction techniques. The measure does not apply to commercial uses (*Final EIR Mitigation Measure NO-3*).
- ▶ All parks exposed to noise volumes in excess of 70 dB at the property line shall be designed and constructed to reduce noise levels within park activity areas (benches, play structures, etc.) to within General Plan Noise Element standards for parks. Potential options for achieving compliance with noise standards include, but are not limited to, noise barriers, increased setbacks, and/or strategic placement of structures. For barrier and other structural options, an acoustical analysis substantiating the required noise level reduction, prepared by a qualified acoustical consultant shall be submitted to and verified by the Division of Environmental Review and Assessment prior to the issuance of any building permits for affected sites (*Final EIR Mitigation Measure NO-4*).

With implementation of Sacramento County Final EIR Mitigation Measures NO-1, NO-2, NO-3, and NO-4, noise exposure at all noise-sensitive uses on the Cordova Hills site under the Proposed Action would not be expected to

exceed the applicable land use compatibility limits established by the Sacramento County General Plan. Therefore, this **indirect** effect would be **less than significant**. **No direct** effects would occur. No mitigation measures were identified to further reduce these effects.

EDP, EP, P, RC

The Expanded Drainage Preservation, Expanded Preservation, and Resource Conservation Alternatives entail less development than the Proposed Action, and would therefore generate traffic volumes that would be similar to or less than the Proposed Action. Because the traffic analysis (see Section 3.15, “Traffic and Transportation”) did not model on-site roadways for the Pilatus Alternative, noise from on-site roadways could not be modeled specifically for the Pilatus Alternative. Therefore, on-site traffic noise effects were qualitatively evaluated for the Pilatus Alternative.

Calculated traffic noise levels for the evaluated roadways are summarized in Table 3.11-12. As shown, traffic noise levels along portions of Grant Line Road on the west side of the Cordova Hills site, and North Loop Road and University Boulevard within the Cordova Hills site could exceed the applicable 65 dB L_{dn} land use compatibility limit for residential uses for the Proposed Action, and similar noise levels would occur with implementation of the Expanded Drainage Preservation, Expanded Preservation, Pilatus, or Regional Conservation Alternatives. This **indirect** effect would be **significant**. **No direct** adverse effects would occur.

[Similar]

As part of the CEQA EIR certification and project approval process, various mitigation measures were incorporated into the project entitlements. Because these mitigation measures were incorporated into the Proposed Action, it is reasonable to assume that they would also be incorporated into the four action alternatives, if any of those alternatives were adopted. The mitigation measures that are applicable to this effect that were incorporated into the Proposed Action by the project entitlements are listed below:

- ▶ All residential development projects exposed to greater than 65 dB L_{dn} at the property line shall be designed and constructed to reduce noise levels to within General Plan Noise Element standards for exterior activity areas. Potential options for achieving compliance with noise standards include, but are not limited to, noise barriers, increased setbacks, and/or strategic placement of structures. An acoustical analysis substantiating the required noise level reduction, prepared by a qualified acoustical consultant shall be submitted to and verified by the Division of Environmental Review and Assessment prior to the issuance of any building permits for affected sites (*Final EIR Mitigation Measure NO-1*).
- ▶ All residential development projects exposed to greater than 70 dB L_{dn} at the property line shall be designed and constructed to achieve an interior noise level of 45 dB L_{dn} or less. Potential options for achieving compliance with noise standards include, but are not limited to, noise barriers, increased setbacks, strategic placement of structures and/or enhanced building construction techniques. An acoustical analysis substantiating the required noise level reduction, prepared by a qualified acoustical consultant, shall be submitted to and verified by the Division of Environmental Review and Assessment prior to the issuance of any building permits for the site (*Final EIR Mitigation Measure NO-2*).
- ▶ Non-residential development projects such as churches, libraries, meeting halls, and schools exposed to greater than 60 dB L_{dn} , and all non-residential development projects such as transient lodging, hospitals and nursing homes, and office buildings exposed to greater than 65 dB L_{dn} at the property line shall demonstrate

that interior noise volumes will not exceed General Plan Noise Element standards for non-residential uses exposed to traffic noise. This may be accomplished by providing documentation that the type of use is within acceptable limits based on the location of the identified noise contours and assuming standard exterior-to-interior attenuation of 25 dB. If this cannot be demonstrated, an acoustical analysis substantiating the required noise level reduction, prepared by a qualified acoustical consultant, shall be submitted to and verified by the Division of Environmental Review and Assessment prior to the issuance of any building permits for affected sites. Potential options for achieving compliance with noise standards include, but are not limited to, noise barriers, increased setbacks, strategic placement of structures and/or enhanced building construction techniques. The measure does not apply to commercial uses (*Final EIR Mitigation Measure NO-3*).

- ▶ All parks exposed to noise volumes in excess of 70 dB at the property line shall be designed and constructed to reduce noise levels within park activity areas (benches, play structures, etc.) to within General Plan Noise Element standards for parks. Potential options for achieving compliance with noise standards include, but are not limited to, noise barriers, increased setbacks, and/or strategic placement of structures. For barrier and other structural options, an acoustical analysis substantiating the required noise level reduction, prepared by a qualified acoustical consultant shall be submitted to and verified by the Division of Environmental Review and Assessment prior to the issuance of any building permits for affected sites (*Final EIR Mitigation Measure NO-4*).

Implementation of Sacramento County Final EIR Mitigation Measures NO-1, NO-2, NO-3, and NO-4 would reduce the significant effect of traffic noise on noise-sensitive receptors on the Cordova Hills and Pilatus sites under the Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Resource Conservation Alternatives to a **less-than-significant** level because noise-sensitive land uses would not be exposed to noise levels about applicable standards. No mitigation measures were identified to further reduce these effects.

EFFECT 3.11-2	Expose Off-Site, Noise-Sensitive Uses to Construction Noise Levels in Excess of Standards Established in the Local General Plan or Noise Ordinance, or Applicable Standards of Other Agencies. <i>Implementation of the Proposed Action or Alternatives would generate temporary and short-term construction noise throughout the Cordova Hills and Pilatus sites and vicinity.</i>
------------------	---

NA

Under the No Action Alternative, no development would occur. Thus, there would be **no indirect** or **direct** adverse effects related to construction noise exposure under the No Action Alternative. [*Lesser*]

Mitigation Measure: No mitigation measures are required.

PA, EDP, EP, P, RC

The closest noise-sensitive, residential uses to the Cordova Hills and Pilatus sites are located north of the Cordova Hills and north and west of the Pilatus site, within Sacramento County. The Sacramento County Noise Ordinance specifically exempts construction-related operations for compliance with noise criteria based on the following:

Noise sources associated with construction, repair, remodeling, demolition, paving or grading of any real property, provided said activities do not take place between the hours of 8 p.m. to 6 a.m. on weekdays and Friday commencing at 8 p.m. through 7 a.m. Saturday; Saturdays commencing

at 8 p.m. through 7 a.m. on Sunday and on Sunday after the hour of 8 p.m. Provided, however, when an unforeseen or unavoidable condition occurs during a construction project and the nature of the project necessitates that work in process be continued until a specific phase is completed, the contractor or owner shall be allowed to continue work after 8 p.m. and to operated machinery and equipment necessary until completion of the specific work in progress can be brought to conclusion under conditions which will not jeopardize inspection acceptance or create undue financial hardship for the contractor or owner.

Because construction would occur only within the specified hours, construction noise would be exempt from the County's noise standards. Therefore, temporary and short-term, **direct** adverse effects associated with construction noise would be **less than significant**. **No indirect** effects would occur. No other mitigation measures were identified to further reduce these effects. *[Similar]*

EFFECT **Expose Existing or Proposed Noise-Sensitive Uses to Noise in Excess of Applicable Standards.**
3.11-3 *Implementation of the of the Proposed Action or Alternatives would generate noise from certain uses such as outdoor play areas, commercial loading docks, and other uses, that could exceed applicable noise standards.*

NA

Under the No Action Alternative, no development would occur. Thus, there would be **no indirect** or **direct** effects related to on-site noise sources under the No Action Alternative. *[Lesser]*

Mitigation Measure: No mitigation measures are required.

PA

The Proposed Action includes a variety of uses that have the potential to produce excessive noise exposure at proposed noise-sensitive uses in their vicinity. Such uses include the proposed sports park and other sports fields (e.g., community parks, college athletic area, school play fields), corporation yard/transit bus park, district energy plant, sewage pump station, retail/commercial (with loading docks), auto repair stations, and fire stations. Many of these uses would be located away from existing and proposed noise-sensitive uses. Other town center and neighborhood-serving uses, like neighborhood parks and retail/commercial businesses, may be located in close proximity to noise-sensitive residences and schools.

As part of the CEQA EIR certification and project approval process, the project applicant committed to implementing various mitigation measures for the Proposed Action. The mitigation measures that are applicable to noise-sensitive uses that were incorporated into the Proposed Action by the EIR mitigation measures, conditions of approval, and development agreement (project entitlements) are listed below:

- ▶ All non-residential development projects located adjacent to residentially designated properties shall be designed and constructed to ensure that noise levels generated by the uses do not result in General Plan Noise Element standards being exceeded on adjacent properties. An acoustical analysis substantiating the required noise level reduction, prepared by a qualified acoustical consultant, shall be submitted to and verified by the Environmental Coordinator prior to the issuance of any building permits for the non-residential projects with the potential to generate substantial noise (e.g., car wash, auto repair, or buildings with tractor-trailer truck loading docks) if those uses are adjacent to residentially designated properties. The acoustical analysis shall

include, but not be limited to, consideration of potential noise conflicts due to operation of the following items:

- Outdoor playing fields;
- Mechanical building equipment, including HVAC systems;
- Loading docks and associated truck routes;
- Refuse pick up locations; and
- Refuse or recycling compactor units. (*Final EIR Mitigation Measure NO-5*)

Implementation of Sacramento County Final EIR Mitigation Measure NO-5 would reduce the significant effect from exposure to excessive project-generated noise levels under the Proposed Action to a **less-than-significant** level because an acoustical analysis would be prepared and recommendations contained therein that would reduce project-generated noise to levels that are below applicable thresholds would be implemented. No other mitigation measures were identified to further reduce this effect.

EDP, EP, P, RC

As with the Proposed Action, the Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Resource Conservation Alternatives would develop noise-generating uses such as the proposed sports park and other sports fields (e.g., community parks, college athletic area, school play fields), corporation yard/transit bus park, district energy plant, sewage pump station, retail/commercial (with loading docks), auto repair stations, and fire stations. These land uses could result in noise levels in excess of applicable standards.

As part of the CEQA EIR certification and project approval process, various mitigation measures were incorporated into the project entitlements. Because these mitigation measures were incorporated into the Proposed Action, it is reasonable to assume that they would also be incorporated into the four action alternatives, if any of those alternatives were adopted. The mitigation measures that are applicable to this effect that were incorporated into the Proposed Action by the project entitlements are listed below:

- ▶ All non-residential development projects located adjacent to residentially designated properties shall be designed and constructed to ensure that noise levels generated by the uses do not result in General Plan Noise Element standards being exceeded on adjacent properties. An acoustical analysis substantiating the required noise level reduction, prepared by a qualified acoustical consultant, shall be submitted to and verified by the Environmental Coordinator prior to the issuance of any building permits for the non-residential projects with the potential to generate substantial noise (e.g., car wash, auto repair, or buildings with tractor-trailer truck loading docks) if those uses are adjacent to residentially designated properties. The acoustical analysis shall include, but not be limited to, consideration of potential noise conflicts due to operation of the following items:
 - Outdoor playing fields;
 - Mechanical building equipment, including HVAC systems;
 - Loading docks and associated truck routes;
 - Refuse pick up locations; and
 - Refuse or recycling compactor units. (*Final EIR Mitigation Measure NO-5*)

Implementation of Sacramento County Final EIR Mitigation Measures NO-5 would reduce the significant effect from exposure to excessive project-generated on-site noise levels under the Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Resource Conservation Alternatives to a **less-than-significant** level because an acoustical analysis would be prepared and recommendations contained therein that would reduce project-generated noise to levels that are below applicable thresholds would be implemented. No mitigation measures were identified to further reduce this effect.

EFFECT 3.11-4 **Expose Proposed On-Site Noise-Sensitive Uses to Noise from Existing Off-site, Stationary Noise Sources in Excess of Applicable Standards.** *Implementation of the Proposed Action or Alternatives would introduce project-sensitive uses (e.g., residential) to noise from existing noise sources in the vicinity (i.e., Kiefer Landfill, Teichert Aggregates, and Prairie City SVRA).*

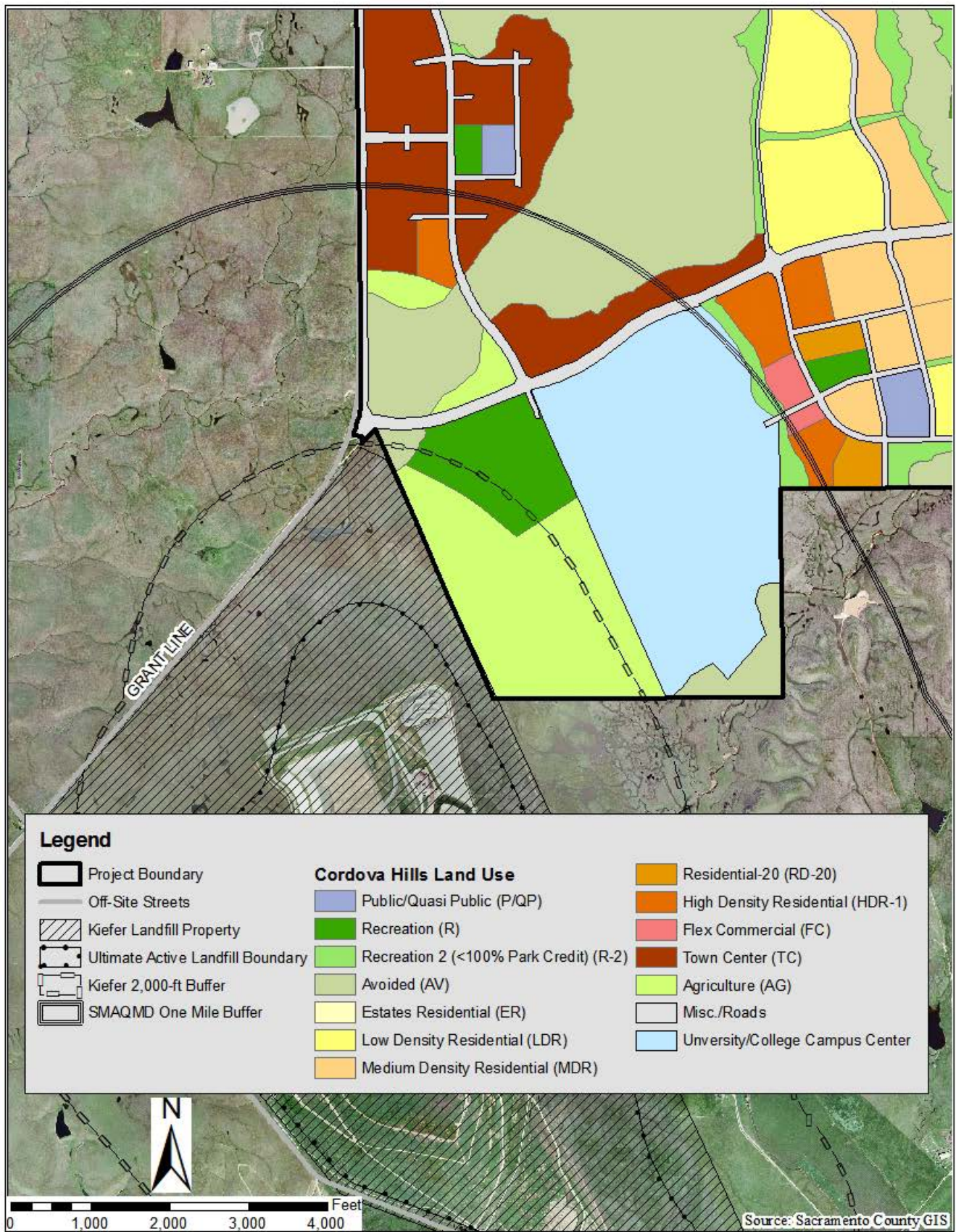
NA

Under the No Action Alternative, no project-related development would occur. Thus, there would be **no indirect** or **direct** effects related to excessive noise exposure on the Cordova Hills or Pilatus sites under the No Action Alternative. *[Lesser]*

Mitigation Measure: No mitigation measures are required.

PA, EDP, EP, RC

The Cordova Hills site is located immediately adjacent to the Kiefer Landfill (along the project's southwest property boundary). As discussed previously, noise levels associated with landfill operations were measured to be no higher than 50 dB L_{50} and 84 dB L_{max} at the closest project boundary, approximately 825 feet from existing landfill operations (see Table 3.11-3, and Exhibits 3.11-4 and 3.11-6). The closest proposed noise-sensitive uses would be in the Living and Learning Zone of the proposed University/College Campus Center. This zone would be developed an additional 2,000 feet east/northeast of the noise level measurement site (i.e., approximately 2,825 feet from the existing boundary of landfill operations). This is illustrated in Exhibit 3.11-9. Assuming standard spherical spreading loss (-6 dB per doubling of distance), landfill-related noise exposure at the closest project noise-sensitive uses would not be expected to exceed 39 dB L_{50} and 73 dB L_{max} during primary landfill operating hours (6 a.m.-2 p.m.). Accounting for shielding of intervening topography and excess ground absorption, resulting landfill-related noise exposure at the closest noise-sensitive project uses would not be expected to exceed the County's 70 dB L_{max} nighttime noise exposure limit (i.e., during the 6-7 a.m. hour). Therefore, long-term **indirect** adverse effects related to noise exposure from Kiefer Landfill would be considered **less-than-significant**. **No direct** effects would occur. No mitigation measures were identified to further reduce these effects. *[Similar]*



Source: County of Sacramento 2012

Exhibit 3.11-9

Kiefer Landfill and Vicinity (2,000-Foot Buffer)

P

The Pilatus Alternative would include noise-sensitive residential uses in the vicinity of the Teichert Aggregates facility to the northwest, and the Prairie City SVRA to the north. The aggregate processing equipment on the Teichert Aggregates facility is located approximately 1 mile from the northwest corner of the Pilatus site. The southern boundary of the Prairie City SVRA is located approximately 1 mile north of the northern Pilatus site boundary. Standard spherical spreading loss results in a decrease of -6 dB per doubling of distance. Given the large distances between the aggregate processing and off-highway vehicle (OHV) noise sources in question, noise from the Teichert Aggregates and Prairie City SVRA would not be expected to exceed the 50 dB hourly L_{50} and 70 dB L_{max} nighttime noise exposure limits established by the County. Therefore, long-term **indirect** effects related to noise exposure from daily Teichert Aggregates and Prairie City SVRA operations would be considered **less-than-significant**. **No direct** effects would occur. No mitigation measures were identified to further reduce these effects. *[Similar]*

EFFECT 3.11-5 Expose Existing, Off-Site, Noise-Sensitive Uses to Substantial Project Traffic Noise-Level Increases. Implementation of the project would generate traffic and associated traffic noise at existing and proposed roadways in the project vicinity that would exceed applicable noise standards.

NA

Under the No Action Alternative, no project-related development would occur. Thus, there would be **no direct** or **indirect** adverse effects related to traffic noise level increases under the No Action Alternative. *[Lesser]*

PA

As presented in the “Regulatory Framework/Applicable Laws, Regulations, Plans, and Policies” subsection above, a significant project-related effect would occur if the following conditions were met:

- ▶ a +5 dB traffic noise level increase relative to ambient (no project) traffic noise where existing noise levels are less than 60 dB L_{dn} ;
- ▶ a +3 dB increase relative to existing ambient noise levels of 60-65 dB L_{dn} ; and
- ▶ a 1.5+ dB increase relative to ambient noise where existing noise levels are above 65 dB L_{dn} .

These criteria are consistent with the Federal Interagency Committee on Noise (FICON) criteria established in the publication *Federal Agency Review of Selected Airport Noise Analysis Issues* (FICON 1992).

Traffic noise levels for Cumulative, and Cumulative Plus Project Conditions were calculated for the Proposed Action using the FHWA Model and the methodology described in Subsection 3.11.5. Calculated traffic noise levels for the evaluated roadways are summarized in Table 3.11-13. As shown, project-related traffic noise on sections of Grant Line Road, Douglas Road, Kiefer Boulevard, and Chrysanthy Boulevard, in the project vicinity could exceed the applicable noise-level increase thresholds at existing noise-sensitive uses.

**Table 3.11-13
Summary of Traffic Noise Levels and Traffic Noise Level Increases – Cumulative
(With and Without Project)**

Roadway	Roadway Segment	Traffic Noise Level at 75 Feet (dB L _{dn})		Project-Related Noise Level Increase (dB)	Significant Effect?
		Cumulative No Project	Cumulative Plus Project		
Grant Line Road	Sheldon Road to Calvine Road	65.5	66.1	0.6	No
Grant Line Road	Calvine Road to Sunrise Boulevard	68.0	68.8	0.8	No
Grant Line Road	Sunrise Boulevard to Jackson Road/SR 16	67.3	68.7	1.4	No
Grant Line Road	Jackson Road/SR 16 to Rancho Cordova Parkway (future)	68.2	70.6	2.3	Yes
Grant Line Road	Rancho Cordova Parkway (future) to Kiefer Boulevard	67.2	70.0	2.8	Yes
Grant Line Road	Kiefer Boulevard to University Boulevard (future)	67.2	71.4	4.1	Yes
Grant Line Road	University Boulevard (future) to Chrysanthy Boulevard (future)	67.2	70.7	3.4	Yes
Grant Line Road	Chrysanthy Boulevard (future) to North Loop Road (future)	68.3	70.1	1.9	Yes
Grant Line Road	North Loop Road (future) to Douglas Road	68.3	73.0	4.8	Yes
Grant Line Road	Douglas Road to White Rock Road	70.8	72.5	1.7	Yes
White Rock Road	Kilgore Road to Sunrise Boulevard	70.8	70.8	0.1	No
White Rock Road	Sunrise Boulevard to Fitzgerald Road/Rancho Cordova Parkway (future)	70.9	71.1	0.2	No
White Rock Road	Fitzgerald Road/Rancho Cordova Parkway (future) to Americanos Boulevard (future)	67.4	67.8	0.4	No
White Rock Road	Americanos Boulevard (future) to Grant Line Road	66.9	67.0	0.1	No
White Rock Road	Grant Line Road to Prairie City Road	71.2	72.6	1.4	No
White Rock Road	Prairie City Road to Scott Road (West)	70.2	71.3	1.1	No
White Rock Road	Scott Road (West) to Scott Road (East)	70.9	71.7	0.7	No
White Rock Road	Scott Road (East) to county line	69.8	70.2	0.3	No
Jackson Road/SR 16	Watt Avenue to Bradshaw Road	72.8	73.1	0.3	No
Jackson Road/SR 16	Bradshaw Road to Vineyard Road	70.3	70.8	0.4	No
Jackson Road/SR 16	Vineyard Road to Excelsior Road	69.0	69.6	0.6	No
Jackson Road/SR 16	Excelsior Road to Eagles Nest Road	68.0	69.1	1.1	No
Jackson Road/SR 16	Eagles Nest Road to Sunrise Boulevard	68.3	69.3	1.1	No
Jackson Road/SR 16	Sunrise Boulevard to Grant Line Road	69.1	70.3	1.2	No
Douglas Road	Mather Boulevard/Excelsior Road to Eagles Nest Road	65.3	65.4	0.1	No
Douglas Road	Eagles Nest Road to Sunrise Boulevard	69.5	70.3	0.8	No
Douglas Road	Sunrise Boulevard to Rancho Cordova Parkway (future)	67.3	69.6	2.3	Yes
Douglas Road	Rancho Cordova Parkway (future) to Americanos Boulevard (future)	66.1	68.5	2.4	Yes

**Table 3.11-13
Summary of Traffic Noise Levels and Traffic Noise Level Increases – Cumulative
(With and Without Project)**

Roadway	Roadway Segment	Traffic Noise Level at 75 Feet (dB L _{dn})		Project-Related Noise Level Increase (dB)	Significant Effect?
		Cumulative No Project	Cumulative Plus Project		
Douglas Road	Americanos Boulevard (future) to Grant Line Road	60.6	67.5	6.9	Yes
Kiefer Boulevard	Bradshaw Road to Vineyard Road	66.5	66.8	0.3	No
Kiefer Boulevard	Vineyard Road to Excelsior Road	66.2	66.6	0.4	No
Kiefer Boulevard	Excelsior Road to Eagles Nest Road	61.8	62.7	0.9	No
Kiefer Boulevard	Eagles Nest Road to Sunrise Boulevard	63.8	64.6	0.8	No
Kiefer Boulevard	Sunrise Boulevard to Rancho Cordova Parkway (future)	59.4	61.3	1.9	No
Kiefer Boulevard	Rancho Cordova Parkway (future) to Grant Line Road	61.6	64.9	3.3	Yes
Kiefer Boulevard	Grant Line Road to Jackson Road/SR 16	61.2	62.8	1.6	No
Sunrise Boulevard	U.S. 50 to Folsom Boulevard	71.9	72.2	0.3	No
Sunrise Boulevard	Folsom Boulevard to White Rock Road	71.5	71.9	0.4	No
Sunrise Boulevard	White Rock Road to Douglas Road	69.9	70.5	0.6	No
Sunrise Boulevard	Jackson Road/SR 16 to Florin Road	67.2	67.6	0.4	No
Mather Boulevard	Douglas Road to Femoyer Street	58.4	58.8	0.4	No
Zinfandel Drive	U.S. 50 to White Rock Road	73.3	73.5	0.2	No
Zinfandel Drive	White Rock Road to International Drive	70.5	70.8	0.4	No
Zinfandel Drive	International Drive to Douglas Road	71.0	71.5	0.5	No
Prairie City Road	U.S. 50 to Easton Valley Parkway	68.9	69.4	0.5	No
Prairie City Road	Easton Valley Parkway to White Rock Road	67.0	67.9	1.0	No
Scott Road	U.S. 50 to Easton Valley Parkway	70.3	70.6	0.3	No
Scott Road	Easton Valley Parkway to White Rock Road	66.8	67.5	0.7	No
Chrysanthy Boulevard	Sunrise Boulevard to Rancho Cordova Parkway (future)	61.2	62.3	1.1	No
Chrysanthy Boulevard	Rancho Cordova Parkway (future) to Americanos Boulevard (future)	62.2	65.2	3.0	Yes
Chrysanthy Boulevard	Americanos Boulevard (future) to Grant Line Road	56.8	65.0	8.1	Yes
Rancho Cordova Parkway	White Rock Road to Douglas Road	67.2	67.3	0.2	No
Rancho Cordova Parkway	Douglas Road to Chrysanthy Boulevard	63.9	64.9	1.0	No
Rancho Cordova Parkway	Chrysanthy Boulevard to Kiefer Boulevard	63.1	63.5	0.4	No
Rancho Cordova Parkway	Kiefer Boulevard to Grant Line Road	52.4	55.5	3.0	No
Americanos Boulevard	White Rock Road to Douglas Road	62.3	64.2	1.9	No
Americanos Boulevard	Douglas Road to Chrysanthy Boulevard	60.7	61.9	1.2	No

**Table 3.11-13
Summary of Traffic Noise Levels and Traffic Noise Level Increases – Cumulative
(With and Without Project)**

Roadway	Roadway Segment	Traffic Noise Level at 75 Feet (dB L _{dn})		Project-Related Noise Level Increase (dB)	Significant Effect?
		Cumulative No Project	Cumulative Plus Project		
Americanos Boulevard	Chrysanthy Boulevard to Kiefer Boulevard	56.4	58.1	1.7	No
Oak Avenue Parkway	U.S. 50 to Easton Valley Parkway	60.1	60.9	0.8	No
Oak Avenue Parkway	Easton Valley Parkway to White Rock Road	61.7	62.3	0.6	No

Note: dB = decibel; L_{dn} = Day-night average level; SR = State Route; U.S. 50 = U.S. Highway 50
Source: Modeled by AECOM in 2014

There are existing noise-sensitive uses on Grant Line Road between Jackson Road/SR 16 and the future Rancho Cordova Parkway, and between Douglas Road and White Rock Road; Douglas Road between Sunrise Boulevard and the future Americanos Boulevard; Kiefer Boulevard between Sunrise Boulevard and the future Rancho Cordova Parkway; and Rancho Cordova Parkway between Kiefer Boulevard and Grant Line Road. At several of these locations, existing residences are shielded by property-line noise barriers that substantially reduce the traffic noise levels and eliminate the potential noise effects relative to the significant increase criteria. However, **indirect** project-related adverse effects from traffic noise-level increases at existing residences on Grant Line Road between Jackson Road/SR 16 and the future connection to Rancho Cordova Parkway, Grant Line Road between Douglas Road and White Rock Road, and Rancho Cordova Parkway north of Kiefer Boulevard would be **significant**. **No direct** effects would occur.

Mitigation Measure 3.11-1: Implement Measures to Improve Land Use Compatibility with Traffic Noise.

To meet County noise standards set forth in the Sacramento County General Plan and Noise Ordinance and improve compatibility between project land uses and noise sources, the project applicant for any particular discretionary development application for all project phases shall implement the following:

- ▶ When a project alternative is adopted, and prior to the submittal of small-lot tentative subdivision maps and improvement plans, the project applicant shall conduct a site-specific acoustical analysis to determine predicted roadway noise impacts attributable to the project, taking into account site-specific conditions (e.g., site design, location of structures, and building characteristics). The acoustical analysis shall evaluate stationary- and mobile-source noise attributable to the proposed use or uses and effects on nearby noise-sensitive land uses, in accordance with adopted County noise standards. For any noise effects identified in the acoustical analysis that would be greater than County noise standards, the project applicant shall submit a noise reduction plan to reduce any identified effects that would be above adopted County noise standards. The noise reduction plan shall be reviewed and approved by the County and its implementation shall be required as a condition of approval of tentative maps or improvement plans. Feasible measures to be included in the noise reduction plan to reduce project-related noise effects may include, but are not limited to, the following:

- Limiting and/or re-routing noise-generating operational activities associated with proposed commercial land uses, including truck deliveries;
 - construction of exterior sound walls;
 - use of “quiet pavement” (e.g., rubberized asphalt) construction methods;
 - use of increased noise-attenuation measures in building construction (e.g., dual-pane, sound-rated windows; exterior wall insulation); and
 - installation of noise barriers ranging from 6 to 14 feet in height to reduce exterior noise levels to the acceptable noise standard of 65 dBA CNEL/L_{dn} or less at noise-sensitive locations. Noise barriers in excess of 10 feet may not be considered desirable or feasible.
- ▶ Where noise barrier heights are not feasible, the County may, at its discretion, require the project applicant to instead achieve the conditionally-acceptable noise level of 65-dBA CNEL at noise-sensitive locations, provided that interior noise levels are in compliance with the County’s 45-dBA L_{dn} interior noise level standard. Noise barriers ranging from 6 to 10 feet in height would be required to reduce exterior noise levels to a conditionally acceptable level of 65-dBA CNEL at noise-sensitive locations relative to the corresponding roadway segment.

Implementation: Project applicant.

Timing: Before the recordation of final maps and during all project construction activities.

Enforcement: Sacramento County.

Implementation of Mitigation Measure 3.11-1 would reduce project-generated traffic noise levels under the Proposed Action at off-site sensitive receptors. Because this mitigation measure describes methods for meeting the County’s noise standards, it is likely to be implemented by the County. However, it may not be feasible to implement mitigation that would completely reduce the project’s traffic noise effects to levels that would be below applicable noise standards. As a result, this adverse effect would remain **significant and unavoidable**.

EDP, EP, P, RC

The Pilatus Alternative would entail more development as compared to the Proposed Action, and therefore would generate correspondingly more traffic. Because the Expanded Drainage Preservation, Expanded Preservation, and Resource Conservation Alternatives would generate traffic that would be similar to or less than the Proposed Action, only the Pilatus Alternative (out of the four action alternatives) was modeled. Therefore, although this analysis only presents the results from modeling of the Proposed Action and the Pilatus Alternative, it presents the worst-case (i.e., highest) traffic noise levels that would be generated among the five action alternatives. Traffic noise levels for Cumulative, and Cumulative Plus Project Conditions were calculated for the Pilatus Alternative condition using the FHWA Model and methodology described in Section 3.11.5.

Calculated traffic noise levels for the evaluated roadways are summarized in Table 3.11-14. As shown, project-related traffic noise levels on sections of Grant Line Road, Douglas Road, Kiefer Boulevard, Chrysanthy Boulevard, and Americanos Boulevard in the project vicinity could exceed the applicable noise thresholds at existing noise-sensitive uses.

**Table 3.11-14
Summary of Traffic Noise Levels and Traffic Noise Level Increases – Cumulative Condition
(Pilatus Alternative)**

Roadway	Roadway Segment	Traffic Noise Level at 75 Feet (dB L _{dn})		Project-Related Noise Level Increase (dB)	Significant Effect?
		Cumulative No Project	Cumulative Plus Project		
Grant Line Road	Sheldon Road to Calvine Road	65.5	66.0	0.5	No
Grant Line Road	Calvine Road to Sunrise Boulevard	68.0	68.6	0.6	No
Grant Line Road	Sunrise Boulevard to Jackson Road SR 16	67.3	68.5	1.2	No
Grant Line Road	Jackson Road/SR 16 to Rancho Cordova Parkway (future)	68.2	70.3	2.1	Yes
Grant Line Road	Rancho Cordova Parkway (future) to Kiefer Boulevard	67.2	69.7	2.5	Yes
Grant Line Road	Kiefer Boulevard to University Boulevard (future)	67.2	71.0	3.8	Yes
Grant Line Road	University Boulevard (future) to Chrysanthy Boulevard (future)	67.2	69.9	2.7	Yes
Grant Line Road	Chrysanthy Boulevard (future) to North Loop Road (future)	68.3	68.9	0.7	No
Grant Line Road	North Loop Road (future) to Douglas Road	68.3	72.9	4.7	Yes
Grant Line Road	Douglas Road to White Rock Road	70.8	72.4	1.6	Yes
White Rock Road	Kilgore Road to Sunrise Boulevard	70.8	70.8	0.1	No
White Rock Road	Sunrise Boulevard to Fitzgerald Road/Rancho Cordova Parkway (future)	70.9	71.1	0.2	No
White Rock Road	Fitzgerald Road/Rancho Cordova Parkway (future) to Americanos Boulevard (future)	67.4	67.8	0.4	No
White Rock Road	Americanos Boulevard (future) to Grant Line Road	66.9	67.0	0.1	No
White Rock Road	Grant Line Road to Prairie City Road	71.2	72.5	1.3	No
White Rock Road	Prairie City Road to Scott Road (West)	70.2	71.2	1.0	No
White Rock Road	Scott Road (West) to Scott Road (East)	70.9	71.6	0.6	No
White Rock Road	Scott Road (East) to county line	69.8	70.1	0.3	No
Jackson Road/SR 16	Watt Avenue to Bradshaw Road	72.8	73.1	0.2	No
Jackson Road/SR 16	Bradshaw Road to Vineyard Road	70.3	70.7	0.4	No
Jackson Road/SR 16	Vineyard Road to Excelsior Road	69.0	69.6	0.6	No
Jackson Road/SR 16	Excelsior Road to Eagles Nest Road	68.0	69.0	1.0	No
Jackson Road/SR 16	Eagles Nest Road to Sunrise Boulevard	68.3	69.3	1.0	No
Jackson Road/SR 16	Sunrise Boulevard to Grant Line Road	69.1	70.2	1.2	No
Douglas Road	Mather Boulevard/Excelsior Road to Eagles Nest Road	65.3	65.3	0.0	No
Douglas Road	Eagles Nest Road to Sunrise Boulevard	69.5	70.2	0.7	No
Douglas Road	Sunrise Boulevard to Rancho Cordova Parkway (future)	67.3	69.4	2.1	Yes

**Table 3.11-14
Summary of Traffic Noise Levels and Traffic Noise Level Increases – Cumulative Condition
(Pilatus Alternative)**

Roadway	Roadway Segment	Traffic Noise Level at 75 Feet (dB L _{dn})		Project-Related Noise Level Increase (dB)	Significant Effect?
		Cumulative No Project	Cumulative Plus Project		
Douglas Road	Rancho Cordova Parkway (future) to Americanos Boulevard (future)	66.1	68.5	2.4	Yes
Douglas Road	Americanos Boulevard (future) to Grant Line Road	60.6	67.7	7.1	Yes
Kiefer Boulevard	Bradshaw Road to Vineyard Road	66.5	66.8	0.3	No
Kiefer Boulevard	Vineyard Road to Excelsior Road	66.2	66.5	0.3	No
Kiefer Boulevard	Excelsior Road to Eagles Nest Road	61.8	62.7	0.9	No
Kiefer Boulevard	Eagles Nest Road to Sunrise Boulevard	63.8	64.7	0.8	No
Kiefer Boulevard	Sunrise Boulevard to Rancho Cordova Parkway (future)	59.4	61.4	2.0	No
Kiefer Boulevard	Rancho Cordova Parkway (future) to Grant Line Road	61.6	64.7	3.1	Yes
Kiefer Boulevard	Grant Line Road to Jackson Road/SR 16	61.2	62.5	1.3	No
Sunrise Boulevard	U.S. 50 to Folsom Boulevard	71.9	72.2	0.2	No
Sunrise Boulevard	Folsom Boulevard to White Rock Road	71.5	71.8	0.3	No
Sunrise Boulevard	White Rock Road to Douglas Road	69.9	70.5	0.5	No
Sunrise Boulevard	Jackson Road/SR 16 to Florin Road	67.2	67.6	0.3	No
Mather Boulevard	Douglas Road to Femoyer Street	58.4	58.8	0.4	No
Zinfandel Drive	U.S. 50 to White Rock Road	73.3	73.5	0.2	No
Zinfandel Drive	White Rock Road to International Drive	70.5	70.8	0.4	No
Zinfandel Drive	International Drive to Douglas Road	71.0	71.5	0.5	No
Prairie City Road	U.S. 50 to Easton Valley Parkway	68.9	69.4	0.5	No
Prairie City Road	Easton Valley Parkway to White Rock Road	67.0	67.9	0.9	No
Scott Road	U.S. 50 to Easton Valley Parkway	70.3	70.6	0.3	No
Scott Road	Easton Valley Parkway to White Rock Road	66.8	67.4	0.6	No
Chrysanthy Boulevard	Sunrise Boulevard to Rancho Cordova Parkway (future)	61.2	61.9	0.7	No
Chrysanthy Boulevard	Rancho Cordova Parkway (future) to Americanos Boulevard (future)	62.2	64.1	1.8	Yes
Chrysanthy Boulevard	Americanos Boulevard (future) to Grant Line Road	56.8	62.7	5.8	Yes
Rancho Cordova Parkway	White Rock Road to Douglas Road	67.2	67.3	0.1	No
Rancho Cordova Parkway	Douglas Road to Chrysanthy Boulevard	63.9	64.4	0.6	No
Rancho Cordova Parkway	Chrysanthy Boulevard to Kiefer Boulevard	63.1	63.4	0.3	No

**Table 3.11-14
Summary of Traffic Noise Levels and Traffic Noise Level Increases – Cumulative Condition
(Pilatus Alternative)**

Roadway	Roadway Segment	Traffic Noise Level at 75 Feet (dB L _{dn})		Project-Related Noise Level Increase (dB)	Significant Effect?
		Cumulative No Project	Cumulative Plus Project		
Rancho Cordova Parkway	Kiefer Boulevard to Grant Line Road	52.4	55.1	2.6	No
Americanos Boulevard	White Rock Road to Douglas Road	62.3	64.2	1.9	Yes
Americanos Boulevard	Douglas Road to Chrysanthy Boulevard	60.7	61.3	0.6	No
Americanos Boulevard	Chrysanthy Boulevard to Kiefer Boulevard	56.4	57.3	0.9	No
Oak Avenue Parkway	U.S. 50 to Easton Valley Parkway	60.1	60.8	0.7	No
Oak Avenue Parkway	Easton Valley Parkway to White Rock Road	61.7	62.2	0.5	No

Notes: dB = decibel; L_{dn} = Day-night average level; SR = State Route; U.S. 50 = U.S. Highway 50
Source: Modeled by AECOM 2014

There are existing noise-sensitive uses on Grant Line Road between Jackson Road/SR 16 and the future Rancho Cordova Parkway, and between Douglas Road and White Rock Road; Jackson Road/SR 16 between Excelsior Road and Eagles Nest Road; Douglas Road between Sunrise Boulevard and the future Americanos Boulevard; Kiefer Boulevard between Sunrise Boulevard and the future Rancho Cordova Parkway; and Rancho Cordova Parkway between Kiefer Boulevard and Grant Line Road. At several of these locations, existing residences are shielded by property line noise barriers that substantially reduce the traffic noise levels and eliminate the potential noise effects relative to the significant increase criteria. However, **direct** adverse effects from project-related traffic noise level increases at existing residences on Grant Line Road between Jackson Road/SR 16 and the future connection to Rancho Cordova Parkway, Grant Line Road between Douglas Road and White Rock Road, Jackson Road/SR 16 between Excelsior Road and Eagles Nest Road, and Rancho Cordova Parkway north of Kiefer Boulevard are considered **significant**. **No indirect** adverse effects would occur. *[Similar]*

Mitigation Measure: Implement Mitigation Measure 3.11-1.

Implementation of Mitigation Measure 3.11-1 would reduce project-generated traffic noise levels under the Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives at off-site sensitive receptors. Because this mitigation measure describes methods for meeting the County’s noise standards, it is likely to be implemented by the County. However, it may not be feasible to implement mitigation that would completely reduce the project’s traffic noise effects to levels that would be below applicable noise standards. As a result, this adverse effect would remain **significant and unavoidable**.

EFFECT 3.11-6 Exposure to Excessive Temporary and Short-Term Groundborne Vibration or Groundborne Noise Levels. *Project implementation could expose sensitive receptors to temporary and short-term construction groundborne noise and vibration levels that exceed applicable standards, thereby resulting in human disturbance or structural damage.*

Under the No Action Alternative, no project-related development would occur. Thus, there would be **no direct** or **indirect** adverse effects related to construction vibration exposure under the No Action Alternative. *[Lesser]*

Mitigation Measure: No mitigation measures are required.

PA, EDP, EP, P, RC

The closest vibration-sensitive, residential uses to the Cordova Hills and Pilatus sites are located north of the Cordova Hills site and north and west of the Pilatus site. Project construction would occur in three phases. Therefore, proposed sensitive land uses under the initial phases would be potentially exposed to excessive vibration from construction of the next phases.

Evaluation of construction vibration impacts associated with the project is based on the methodology developed by the FTA (FTA 2006).

Construction activities on the Cordova Hills and Pilatus sites may result in varying degrees of temporary ground vibration, depending on the specific construction equipment used and operations involved. Groundborne vibration levels caused by various types of construction equipment are summarized in Table 3.11-15. The representative vibration levels identified for various types of construction equipment show that sensitive receptors located close to construction activities could be exposed to groundborne vibration levels exceeding the thresholds.

Table 3.11-15 Representative Vibration Source Levels for Construction Equipment			
Equipment		PPV at 25 feet (in/sec)	Approximate Lv (VdB) at 25 feet¹
Pile Driver (impact)	Upper Range	1.518	112
	Typical	0.644	104
Pile Driver (sonic)	Upper Range	0.734	105
	Typical	0.170	93
Blasting		1.13	109
Large Bulldozer		0.089	87
Caisson Drilling		0.089	87
Truck		0.076	86
Rock Breaker		0.059	83
Jackhammer		0.035	79
Small Bulldozer		0.003	58
Notes: in/sec = inches per second; PPV = peak particle velocity			
¹ Where Lv is the RMS velocity expressed in vibration decibels (VdB) re 1 micro-inch/second, assuming a crest factor of 4.			
Source: FTA 2006			

The threshold for human perception is approximately 65 VdB. Vibration levels in the range of 70 to 75 VdB are often noticeable but acceptable. Beyond 80 VdB, vibration levels are often considered unacceptable by building occupants (FTA 2006:7-5). Unusual construction techniques such as pile-driving or using any equipment listed in Table 3.11-15 would cause substantial vibration. The alternatives under consideration would not include substantial stationary sources of groundborne vibration, such as heavy equipment operations listed in Table 3.11-15.

Under the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives, maximum groundborne noise and vibration levels would be associated with bulldozing and blasting activities. According to FTA, levels associated with the use of a large bulldozer and blasting are 0.089 and 1.13 in/sec PPV (87 and 109 VdB) at 25 feet, respectively, as shown in Table 3.11-15. With respect to the prevention of structural damage, bulldozing would not exceed the Caltrans-recommended level of 0.2 in/sec PPV, even at a distance of 25 feet. However, blasting could exceed this level within 80 feet of said activities based on FTA's recommended procedure for applying a propagation adjustment to these reference levels.

In addition, with respect to prevention of human disturbance, bulldozing and blasting could exceed the FTA-recommended level of 78 VdB within 50 and 275 feet, respectively (assuming a maximum construction vibration level of 87 VdB [bulldozing] and 109 VdB [blasting] at 25 feet with an attenuation rate of 6 VdB per doubling of distance from the source). The exact locations of bulldozing activities and blasting points have not been determined at this time; however, the nearest sensitive receptors (e.g., existing off-site, and proposed on-site receptors) could be located within the distances modeled above that are correlated with the Caltrans- and FTA-recommended exceedance levels. Project construction would occur in three phases. Although the residences under each phase would be located at least 50 feet from the next phase's construction area, temporary and short-term construction could result in the exposure of persons to or generation of excessive groundborne noise or vibration levels from construction activities. As a result, this would be a **direct significant** effect. **No indirect** effects would occur. *[Similar]*

Mitigation Measure 3.11-2: Implement Measures to Prevent Exposure of Sensitive Receptors to Groundborne Noise or Vibration from Project-Generated Construction Activities.

The project applicant shall implement the following measures to prevent exposure of sensitive receptors to temporary and short-term groundborne noise or vibration from construction-related activities:

- ▶ To the extent feasible, blasting activities shall not be conducted within 275 feet of existing or future sensitive receptors.
- ▶ To the extent feasible, bulldozing activities shall not be conducted within 50 feet of existing or future sensitive receptors.
- ▶ All blasting shall be performed by a blast contractor and blasting personnel licensed to operate in the State of California.
- ▶ A blasting plan, including estimates of vibration levels at the residence closest to the blast and a quantified vibration limit at the nearest residence, shall be submitted to the enforcement agency for review and approval prior to the commencement of the first blast.

- ▶ Each blast shall be monitored and documented for groundbourne noise and vibration levels at the nearest sensitive land use and associated recorded submitted to the enforcement agency.

Implementation: Project applicant.

Timing: Before the recordation of final maps and during all project construction activities.

Enforcement: Sacramento County.

Implementation of Mitigation Measure 3.11-2 would reduce project-generated groundborne noise and vibration levels and the exposure thereof under the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives. However, depending on the exact location of said activities, which cannot not determined at this time, sensitive receptors could still be exposed to levels that exceed those recommended by Caltrans and FTA for the prevention of structural damage and human disturbance. USACE does not have authority to enforce this mitigation measure; Sacramento County would be the enforcement agency. Because the County has already approved the Proposed Action and identified mitigation measures and actions for the project, it is uncertain that this mitigation measure would be implemented. No mitigation measures were identified to further reduce these effects. Therefore, this effect would remain **significant and unavoidable**.

EFFECT 3.11-6 Expose Existing, Off-Site Noise-Sensitive Uses to Substantial Aggregate Processing Noise Levels Relative to Ambient Conditions. *Project implementation would result in on- and off-site construction noise, including aggregate processing activities. This would subject noise-sensitive land uses to noise levels above ambient levels.*

NA

Under the No Action Alternative, no project-related development would occur. Thus, there would be **no indirect** or **direct** effects related to project construction-related noise exposure under the No Actions Alternative. [*Lesser*]

Mitigation Measure: No mitigation measures are required.

PA, EDP, EP, P, RC

During Cordova Hills site preparation/grading and roadway construction, on-site processing of aggregate materials would occur to maximize the use of available mineral resources, and to minimize the expense of acquiring necessary aggregate materials from off-site sources. Aggregate processing activities would include screening, crushing, and sizing of rock excavated and delivered from various locations on the Cordova Hills site as a result of site preparation/grading operations. It is expected that this facility would be located near the center of the Cordova Hills site, separated as far as possible from noise-sensitive receivers. Because of the aggregate facility's location near the center of the Cordova Hills site, project construction noise near the project boundary would be the primary source of temporary and short-term noise to on-site and off-site noise-sensitive uses, rather than aggregate material processing.

Initial Cordova Hills site grading and building of project infrastructure (e.g., roadway construction, utility installations) near the project boundary would be expected to produce the highest project-related construction

noise levels at neighboring sensitive receivers (i.e., residences, Carson Creek Junior High/High School). The closest existing, noise-sensitive uses to the Cordova Hills site are shown in Exhibit 3.11-10.

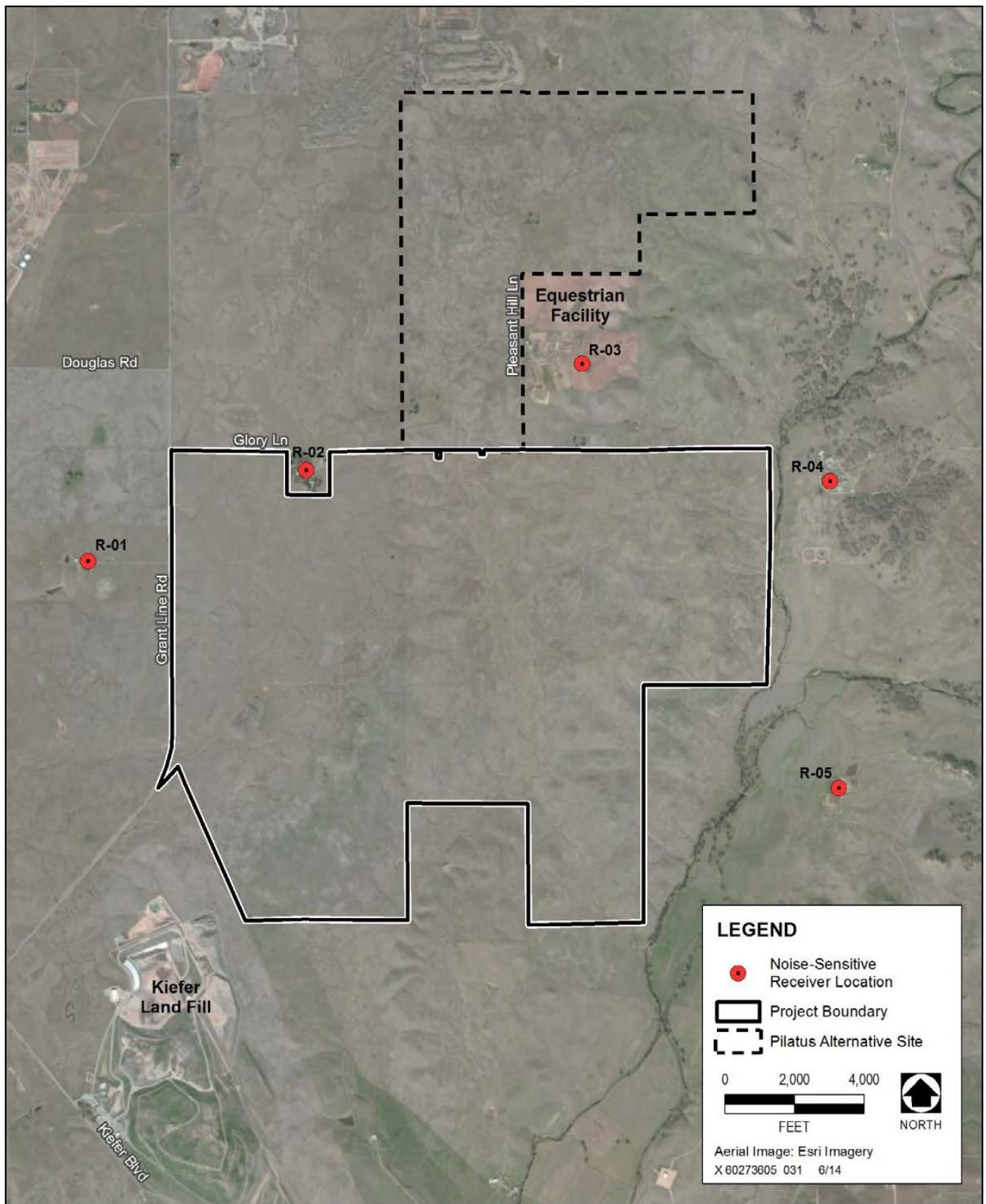
The site preparation phase typically generates the most substantial noise levels because of the on-site equipment associated with grading, compacting, and excavation, which uses the noisiest types of construction equipment. Site preparation equipment and activities include backhoes, bulldozers, loaders, and excavation equipment (e.g., graders and scrapers); and possibly bedrock blasting. Erection of large structural elements and mechanical systems could require the use of a crane for placement and assembly tasks, which may also generate noise levels. Although a detailed construction equipment list is not currently available, it is expected that the primary sources of noise would include backhoes, bulldozers, excavators, bedrock blasting, and other related equipment. Blasting which would produce a single event noise level (90 dB L_{max} at 50 feet) followed by debris removal activities. Typical airborne noise associated with blasting activities is at a frequency below the range audible to humans and thus the effects associated with blasting focus on the effects of groundborne noise and vibration which are discussed separately above in Effect 3.11-5.

The FHWA's RCNM was used to estimate general grading and infrastructure construction noise levels at the closest existing noise-sensitive uses. Noise levels were estimated assuming the simultaneous operations of a single excavator, bulldozer, front end loader, and dump truck at the closest Cordova Hills site boundaries to the given noise-sensitive uses. Construction equipment was assumed to operate at peak levels for 40 percent of the time (i.e., 24 minutes of any given hour), which is the standard analysis assumption within the RCNM. Calculated, unmitigated construction noise levels at the closest existing noise-sensitive uses are summarized in Table 3.11-16.

Table 3.11-16 Summary of Calculated Construction Noise Levels and Significance Assessment			
Receiver	Distance Between Receiver and Closest Construction (Feet)	Modeled Construction Noise Level (dB L_{10})	Significant Effect? ¹
1	2,000	57	Yes
2	640-1,440	60-67	Yes
3	1,800	60	Yes
4	1,300	61	Yes
5	2,800	54	No

Note: dB = decibel; L_{10} = sound level exceeded 10 percent of the time.
¹ Construction-related noise levels of 56 dB L_{10} or higher (+5 dB above measured ambient) were considered significant.
 Source: AECOM 2013

As shown in Table 3.11-16, unmitigated construction noise levels under the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Resource Conservation Alternatives would exceed the 56 dB L_{10} significance threshold at all modeled noise-sensitive receiver locations with the exception of R5, near the southeast corner of the Cordova Hills site. Unmitigated project construction noise within 2,300 feet of an existing noise-sensitive use has the potential to produce noise levels of 56 dB L_{10} or higher. This **direct** effect would be **significant**. **No indirect** effects would occur. *[Similar]*



Source: AECOM 2013

Exhibit 3.11-10

Locations of Closest Noise-Sensitive Receivers to the Cordova Hills Site

Mitigation Measure 3.11-2: **Implement Measures to Reduce Project-Related Construction Noise at Nearby Noise-Sensitive Receivers.**

The project applicant shall implement the following measures:

- ▶ Turn off heavy/noisy construction equipment when not in use for periods exceeding 10 minutes (i.e., avoid long-term idling of heavy construction equipment).
- ▶ Position all construction staging and laydown areas as far from neighboring noise-sensitive uses as practical. If project equipment will be tested or operated for extended periods at a staging or laydown area, then install portable construction noise barriers along the area's perimeter to mitigate the effects of noise exposure at neighboring noise-sensitive uses. These barriers should extend in height and length to eliminate line of sight between the noise source(s) and the closest receiver(s). The barriers should be continuous without gaps or holes, and should provide a sound transmission class of no less than 25.
- ▶ Fit all heavy construction equipment with available, manufacturer-specified noise-level reduction components where reasonable and feasible. Maintain all heavy construction equipment in good working order during all operations.
- ▶ Outfit stationary construction equipment such as generators and compressors with portable construction noise barriers to reduce noise exposure at the closest residents. These barriers should be positioned as close as possible to the construction equipment, extend in height and length to eliminate line of sight between the source and closest residences, be continuous without gaps or holes, and provide a sound transmission class of no less than 25.
- ▶ Where feasible, construction traffic shall avoid routes directly adjacent to noise-sensitive land uses.
- ▶ If blasting activities would occur, the contractor shall conduct the blasting activities in compliance with state and local regulations. The contractor shall obtain a blasting permit from the County prior to commencing any on-site blasting activities. The permit application shall include a description of the work to be accomplished and a statement of the necessity for blasting, as opposed to other methods, including avoidance of hard rock areas. The permit application shall also specify safety measures to be implemented, such as use of blast blankets. The contractor shall coordinate any blasting activities with the County Sheriff and Fire Departments to ensure proper site access and traffic control, and to ensure proper public notification, including media, nearby residents and businesses, as determined appropriate by the County Police Department. Blasting specifications and plans shall include a schedule that outlines the time frame during which blasting will occur in order to limit noise and traffic inconvenience.

Implementation: Project applicant.

Timing: Before approval of grading plans and building permits and during all construction activities.

Enforcement: Sacramento County.

Implementation of Mitigation Measure 3.11-2 would substantially reduce project construction noise levels at the closest noise-sensitive receivers through use of blast blankets to minimize noise levels associated with blasting, portable noise barriers and reduced idling; however, mitigated construction noise levels would still exceed the established significance threshold of 56 dB L10. Thus, implementation of this mitigation measure would not fully reduce this adverse effect to a less-than-significant level under the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives. USACE does not have authority to enforce this mitigation measure; Sacramento County would be the enforcement agency. Because the County has already approved the Proposed Action and identified mitigation measures and actions for the project, it is uncertain that this mitigation measure would be implemented. No mitigation measures were identified to further reduce these effects. Therefore, this adverse effect would remain **significant and unavoidable**.

EFFECT **Temporary, Short-Term Exposure of Sensitive Receptors to Increased Traffic Noise Levels from**
3.11-7 **Project Construction.** *Project implementation would result in temporary increases in on- and off-site roadway traffic noise associated with project construction. Construction-generated traffic could expose sensitive receptors to noise levels along on- and off-site roadways that exceed the applicable noise standards and/or result in a substantial increase in ambient noise levels.*

NA

Under the No Action Alternative, no project-related development would occur that would result in construction traffic. Thus, there would be **no indirect** or **direct** effects from construction-related noise exposure under the No Action Alternative. [*Lesser*]

Mitigation Measure: No mitigation measures are required.

PA, EDP, EP, P, RC

Construction of the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Resource Conservation Alternatives would result in additional vehicle trips on the local roadway network from worker commute and the transport of equipment and materials. The exact number of daily trips required for project construction is not known at this time. However, based on professional judgment and experience with similar types of projects, said activities typically do not include more than 500 daily one-way trips even with projects that involve intensive earth movement activities (e.g., soil import/export), which would not be anticipated for construction of any of the on- or off-site elements. An increase in traffic noise levels of 3 dB CNEL/L_{dn} or greater at noise-sensitive receptors along affected roadway segments would be considered substantial because it is perceivable to the human ear. Typically, when the ADT volume is doubled on a roadway segment in comparison to existing conditions, the resultant increase is approximately 3 dB CNEL/L_{dn}. According to the traffic analysis, ADT volumes on roadway segments in the project vicinity range from 2,300 to 54,400 under existing No Project conditions. When added to the traffic volumes used in the “existing condition,” project-related construction traffic could increase traffic noise levels by as much as 0.0 dB to 0.9 dB for the studied roadway segments. This level of increase is not perceptible. Therefore, project construction would not be anticipated to result in a doubling of ADT volumes (e.g., assuming a maximum of 500 additional one-way trip to roadways with a minimum of 2,300 under existing conditions) along affected roadway segments even when considering the increased tire and engine source noise from these types of trips (e.g., primarily heavy-duty trucks). Thus, implementation of the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Resource Conservation

Alternatives would not result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project from project construction traffic; or, consequently, expose sensitive receptors to or generate noise levels in excess of applicable standards. As a result, this **direct effect** would be **less than significant**. **No indirect** effect would occur. No mitigation measures were identified to further reduce these effects. *[Similar]*

EFFECT **Expose Future Project Residents to Excessive Aircraft Noise Levels.** *Implementation of the project*
3.11-8 *would introduce new noise-sensitive uses to an area with aircraft overflights associated with Mather Airport.*

NA

Under the No Action Alternative, no project-related development would occur. Thus, there would be **no indirect** or **direct effects** related to aircraft/airport noise exposure under the No Action Alternative. *[Lesser]*

Mitigation Measure: No mitigation measures are required.

PA

The Cordova Hills site is approximately 4 miles east of Mather Airport. Although the Cordova Hills site is located outside of the 60 dB CNEL aircraft noise contour for Mather Airport, as shown in Exhibit 3.11-7, the Cordova Hills site is still subject to aircraft overflights that contribute to the noise environment. Additionally, noise from individual aircraft overflights may contribute to sleep disturbance of future project residents.

As presented in the Cordova Hills EIR, a flight track analysis was provided by the Sacramento County Airport System (SCAS) for the month of April 2011. This analysis shows the number of aircraft overflights in the vicinity of the Cordova Hills site, and categorizes them by arrival, departure, and touch-and-go operations. This data is summarized herein in Exhibits 3.11-11, 3.11-12, and 3.11-13, respectively. During the sample month, approximately 2,484 total flight operations (arrival, departure, and touch-and-go flight tracks) were recorded by SCAS. Of those operations, 67 arrivals, 19 departures, and 46 touch-and-go operations may have contributed substantially to noise exposure in the project vicinity. This averages to approximately 4.4 aircraft operations per day.

Assuming an average SEL of 80 dB for individual aircraft events near the Cordova Hills site, and 4.4 operations per day—2.7 during daytime hours and 1.7 during nighttime hours (evenly distributed over the 24-hour day)—estimated aircraft noise exposure at the Cordova Hills site would be approximately 44 dB L_{dn}/CNEL. This calculated noise level is expected to represent existing worst-case aircraft noise exposure on the Cordova Hills site. Therefore, Mather Airport noise exposure at the Cordova Hills site is expected to be well below the established 60 dB CNEL/L_{dn} significance threshold.

Residents of the proposed development may experience the occasional nighttime aircraft operation associated with Mather Airport. Using ANSI/ASA S12.9-2008/Part 6, the probability of a sleeping resident being awakened as a result of the assumed nighttime Mather Airport aircraft operations (1.7 operations between 10 p.m. and 7 a.m.) was calculated to be less than 2 percent. This result is consistent with the findings of a study prepared by Environmental Science Associates (Mather Airport, Nighttime Awakenings Analysis, October 2011).

Exhibit 3.11-11

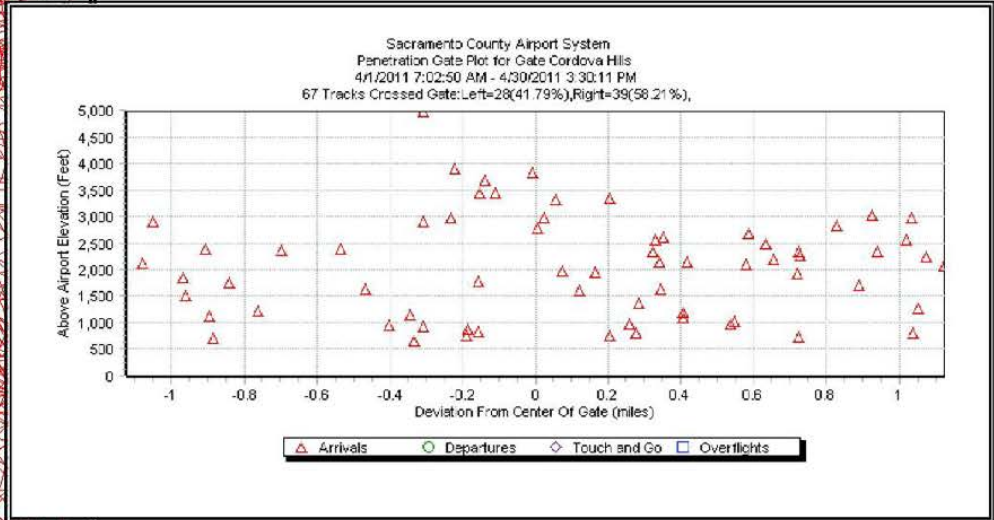
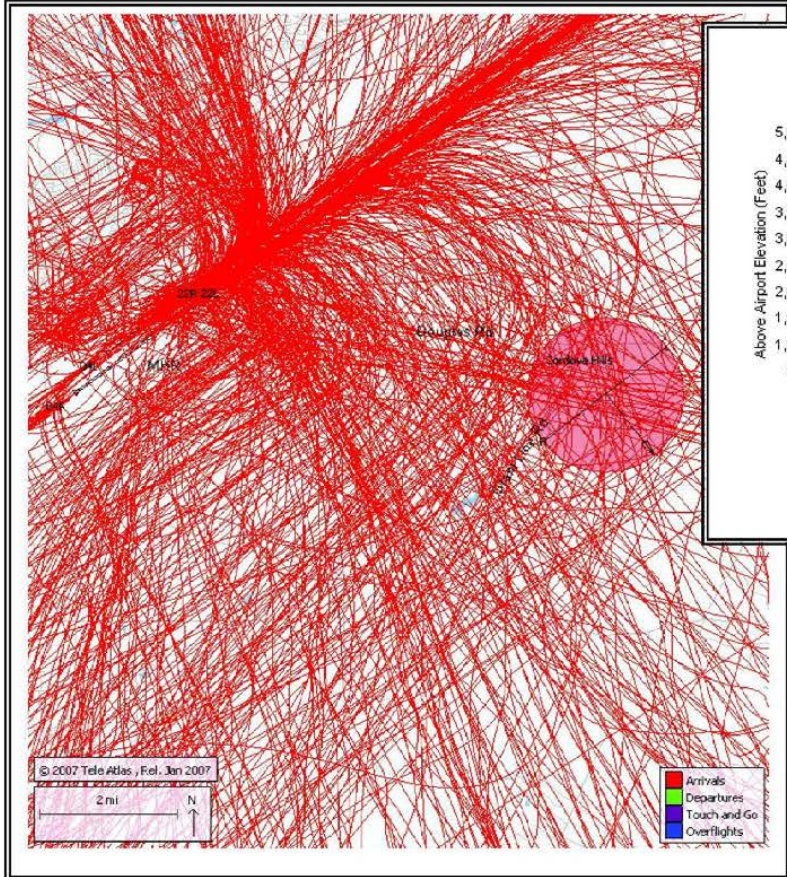
Sampled Arrival Flight Tracks for Mather Airport

Source: County of Sacramento 2012

**Sacramento County Airport System
Aircraft Noise Information Office**
Mather Airport Flight Altitudes Near Cordova Hills Project Location
Flight Track Analysis



Arrival Analysis



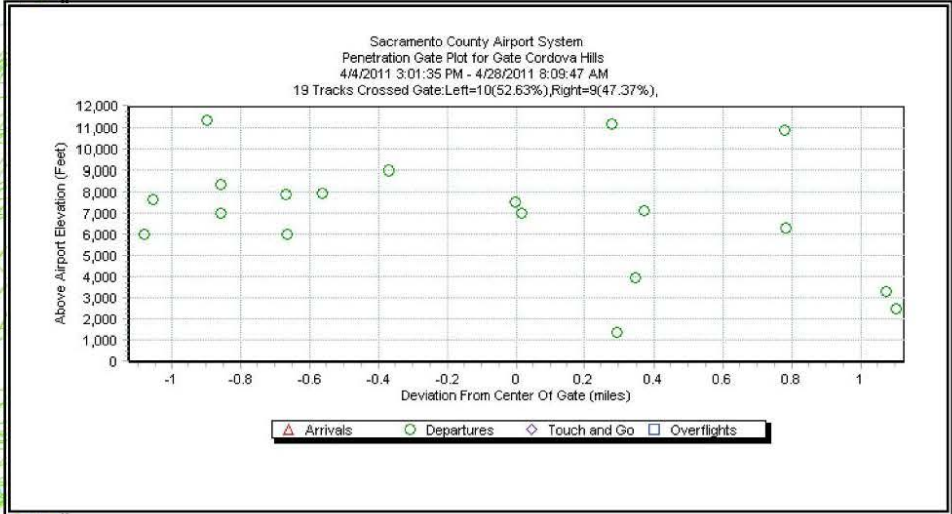
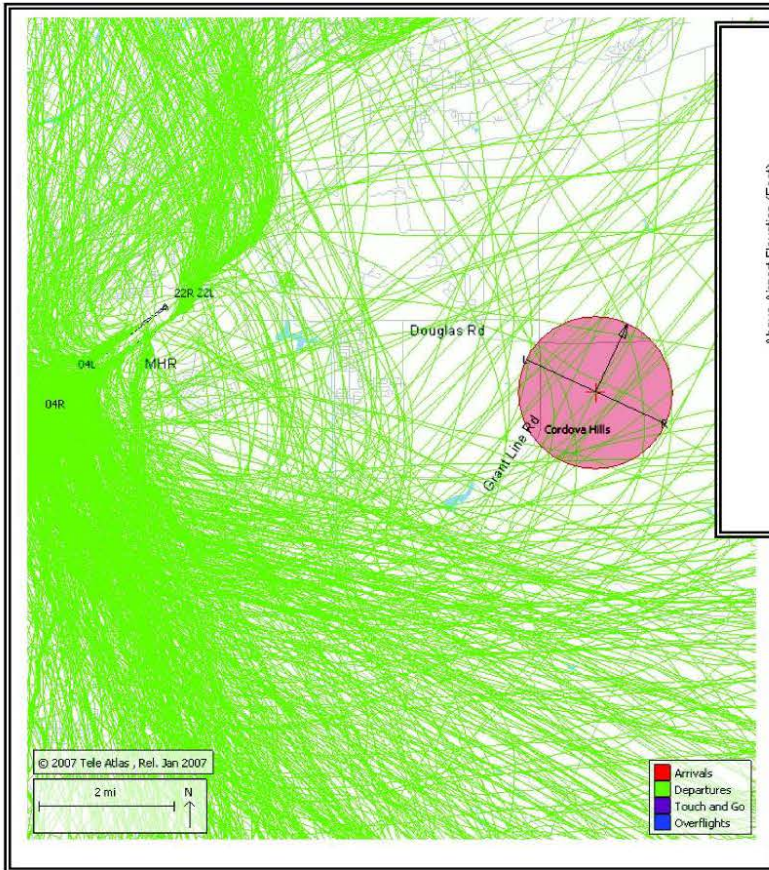
During April of 2011, 1,080 arrival flight tracks were recorded at Mather Airport. Of these, 94 flew within a 1 1/8-mile radius of the parcel; 67 penetrated the gate spanning the location. As indicated by the graphic above, these flights passed over the site at a wide range of altitudes from 500 to 5,000 ft MSL. The Operator Category for the total number of arrivals that flew within a 1 1/8-mile radius includes 1 Cargo, 37 Commercial, 29 General Aviation, 2 Military and 25 Unknown. The Aircraft Category includes 17 Business Jets, 1 Jet, 2 Military, 6 Propeller, 33 Regional Jets, 10 Turbo-prop and 25 Unknown.

The center of the proposed project location is approximately 5.0 miles from the end of Runway 22L at MHR.



Sacramento County Airport System
Aircraft Noise Information Office
 Mather Airport Flight Altitudes Near Cordova Hills Project Location
Flight Track Analysis

Departure Analysis



During April of 2011, 1,082 departure flight tracks were recorded at Mather Airport. Of these, 24 flew with a 1 1/8-mile radius of the parcel; 19 penetrated the gate spanning the location. As indicated by the graphic above, these flights passed over the site at a wider range of altitudes from 1,000 to 12,000 ft MSL. The Operator Category for the total number of departures that flew within a 1 1/8-mile radius includes 4 Cargo, 2 Commercial, 7 General Aviation, 4 Military and 7 Unknown. The Aircraft Category includes 8 Business Jets, 4 Jets, 4 Military, 2 Regional Jets, 3 Turbo-prop and 7 Unknown.

In order to capture the relative proximity of the flight tracks to the location center, the basic penetration gate direction was re-oriented.

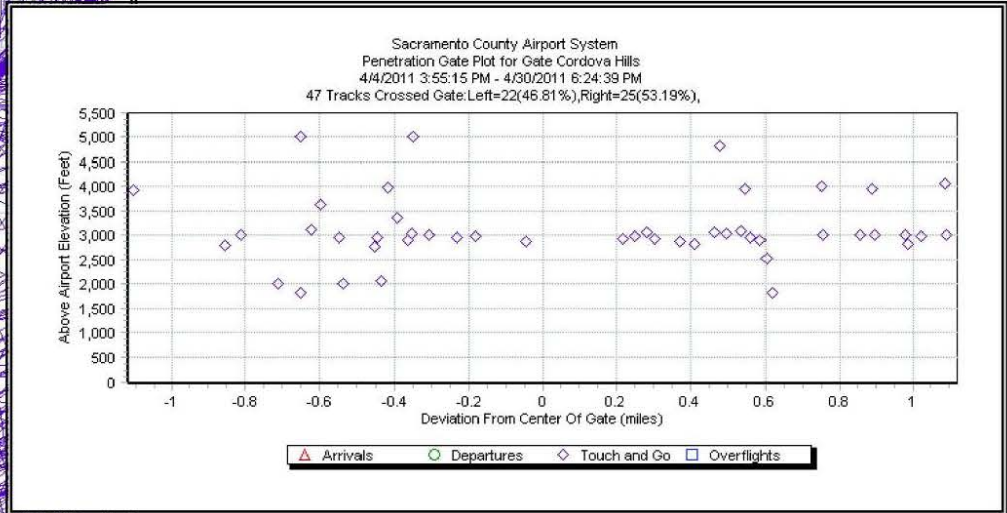
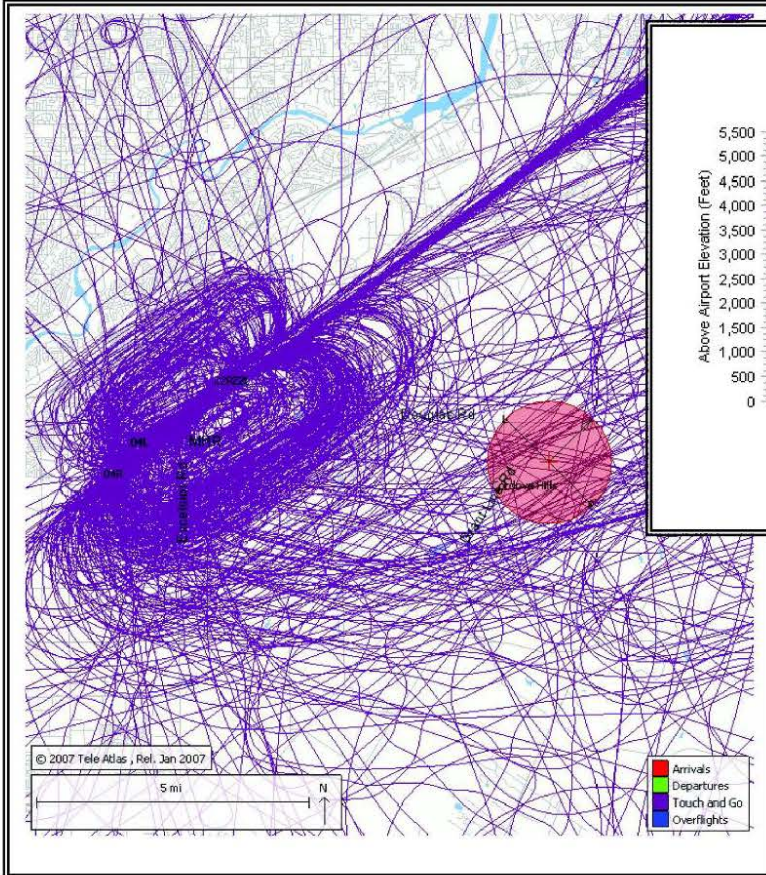
Source: County of Sacramento 2012

Exhibit 3.11-12

Sampled Departure Flight Tracks for Mather Airport

**Sacramento County Airport System
Aircraft Noise Information Office**
Mather Airport Flight Altitudes Near Cordova Hills Project Location
Flight Track Analysis

Touch-and-Go Analysis



During April of 2011, 322 touch-and-go flight tracks were recorded at Mather Airport. Of these, 46 flew with a 1-mile radius of the location. The gate spanning the location was penetrated 47 times due to the fact that one touch-and-go flight track may comprise multiple operations. As indicated by the graphic above, these flights typically passed over the site at altitudes between 1,500 and 4,000 ft MSL. The Operator Category for the total number of touch-and-go flight tracks that flew within a 1-mile radius includes 4 Commercial, 18 General Aviation, 9 Military and 15 Unknown. The Aircraft Category for the total number of touch-and-go flight tracks includes 3 Business Jets, 2 Helicopters, 1 Jet, 9 Military, 11 Propeller, 1 Regional Jet, 4 Turbo-prop and 15 Unknown.

In order to capture the relative proximity of the flight tracks to the location center, the basic penetration gate direction was again re-oriented.

Source: County of Sacramento 2012

Exhibit 3.11-13

Sampled Touch-and-Go Flight Tracks for Mather Airport

As part of the CEQA EIR certification and project approval process, the project applicant committed to implementing various mitigation measures for the Proposed Action. The mitigation measures that are applicable to aircraft noise that were incorporated into the Proposed Action by the EIR mitigation measures, conditions of approval, and development agreement (project entitlements) are listed below:

- ▶ Notification in the Public Report prepared by the California Department of Real Estate shall be provided disclosing to prospective buyers that the parcel is located within the Applicable Airport Planning Policy Area and that aircraft operations can be expected to overfly the area at varying altitudes less than 3,000 feet above ground level.
- ▶ Avigation Easements prepared by the Sacramento County Counsel's Office shall be executed and recorded with the Sacramento County Recorder on each individual residential parcel contemplated in the development in favor of the County of Sacramento. All Avigation Easements recorded pursuant to this policy shall, once recorded, be copied to the Director of Airports, and shall acknowledge the property location within the Mather Airport Airport Planning Policy Area and shall grant the right of flight and unobstructed passage of all aircraft into and out of Mather Airport. (*Final EIR Mitigation Measure NO-6*).

As discussed above, the probability of a sleeping resident at the Cordova Hills site being awakened as a result of the assumed nighttime Mather Airport aircraft operations (1.7 operations between 10 p.m. and 7 a.m.) was calculated to be less than 2 percent. Because Final EIR Mitigation Measure NO-6 has been incorporated into the Proposed Action, notification would be provided to prospective buyers that aircraft operations would occur and avigation easements would be recorded. Therefore, this **indirect** effect would be **less than significant**. **No direct** effects would occur. No other mitigation measures were identified to further reduce this effect.

EDP, EP, P, RC

For the Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives, this effect would be similar to the effect described above for the Proposed Action. Residents of the proposed development on the Pilatus site may experience the occasional nighttime aircraft operation associated with Mather Airport. However, the probability of a sleeping resident being awakened as a result of the assumed nighttime Mather Airport aircraft operations (1.7 operations between 10 p.m.-7 a.m.) was calculated to be less than 2 percent. Therefore, probability of sleep disruption is considered an **indirect, less-than-significant** effect. **No direct** effects would occur. [*Similar*]

As part of the CEQA EIR certification and project approval process, various mitigation measures were incorporated into the project entitlements. Because these mitigation measures were incorporated into the Proposed Action, it is reasonable to assume that they would also be incorporated into the four action alternatives, if any of those alternatives were adopted. The mitigation measures that are applicable to aircraft noise that were incorporated into the Proposed Action by the EIR mitigation measures, conditions of approval, and development agreement (project entitlements), are listed below:

- ▶ Notification in the Public Report prepared by the California Department of Real Estate shall be provided disclosing to prospective buyers that the parcel is located within the Applicable Airport Planning Policy Area and that aircraft operations can be expected to overfly the area at varying altitudes less than 3,000 feet above ground level.

- ▶ Avigation Easements prepared by the Sacramento County Counsel’s Office shall be executed and recorded with the Sacramento County Recorder on each individual residential parcel contemplated in the development in favor of the County of Sacramento. All Avigation Easements recorded pursuant to this policy shall, once recorded, be copied to the Director of Airports, and shall acknowledge the property location within the Mather Airport Airport Planning Policy Area and shall grant the right of flight and unobstructed passage of all aircraft into and out of Mather Airport. (*Final EIR Mitigation Measure NO-6*).

No other mitigation measures were identified to further reduce this effect.

3.11.7 RESIDUAL SIGNIFICANT EFFECTS

All effects would either be less than significant or less than significant after implementation of mitigation, with the exception of construction-generated noise and sensitivity of existing off-site land uses to project-generated traffic noise. Implementation of Mitigation Measures 3.11-1 and 3.11-2 would reduce the project’s construction and traffic noise, but not to levels that would be below applicable standards at all noise-sensitive receptors. Therefore, Effects 3.11-4 and 3.11-5 would remain significant and unavoidable.

3.11.8 CUMULATIVE EFFECTS

When determining whether the overall noise effects from other foreseeable projects would be cumulatively significant and whether the project’s incremental contribution to any significant cumulative effects would be cumulatively considerable, it is important to note that noise effects are localized occurrences; as such, they decrease rapidly in magnitude as the distance from the source to the receptor increases. Therefore, only those other foreseeable projects that are in the direct vicinity of the Cordova Hills and Pilatus sites and those that are considered influential in regards to noise (e.g., relatively large in size or use heavy equipment) would have the potential to be considered in a cumulative context with the project’s incremental contribution (e.g., Sunrise Douglas Community Plan area, Kiefer Landfill Special Planning Area, and the Teichert Aggregate facility on Grant Line Road).

Temporary, Short-Term Exposure of Sensitive Receptors to Increased Equipment Noise from Construction

The County’s noise regulations limit construction activities to daytime hours. However, it is anticipated that compliance with these regulations alone would not avoid significant construction-noise effects associated with other foreseeable projects because of the anticipated substantial increase in ambient noise levels for existing and future adjacent sensitive receptors to construction areas during daytime hours. Therefore, a significant cumulative noise effect associated with construction activities could occur from continued construction phasing of the Cordova Hills project and the adjacent foreseeable projects. Projects within the Sunrise Douglas Community Plan area, the northeastern portion of the SunCreek Specific Plan project, and existing landfill operations and new development in the Kiefer Landfill Special Planning Area (shown in Exhibit 3.0-1 in Section 3.0, “Approach to the Environmental Analysis and the Cumulative Context”), are all close enough to the Cordova Hills project to have an additive effect from construction noise sources. Although implementation of Mitigation Measure 3.11-2 would reduce project-related construction noise effects, such effects would still exceed applicable thresholds and therefore would remain significant and unavoidable. Furthermore, it cannot be assumed that the aforementioned projects would include mitigation measures to reduce the contribution of those other foreseeable projects to

cumulative construction noise effects. Therefore, the project would result in a cumulatively considerable contribution to significant cumulative noise effects from construction noise.

Temporary, Short-Term Exposure of Sensitive Receptors to Excessive Vibration from Construction

Construction activities on the Cordova Hills site may result in varying degrees of temporary ground vibration, depending on the specific construction equipment used and operations involved. Groundborne vibration levels caused by various types of construction equipment are summarized in Table 3.11-17. The representative vibration levels identified for various construction equipment types show that sensitive receptors located close to construction activities could be exposed to groundborne vibration levels exceeding the applicable thresholds. Although cumulative projects within the Sunrise Douglas Community Plan area, the northeastern portion of the SunCreek Specific Plan project, and existing landfill operations and new development in the Kiefer Landfill Special Planning Area (shown in Exhibit 3.0-1 in Section 3.0, “Approach to the Environmental Analysis and the Cumulative Context”) would also cause temporary ground vibration, the cumulative project locations are not close enough to the Cordova Hills project to have an additive effect from those localized construction vibration sources.

Long-Term Exposure of Sensitive Receptors to Increased Stationary-Source Noise

Stationary-source noise associated with the Cordova Hills project and other foreseeable projects could potentially result in exceedance of the County’s noise regulations at sensitive receptors. Implementation of Sacramento County Final EIR Mitigation Measure NO-5 would reduce project-generated stationary-source noise effects to a less-than-significant level. The noise from any stationary noise sources associated with other foreseeable projects could be controlled at the source by means of noise walls, enclosures, and site planning, but there is no guarantee that all other foreseeable projects would include such noise controls as part of their proposals. Therefore, significant cumulative noise effects associated with stationary noise sources at the other foreseeable project sites could occur. Projects within the Sunrise Douglas Community Plan, the northeastern portion of the SunCreek Specific Plan area, and the Kiefer Special Planning Area are close enough to the Cordova Hills site to have an additive effect from stationary noise sources. Thus, project implementation could result in a cumulatively considerable contribution to significant cumulative stationary-source noise effects.

Traffic Noise Levels

Cumulative traffic noise in the project vicinity could adversely affect off-site noise-sensitive land uses. Tables 3.11-17 and 3.11-18 compare the existing and cumulative (no project) traffic noise-level conditions with the cumulative (plus project) traffic noise condition to assess the significance of cumulative traffic noise level increases.

A cumulative traffic noise effect would be considered significant if the cumulative (plus project) traffic noise level would be 5 dB or higher than the existing condition. Therefore, the cumulative analysis is not applicable to roadway/roadway segments that are not present under the “existing” condition.

As shown in Tables 3.11-17 and 3.11-18, a cumulative traffic noise level increase above applicable thresholds would occur at existing noise-sensitive uses located along segments of Grant Line Road (Jackson Road/SR 16 to White Rock Road), White Rock Road (Sunrise Boulevard to the County line), Jackson Road/SR 16 (Watt Avenue to Bradshaw Road), Douglas Road (Eagles Nest Road to the future Rancho Cordova Parkway), Kiefer Boulevard

**Table 3.11-17
Summary of Cumulative Traffic Noise Effects (Proposed Action)**

Roadway	Segment	Calculated Traffic Noise Levels, dB L _{dn} at 75 Feet			Change, dB		Potentially Significant?	Potentially Cumulatively Considerable?
		Existing (A)	Cumulative No Project (B)	Cumulative With Project (C)	Cumulative With Project vs. Existing (C-A)	Cumulative With Project vs. Cumulative No Project (C-B)		
Grant Line Road	Sheldon Road to Calvine Road	62.7	65.5	66.1	3.4	0.6	No	No
Grant Line Road	Calvine Road to Sunrise Boulevard	65.8	68.0	68.8	3.0	0.8	No	No
Grant Line Road	Sunrise Boulevard to Jackson Road	65.4	67.3	68.7	3.3	1.4	No	No
Grant Line Road	Jackson Road/SR 16 to Rancho Cordova Parkway (future)	65.4	68.2	70.6	5.2	2.3	Yes	No
Grant Line Road	Rancho Cordova Parkway (future) to Kiefer Boulevard	65.4	67.2	70.0	4.6	2.8	Yes	No
Grant Line Road	Kiefer Boulevard to University Boulevard (future)	64.6	67.2	71.4	6.8	4.1	Yes	No
Grant Line Road	University Boulevard (future) to Chrysanthy Boulevard (future)	64.6	67.2	70.7	6.1	3.4	Yes	No
Grant Line Road	Chrysanthy Boulevard (future) to North Loop Road (future)	64.6	68.3	70.1	5.5	1.9	Yes	No
Grant Line Road	North Loop Road (future) to Douglas Road	64.6	68.3	73.0	8.5	4.8	Yes	Yes
Grant Line Road	Douglas Road to White Rock Road	66.3	70.8	72.5	6.3	1.7	Yes	No
White Rock Road	Kilgore Road to Sunrise Boulevard	70.8	70.8	70.8	0.1	0.1	No	No
White Rock Road	Sunrise Boulevard to Fitzgerald Road/Rancho Cordova Parkway (future)	66.4	70.9	71.1	4.8	0.2	Yes	No
White Rock Road	Fitzgerald Road / Rancho Cordova Parkway (future) to Americanos Boulevard (future)	NA	67.4	67.8	NA	0.4	NA	No
White Rock Road	Americanos Boulevard (future) to Grant Line Road	61.8	66.9	67.0	5.2	0.1	Yes	No
White Rock Road	Grant Line Road to Prairie City Road	66.4	71.2	72.6	6.2	1.4	Yes	No
White Rock Road	Prairie City Road to Scott Road (West)	64.9	70.2	71.3	6.4	1.1	Yes	No
White Rock Road	Scott Road (West) to Scott Road (East)	64.9	70.9	71.7	6.8	0.7	Yes	No
White Rock Road	Scott Road (East) to county line	65.2	69.8	70.2	5.0	0.3	Yes	No
Jackson Road/SR 16	Watt Avenue to Bradshaw Road	67.5	72.8	73.1	5.6	0.3	Yes	No
Jackson Road/SR 16	Bradshaw Road to Vineyard Road	NA	70.3	70.8	NA	0.4	NA	No

**Table 3.11-17
 Summary of Cumulative Traffic Noise Effects (Proposed Action)**

Roadway	Segment	Calculated Traffic Noise Levels, dB L _{dn} at 75 Feet			Change, dB		Potentially Significant?	Potentially Cumulatively Considerable?
		Existing (A)	Cumulative No Project (B)	Cumulative With Project (C)	Cumulative With Project vs. Existing (C-A)	Cumulative With Project vs. Cumulative No Project (C-B)		
Jackson Road/SR 16	Vineyard Road to Excelsior Road	66.8	69.0	69.6	2.9	0.6	No	No
Jackson Road/SR 16	Excelsior Road to Eagles Nest Road	66.1	68.0	69.1	3.0	1.1	No	No
Jackson Road/SR 16	Eagles Nest Road to Sunrise Boulevard	66.1	68.3	69.3	3.2	1.1	No	No
Jackson Road/SR 16	Sunrise Boulevard to Grant Line Road	67.6	69.1	70.3	2.7	1.2	No	No
Douglas Road	Mather Boulevard/Excelsior Road to Eagles Nest Road	62.4	65.3	65.4	3.0	0.1	No	No
Douglas Road	Eagles Nest Road to Sunrise Boulevard	62.2	69.5	70.3	8.1	0.8	Yes	No
Douglas Road	Sunrise Boulevard to Rancho Cordova Parkway (future)	60.7	67.3	69.6	8.9	2.3	Yes	No
Douglas Road	Rancho Cordova Parkway (future) to Americanos Boulevard (future)	NA	66.1	68.5	NA	2.4	NA	No
Douglas Road	Americanos Boulevard (future) to Grant Line Road	NA	60.6	67.5	NA	6.9	NA	Yes
Kiefer Boulevard	Bradshaw Road to Vineyard Road	NA	66.5	66.8	NA	0.3	NA	No
Kiefer Boulevard	Vineyard Road to Excelsior Road	NA	66.2	66.6	NA	0.4	NA	No
Kiefer Boulevard	Excelsior Road to Eagles Nest Road	NA	61.8	62.7	NA	0.9	NA	No
Kiefer Boulevard	Eagles Nest Road to Sunrise Boulevard	NA	63.8	64.6	NA	0.8	NA	No
Kiefer Boulevard	Sunrise Boulevard to Rancho Cordova Parkway	NA	59.4	61.3	NA	1.9	NA	No
Kiefer Boulevard	Rancho Cordova Parkway to Grant Line Road	57.9	61.6	64.9	7.0	3.3	Yes	No
Kiefer Boulevard	Grant Line Road to Jackson Road/SR 16	58.9	61.2	62.8	3.9	1.6	No	No
Sunrise Boulevard	U.S. 50 to Folsom Boulevard	71.6	71.9	72.2	0.6	0.3	No	No
Sunrise Boulevard	Folsom Boulevard to White Rock Road	71.2	71.5	71.9	0.7	0.4	No	No
Sunrise Boulevard	White Rock Road to Douglas Road	68.8	69.9	70.5	1.8	0.6	No	No
Sunrise Boulevard	Jackson Road/SR 16 to Florin Road	64.7	67.2	67.6	2.9	0.4	No	No
Mather Boulevard	Douglas Road to Femoyer Street	59.8	58.4	58.8	-1.0	0.4	No	No
Zinfandel Drive	U.S. 50 to White Rock Road	70.6	73.3	73.5	2.9	0.2	No	No

**Table 3.11-17
Summary of Cumulative Traffic Noise Effects (Proposed Action)**

Roadway	Segment	Calculated Traffic Noise Levels, dB L _{dn} at 75 Feet			Change, dB		Potentially Significant?	Potentially Cumulatively Considerable?
		Existing (A)	Cumulative No Project (B)	Cumulative With Project (C)	Cumulative With Project vs. Existing (C-A)	Cumulative With Project vs. Cumulative No Project (C-B)		
Zinfandel Drive	White Rock Road to International Drive	NA	70.5	70.8	NA	0.4	NA	No
Zinfandel Drive	International Drive to Douglas Road	NA	71.0	71.5	NA	0.5	NA	No
Prairie City Road	U.S. 50 to Easton Valley Parkway	62.0	68.9	69.4	7.4	0.5	Yes	No
Prairie City Road	Easton Valley Parkway to White Rock Road	62.0	67.0	67.9	6.0	1.0	Yes	No
Scott Road	U.S. 50 to Easton Valley Parkway	61.1	70.3	70.6	9.6	0.3	Yes	No
Scott Road	Easton Valley Parkway to White Rock Road	61.1	66.8	67.5	6.4	0.7	Yes	No
Chrysanthy Boulevard	Sunrise Boulevard to Rancho Cordova Parkway (future)	NA	61.2	62.3	NA	1.1	NA	No
Chrysanthy Boulevard	Rancho Cordova Parkway (future) to Americanos Boulevard (future)	NA	62.2	65.2	NA	3.0	NA	No
Chrysanthy Boulevard	Americanos Boulevard (future) to Grant Line Road	NA	56.8	65.0	NA	8.1	NA	No
Rancho Cordova Parkway	White Rock Road to Douglas Road	NA	67.2	67.3	NA	0.2	NA	No
Rancho Cordova Parkway	Douglas Road to Chrysanthy Boulevard	NA	63.9	64.9	NA	1.0	NA	No
Rancho Cordova Parkway	Chrysanthy Boulevard to Kiefer Boulevard	NA	63.1	63.5	NA	0.4	NA	No
Rancho Cordova Parkway	Kiefer Boulevard to Grant Line Road	NA	52.4	55.5	NA	3.0	NA	No
Americanos Boulevard	White Rock Road to Douglas Road	NA	62.3	64.2	NA	1.9	NA	No
Americanos Boulevard	Douglas Road to Chrysanthy Boulevard	NA	60.7	61.9	NA	1.2	NA	No
Americanos Boulevard	Chrysanthy Boulevard to Kiefer Boulevard	NA	56.4	58.1	NA	1.7	NA	No
Oak Avenue Parkway	U.S. 50 to Easton Valley Parkway	NA	60.1	60.9	NA	0.8	NA	No
Oak Avenue Parkway	Easton Valley Parkway to White Rock Road	NA	61.7	62.3	NA	0.6	NA	No

Notes: dB = decibel; L_{dn} = energy-average of A-weighted sound levels occurring over a 24-hour period; NA = Not Applicable; SR = State Route
Source: Data modeled by AECOM 2014

**Table 3.11-18
Summary of Cumulative Traffic Noise Effects (Pilatus Alternative)**

Roadway	Segment	Calculated Traffic Noise Levels, dB L _{dn} at 75 Feet			Change, dB		Potentially Significant?	Potentially Cumulatively Considerable?
		Existing (A)	Cumulative No Project (B)	Cumulative With Project (C)	Cumulative With Project vs. Existing (C-A)	Cumulative With Project vs. Cumulative No Project (C-B)		
Grant Line Road	Sheldon Road to Calvine Road	62.7	65.5	66.0	3.3	0.5	No	No
Grant Line Road	Calvine Road to Sunrise Boulevard	65.8	68.0	68.6	2.9	0.6	No	No
Grant Line Road	Sunrise Boulevard to Jackson Road/SR 16	65.4	67.3	68.5	3.1	1.2	No	No
Grant Line Road	Jackson Road/SR 16 to Rancho Cordova Parkway (future)	65.4	68.2	70.3	5.0	2.1	Yes	No
Grant Line Road	Rancho Cordova Parkway (future) to Kiefer Boulevard	65.4	67.2	69.7	69.7	2.5	Yes	No
Grant Line Road	Kiefer Boulevard to University Boulevard (future)	64.6	67.2	71.0	6.5	3.8	Yes	No
Grant Line Road	University Boulevard (future) to Chrysanthy Boulevard (future)	64.6	67.2	69.9	5.4	2.7	Yes	No
Grant Line Road	Chrysanthy Boulevard (future) to North Loop Road (future)	64.6	68.3	68.9	4.4	0.7	No	No
Grant Line Road	North Loop Road (future) to Douglas Road	64.6	68.3	72.9	8.4	4.7	Yes	Yes
Grant Line Road	Douglas Road to White Rock Road	66.3	70.8	72.4	6.1	1.6	Yes	No
White Rock Road	Kilgore Road to Sunrise Boulevard	70.8	70.8	70.8	0.1	0.1	No	No
White Rock Road	Sunrise Boulevard to Fitzgerald Road / Rancho Cordova Parkway (future)	66.4	70.9	71.1	4.8	0.2	Yes	No
White Rock Road	Fitzgerald Road / Rancho Cordova Parkway (future) to Americanos Boulevard (future)	NA	67.4	67.8	NA	0.4	NA	No
White Rock Road	Americanos Boulevard (future) to Grant Line Road	61.8	66.9	67.0	5.2	0.1	Yes	No
White Rock Road	Grant Line Road to Prairie City Road	66.4	71.2	72.5	6.1	1.3	Yes	No
White Rock Road	Prairie City Road to Scott Road (West)	64.9	70.2	71.2	6.3	1.0	Yes	No
White Rock Road	Scott Road (West) to Scott Road (East)	64.9	70.9	71.6	6.7	0.6	Yes	No
White Rock Road	Scott Road (East) to county line	65.2	69.8	70.1	4.9	0.3	Yes	No
Jackson Road/SR 16	Watt Avenue to Bradshaw Road	67.5	72.8	73.1	5.6	0.2	Yes	No
Jackson Road/SR 16	Bradshaw Road to Vineyard Road	NA	70.3	70.7	NA	0.4	NA	No
Jackson Road/SR 16	Vineyard Road to Excelsior Road	66.8	69.0	69.6	2.8	0.6	No	No

**Table 3.11-18
Summary of Cumulative Traffic Noise Effects (Pilatus Alternative)**

Roadway	Segment	Calculated Traffic Noise Levels, dB L _{dn} at 75 Feet			Change, dB		Potentially Significant?	Potentially Cumulatively Considerable?
		Existing (A)	Cumulative No Project (B)	Cumulative With Project (C)	Cumulative With Project vs. Existing (C-A)	Cumulative With Project vs. Cumulative No Project (C-B)		
Jackson Road/SR 16	Excelsior Road to Eagles Nest Road	66.1	68.0	69.0	3.0	1.0	No	No
Jackson Road/SR 16	Eagles Nest Road to Sunrise Boulevard	66.1	68.3	69.3	3.2	1.0	No	No
Jackson Road/SR 16	Sunrise Boulevard to Grant Line Road	67.6	69.1	70.2	2.7	1.2	No	No
Douglas Road	Mather Boulevard / Excelsior Road to Eagles Nest Road	62.4	65.3	65.3	2.9	0.0	No	No
Douglas Road	Eagles Nest Road to Sunrise Boulevard	62.2	69.5	70.2	8.0	0.7	Yes	No
Douglas Road	Sunrise Boulevard to Rancho Cordova Parkway (future)	60.7	67.3	69.4	8.7	2.1	Yes	No
Douglas Road	Rancho Cordova Parkway (future) to Americanos Boulevard (future)	NA	66.1	68.5	NA	2.4	NA	No
Douglas Road	Americanos Boulevard (future) to Grant Line Road	NA	60.6	67.7	NA	7.1	NA	Yes
Kiefer Boulevard	Bradshaw Road to Vineyard Road	NA	66.5	66.8	NA	0.3	NA	No
Kiefer Boulevard	Vineyard Road to Excelsior Road	NA	66.2	66.5	NA	0.3	NA	No
Kiefer Boulevard	Excelsior Road to Eagles Nest Road	NA	61.8	62.7	NA	0.9	NA	No
Kiefer Boulevard	Eagles Nest Road to Sunrise Boulevard	NA	63.8	64.7	NA	0.8	NA	No
Kiefer Boulevard	Sunrise Boulevard to Rancho Cordova Parkway	NA	59.4	61.4	NA	2.0	NA	No
Kiefer Boulevard	Rancho Cordova Parkway to Grant Line Road	57.9	61.6	64.7	6.8	3.1	Yes	No
Kiefer Boulevard	Grant Line Road to Jackson Road/SR 16	58.9	61.2	62.5	3.6	1.3	No	No
Sunrise Boulevard	U.S. 50 to Folsom Boulevard	71.6	71.9	72.2	0.6	0.2	No	No
Sunrise Boulevard	Folsom Boulevard to White Rock Road	71.2	71.5	71.8	0.6	0.3	No	No
Sunrise Boulevard	White Rock Road to Douglas Road	68.8	69.9	70.5	1.7	0.5	No	No
Sunrise Boulevard	Jackson Road/SR 16 to Florin Road	64.7	67.2	67.6	2.9	0.3	No	No
Mather Boulevard	Douglas Road to Femoyer Street	59.8	58.4	58.8	-1.0	0.4	No	No
Zinfandel Drive	U.S. 50 to White Rock Road	70.6	73.3	73.5	2.9	0.2	No	No
Zinfandel Drive	White Rock Road to International Drive	NA	70.5	70.8	NA	0.4	NA	No

**Table 3.11-18
 Summary of Cumulative Traffic Noise Effects (Pilatus Alternative)**

Roadway	Segment	Calculated Traffic Noise Levels, dB L _{dn} at 75 Feet			Change, dB		Potentially Significant?	Potentially Cumulatively Considerable?
		Existing (A)	Cumulative No Project (B)	Cumulative With Project (C)	Cumulative With Project vs. Existing (C-A)	Cumulative With Project vs. Cumulative No Project (C-B)		
Zinfandel Drive	International Drive to Douglas Road	NA	71.0	71.5	NA	0.5	NA	No
Prairie City Road	U.S. 50 to Easton Valley Parkway	62.0	68.9	69.4	7.4	0.5	Yes	No
Prairie City Road	Easton Valley Parkway to White Rock Road	62.0	67.0	67.9	67.9	0.9	Yes	No
Scott Road	U.S. 50 to Easton Valley Parkway	61.1	70.3	70.6	9.5	0.3	Yes	No
Scott Road	Easton Valley Parkway to White Rock Road	61.1	66.8	67.4	67.4	0.6	Yes	No
Chrysanthy Boulevard	Sunrise Boulevard to Rancho Cordova Parkway (future)	NA	61.2	61.9	NA	0.7	NA	No
Chrysanthy Boulevard	Rancho Cordova Parkway (future) to Americanos Boulevard (future)	NA	62.2	64.1	NA	1.8	NA	No
Chrysanthy Boulevard	Americanos Boulevard (future) to Grant Line Road	NA	56.8	62.7	NA	5.8	NA	Yes
Rancho Cordova Parkway	White Rock Road to Douglas Road	NA	67.2	67.3	NA	0.1	NA	No
Rancho Cordova Parkway	Douglas Road to Chrysanthy Boulevard	NA	63.9	64.4	NA	0.6	NA	No
Rancho Cordova Parkway	Chrysanthy Boulevard to Kiefer Boulevard	NA	63.1	63.4	NA	0.3	NA	No
Rancho Cordova Parkway	Kiefer Boulevard to Grant Line Road	NA	52.4	55.1	NA	2.6	NA	No
Americanos Boulevard	White Rock Road to Douglas Road	NA	62.3	64.2	NA	1.9	NA	No
Americanos Boulevard	Douglas Road to Chrysanthy Boulevard	NA	60.7	61.3	NA	0.6	NA	No
Americanos Boulevard	Chrysanthy Boulevard to Kiefer Boulevard	NA	56.4	57.3	NA	0.9	NA	No
Oak Avenue Parkway	U.S. 50 to Easton Valley Parkway	NA	60.1	60.8	NA	0.7	NA	No
Oak Avenue Parkway	Easton Valley Parkway to White Rock Road	NA	61.7	62.2	NA	0.5	NA	No

Notes: dB = decibel; L_{dn} = energy-average of A-weighted sound levels occurring over a 24-hour period; NA = Not Applicable
 Data is presented for the Pilatus Alternative. The Expanded Drainage Preservation, Expanded Preservation, and Resource Conservation Alternatives have similar but slightly reduced traffic levels, and would have similar noise effects.
 Source: Data modeled by AECOM 2014

(Rancho Cordova Parkway to Grant Line Road), and Prairie City Road (U.S. 50 to White Rock Road). However, the project's contribution to the cumulative traffic noise effects along these roadway segments would not be cumulatively considerable, because the project's contribution would not result in a noise increase of 5 dB or more. The only segments where the project's contribution would be 5 dB or more are Grant Line Road between North Loop Road (future) and Douglas Road, Douglas Road between Americanos Boulevard (future) and Grant Line Road, and Chrysanthy Boulevard between Americanos Boulevard (future) and Grant Line Road. However, because there are no existing noise-sensitive uses along these roadway segments, the project would not result in a cumulatively considerable contribution to this cumulative traffic noise effect.

3.12 PARKS AND RECREATION

3.12.1 INTRODUCTION

This analysis presents a description of the existing environment related to parks and recreation, discusses regulations that are pertinent to parks and recreation, and provides an analysis of potential effects of the alternatives under consideration. Feasible mitigation measures are recommended, where applicable, to reduce adverse effects.

3.12.2 AFFECTED ENVIRONMENT

REGIONAL ENVIRONMENT

Folsom Lake

Folsom Lake State Recreation Area (SRA), located approximately 10 miles north of the Cordova Hills and Pilatus sites, serves the greater Sacramento area for recreation in the form of camping, hiking, biking, boating, fishing, and other outdoor recreation activities. California Department of Parks and Recreation (California State Parks) manages the Folsom Lake SRA, which includes Folsom Lake and the surrounding facilities. The lake features approximately 75 miles of shoreline and 80 miles of trails that provide opportunities for hiking, horseback riding, nature studies, camping, and picnicking. There are seven major recreation areas with facilities located around the lake.

The Lake Natoma sub-unit of the Folsom Lake SRA is located adjacent to the city of Folsom, between Hazel Avenue and Folsom Dam, upstream from the Sacramento County-operated portion of the American River Parkway. The area encompasses approximately 500 surface acres of water and 1,600 acres of land. Most of the land immediately adjacent to Lake Natoma is Federally owned and is administered by the U.S. Bureau of Reclamation (Reclamation). This land is managed by California State Parks as part of the Folsom Lake SRA through an agreement with Reclamation.

The state facilities are managed to meet the recreational needs of the larger statewide population, and thus tend to be oriented more to the traveling public than are the adjacent County or city-operated facilities, which serve the needs of the regional and local population of the Sacramento area.

Sacramento–San Joaquin Delta

The Sacramento–San Joaquin Delta (Delta) includes portions of the cities of Sacramento and Stockton as well as several smaller cities and towns. The Delta encompasses approximately 738,000 acres of land in portions of six counties and has nearly 1,000 miles of navigable channels. As such, recreation opportunities are generally water-oriented, consisting primarily of boating and fishing. Other common activities include waterskiing, wakeboarding, sailing, operating personal watercraft (e.g., jet skis), house boating, kayaking, swimming, boat camping, and windsurfing. Land-based recreational activities in the Delta include hunting, camping, picnicking, walking, bicycling, viewing and photographing wildlife, sightseeing, and attending festivals and special events (Delta Protection Commission [DPC] 2007). Access to the Delta is available via several locations along the Sacramento River from downtown Sacramento to Freeport (approximately 20 miles southwest of the Cordova Hills and Pilatus sites), as well as numerous locations farther south (California Department of Water Resources [DWR] 1995).

Prairie City State Vehicular Recreation Area

The Prairie City State Vehicular Recreation Area (SVRA), located on White Rock Road approximately 4 miles north of the Cordova Hills and Pilatus sites, offers off-highway vehicle enthusiasts about 836 acres of varying terrain and trails for motorcycles, all-terrain vehicles, and four-wheel-drive vehicles. The Prairie City SVRA is operated by the Off-Highway Vehicle Division of California State Parks and is open year-round (California State Parks 2013).

LOCAL ENVIRONMENT

County of Sacramento

Park planning in Sacramento County is an interagency and interjurisdictional process. At the broadest level, the Sacramento County Department of Regional Parks, Recreation, and Open Space (DPROS) manages the regional park system. Local parks (mini, neighborhood, and community parks) are proposed and operated primarily by the 18 parks and recreation districts located throughout the unincorporated and incorporated areas of the County. Sacramento County defines four basic types of parks as follows:

- ▶ **Mini Parks** (1.5–4 acres): Publicly owned sites generally serving a radius within 1/3 mile and within easy walking distance for a parent with a tot or an elderly person. Good visual access from surrounding homes and streets is essential. Mini parks typically provide playgrounds and picnic facilities.
- ▶ **Neighborhood Parks** (5–10 acres): Often adjacent to school sites, are publicly-owned sites intended to serve the needs of a radius within 2/3 mile, usually the residential neighborhood in which they are located. They should be within walking distance of the residents they serve, without access barriers, such as a major street or canal. Neighborhood parks typically provide playgrounds, playfields, and court game areas.
- ▶ **Community Parks** (20–60 acres): Larger, publicly-owned sites that serve a larger area and population than neighborhood parks. They should be served by a major thoroughfare and be within bicycling distance of the people they serve. Community parks typically provide specialized functions such as swimming pools, tennis courts, sports complexes, and community buildings in addition to basic neighborhood park facilities.
- ▶ **Regional Parks** (75+ acres): Typically provide a specialized recreation function, or preserve natural, cultural, historical, or archaeological features of Countywide significance. They are usually greater than 75 acres in size, with a large service area and population, extending beyond the County boundary.

Sacramento County Department of Regional Parks, Recreation, and Open Space

Sacramento County DPROS was established in 1959 with acquisition of land now known as the American River Parkway. Since that time, the County has expanded its total parklands to more than 11,000 acres, including the American River Parkway, Dry Creek Parkway, Mather Regional Park, Discovery Park, Elk Grove Regional Park, the Effie Yeaw Nature Center, and other historic and natural sites. In addition to traditional regional park activities, DPROS also oversees four regional golf facilities.

American River Parkway

On January 19, 1981, approximately 23 miles of the American River, from the confluence with the Sacramento River to Nimbus Dam, was designated a National Wild and Scenic River by the National Park Service (NPS) (NPS 2013). Nimbus Dam is located approximately 4 miles west of the Cordova Hills and Pilatus sites. This stretch of river, managed by DPROS, flows through the city of Sacramento and is the most heavily used Wild and Scenic River in California. The American River Parkway is a river corridor/open space greenbelt that extends along the American River from the confluence with the Sacramento River to Nimbus Dam. The American River Parkway's trail system, which has been designated a "National Recreation Trail," includes the approximately 32-mile-long multiuse (pedestrian, equestrian, and bicycle) Jedediah Smith Memorial Trail, which parallels the American River from Folsom to downtown Sacramento.

3.12.3 REGULATORY FRAMEWORK/APPLICABLE LAWS, REGULATIONS, PLANS, AND POLICIES

State laws and regulations are provided for informational purposes and to assist with NEPA review. U.S. Army Corps of Engineers has considered applicable state, regional, and local plans and ordinances as a part of the environmental review process for this environmental impact statement (EIS).

Sacramento County certified an environmental impact report (EIR) and approved the Proposed Action in January 2013. State, regional, and local plans, policies, laws, and ordinances were considered in the EIR and adopted mitigation measures have been incorporated into the Proposed Action.

FEDERAL PLANS, POLICIES, REGULATIONS, AND LAWS

National Recreation and Park Association

The National Recreation and Park Association (NRPA) recommends that communities have a park system that includes 5–10 acres of developed parklands for every 1,000 residents. Although the amount of parkland varies from community to community and is not regulated by law, many communities have used the NRPA recommendation to develop a standard of 5 acres per 1,000 residents for traditional service/passive park acreage, with an additional 5 acres allocated for special-use facilities and open space (i.e., nontraditional parklands), for a total standard of 10 acres per 1,000 residents.

Americans with Disabilities Act

The Americans with Disabilities Act (ADA) of 1990 (42 United States Code [USC] 12181) prohibits discrimination on the basis of disability in public accommodation and state and local government services. Under the ADA, the Architectural and Transportation Barriers Compliance Board issues guidelines to ensure that facilities, public sidewalks, and street crossings are accessible to individuals with disabilities. Typical ADA improvements include creating parking spaces for handicapped users, restroom modifications, door hardware requirements, and lighting upgrades. Play areas, meeting rooms, park restrooms, and other buildings and park structures must comply with ADA requirements. Park facilities under the any of the action alternatives would be required to be ADA compliant.

STATE PLANS, POLICIES, REGULATIONS, AND LAWS

Quimby Act

The Quimby Act (California Government Code Section 66477) was established by the California Legislature in 1965 to preserve open space and parkland in rapidly urbanizing areas of the state. The Quimby Act allows cities and counties to establish requirements for new development to dedicate land for parks, pay an in-lieu fee, or perform a combination of the two.

The Quimby Act provides two standards for the dedication of land for use as parkland. If the existing area of parkland in a community is greater than 3 acres per 1,000 residents, then the community may require dedication based on a standard of up to 5 acres per 1,000 persons residing in the subdivision. If the existing amount of parkland in a community is less than 3 acres per 1,000 residents, then the community may require dedication based on a standard of only 3 acres per 1,000 persons residing in the subdivision. The Quimby Act requires a city or county to adopt standards for recreational facilities in its general plan if it is to adopt a parkland dedication or fee ordinance.

It should be noted that the Quimby Act applies only to the acquisition of new parkland; it does not apply to the physical development of new park facilities or associated operations and maintenance costs. Therefore, the Quimby Act effectively preserves open space needed to develop park and recreation facilities, but it does not ensure the development of the land or the provision of park and recreation services to residents. In addition, the Quimby Act applies only to residential subdivisions. Nonresidential projects could contribute to the demand for park and recreation facilities without providing land or funding for such facilities. Quimby Act fees are collected by the local agency (park district, city, or county) in which the new residential development is located.

3.12.4 ANALYSIS METHODOLOGY

The evaluation of parks and recreational resources is based on a comparison between existing and proposed future recreational facilities and the policies of the Sacramento County General Plan and Parks and Recreation Master Plan. Because the Cordova Hills and Pilatus sites are within Sacramento County, the demand for recreational resources was estimated based on the County's adopted park acreage standard of 5 acres per 1,000 residents. The number of residents generated by the alternatives under consideration was estimated based on per-dwelling-unit population generation factors (see Table 3.13-9 in Section 3.13, "Socioeconomics"). Parklands (mini, neighborhood, and community parks), which are identified as Recreation (R) areas proposed for the project, are the focus of this analysis. Land uses designated as Recreation and Open Space (R-2) (including open space, community gardens, and community centers) are precluded from full parkland credit because of the informality of the sites and site characteristics (e.g., slopes, presence of detention basins, and other factors). Because these R-2 areas are likely to contribute to the open space and recreation benefits of the Cordova Hills and Pilatus sites, Sacramento County standards provide that the R-2 lands are eligible for a 5 percent parkland credit.

Table 3.12-1 presents the estimated population, the total parkland acreage proposed, and a comparison to the required dedication for the Proposed Action. The total proposed parkland acres are based on the land use plans for the action alternatives, which are contained in Chapter 2, "Description of the Proposed Action and Alternatives."

**Table 3.12-1
Parkland Acreage Calculations by Alternative**

Alternative	Projected Population ¹	Parkland Requirement (5 acres per 1,000 Residents) ²	Proposed Parkland (R) (acres)	5 Percent of R-2 Land (acres)	Total Proposed Parkland (acres)	Total Surplus (+) or Deficit (-) of Parkland Acreage Compared with Requirement
Proposed Action	21,379	106.9	99.2	7.6	106.7	-0.2
Expanded Drainage Preservation	14,134	70.7	53.2	12.1	65.3	-5.4
Expanded Preservation	11,163	55.8	39.0	11.25	50.25	-5.55
Pilatus	23,399	117	93.4	8.4	101.8	-15.2
Regional Conservation	20,672	103.4	99.2	7.8	107	+3.6

Notes:

¹ Population excludes population projected in the University/College Campus Center. See Table 3.14-9 of this EIS for details on the projected population of each action alternative.

² Sacramento County Department of Regional Parks, Recreation, and Open Space requirement.

Source: Data compiled by AECOM in 2013

Because the Final EIR has already been certified, all Final EIR Mitigation Measures, the Rezone and Tentative Large Lot Parcel Map Conditions of Approval, and the obligations found in the Development Agreement (collectively referred to as the project entitlements) are considered a part of the Proposed Action. Thus, these measures and requirements are considered when analyzing the significance of effects under the Proposed Action. Because the project entitlements were imposed on the Proposed Action by the County as part of its approval process, it is reasonable to assume that if one of the action alternatives were adopted, the County would impose similar conditions during the entitlement of the alternative.

THRESHOLDS OF SIGNIFICANCE

The determinations of the significance of effects for this analysis are based on professional standards regularly used in environmental review documents in the region. These thresholds encompass the factors taken into account under NEPA to determine the significance of an action in terms of its context and the intensity of its effects. These are also informed by the environmental checklist in Appendix G of the State CEQA Guidelines. The alternatives under consideration were determined to result in a significant effect related to parks and recreation if they would do any of the following:

- ▶ result in insufficient parkland to meet local parkland dedication requirements;
- ▶ require the construction or expansion of existing recreational facilities that might have a substantial adverse effect on the environment; or
- ▶ increase demand on existing neighborhood and community parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.

Other indirect effects related to the construction of parks or recreational facilities (e.g. effects to biological resources, hydrology) are considered in each topic area of this EIS.

3.12.5 ENVIRONMENTAL CONSEQUENCES AND MITIGATION MEASURES

Effects that would occur under each alternative development scenario are identified as follows: NA (No Action), PA (Proposed Action), EDP (Expanded Drainage Preservation), EP (Expanded Preservation), P (Pilatus), and RC (Regional Conservation). The effects for each alternative are compared relative to the PA at the end of each effect conclusion (i.e., similar, greater, lesser).

EFFECTS ANALYSIS

EFFECT 3.12-1	Sufficiency of Proposed Parkland to Meet Demand. <i>Residential development would require 5.0 acres of parkland per 1,000 residents to meet Sacramento County Department of Regional Parks, Recreation and Open Space requirements.</i>
------------------	---

NA

Under the No Action Alternative, no project-related development would occur and there would be no residential development resulting in the need for new parkland. Therefore, **no indirect** or **direct** adverse effects would occur. *[Lesser]*

Mitigation Measure: No mitigation measures are required.

PA, EDP, EP

Under the Proposed Action, the project applicant is required to dedicate 5.0 acres of park use for every 1,000 residents. Population projections and parkland acreage requirements are presented for the Proposed Action in Table 3.12-1, above. Under the Proposed Action, based on the parks specifically identified in the plan, there would be a deficit of 0.2 acres. There would be a deficit of 5.4 acres under the Expanded Drainage Preservation Alternative and a deficit of 5.55 acres under the Expanded Preservation Alternative. There would be a deficit of 15.2 acres under the Pilatus Alternative. As described below, this deficit would be addressed as small lot subdivision maps are developed and individual parks dedicated.

As part of the CEQA EIR certification and project approval process, the project applicant committed to implementing various mitigation measures for the Proposed Action. The mitigation measures that are applicable to this effect that were incorporated into the Proposed Action by the EIR mitigation measures, conditions of approval, and development agreement (project entitlements) are listed below:

- ▶ Prior to approval of the first small lot tentative subdivision map, enter into a park development agreement for the Sports Park. (DA 2.3.6).
- ▶ Prior to approval of the first small lot tentative subdivision map for each sub-area, enter into individual park development agreements for the applicable sub-area's parks. (DA 2.3.7).
- ▶ Dedicate park sites as final small lot subdivision maps are recorded. (DA 2.3.8).

Because the above-listed conditions of approval have been incorporated into the Proposed Action, a parkland deficit would not occur. Therefore, **no direct** or **indirect** adverse effects would occur. Other **indirect** physical effects of developing park facilities are addressed throughout this EIS in connection with discussions of the effects of overall site development. *[Similar]*

Mitigation Measure: No mitigation measures are required.

RC

Under the Regional Conservation Alternative, the amount of parkland (including 5 percent credit for R-2 land) would exceed the required dedication of 103.4 acres, resulting in a surplus of 3.6 acres. This **indirect effect** is considered **beneficial**. Therefore, **no direct** or **indirect** adverse effects would occur under the Regional Conservation Alternative. *[Lesser]*

Mitigation Measure: No mitigation measures are required.

EFFECT 3.12-2	Increased Use and Potential Physical Deterioration of Existing Off-Site Local or Regional Park Facilities. <i>Project implementation would result in a large number of new residents, which would increase park usage and could cause the potential physical deterioration of existing off-site local and regional park facilities.</i>
------------------	---

NA

Under the No Action Alternative, no project-related development would occur and there would be no new residential development resulting in the generation of new residents which would increase park usage that could exacerbate the physical deterioration of existing off-site local and regional park facilities. Therefore, **no indirect** or **direct** adverse effects would occur. *[Lesser]*

Mitigation Measure: No mitigation measures are required.

PA, EDP, EP, P, RC

While the exact number varies for under the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternative, development of these alternatives would add a substantial number of new residents, as shown in Table 3.12-1. In addition to proposed on-site facilities, these new residents would also be expected to use existing off-site recreational facilities such as Folsom Lake SRA and the American River Parkway, including bicycle trails, campgrounds, boat facilities, and park facilities. Although it cannot be fully ascertained with certainty, it is assumed that revenues from use charges and admission fees for these off-site facilities would increase with increased usage, thus supporting increased maintenance. Therefore, implementation of the Proposed Action, Expanded Drainage Preservation, Expanded Drainage, Pilatus, and Regional Conservation Alternatives would result in an **indirect, less-than-significant** effect on increased use and physical deterioration of existing off-site facilities. **No direct** effects would result. *[Similar]*

Mitigation Measures: No mitigation measures were identified to further reduce effects.

3.12.6 RESIDUAL SIGNIFICANT EFFECTS

Effects associated with parks and recreation would be less than significant after implementation of Mitigation Measure 3.12-1 and conditions of approval associated with the project entitlements. Therefore, there would be no residual significant effects related to parks and recreation.

3.12.7 CUMULATIVE EFFECTS

Regional recreational facilities are located near the Cordova Hills and Pilatus sites, including Folsom Lake, Lake Natoma, the Prairie City State Vehicular Recreation Area (OHV Park), and the American River Parkway. Neighborhood and community parks are located throughout Sacramento County.

Implementation of the project and the other foreseeable projects would generate demand for parks and recreational facilities. As discussed above, with implementation of Mitigation Measure 3.12-1 and conditions of approval in the Proposed Action, all of the action alternatives would be meet the County's requirement of 5.0 acres of parkland per 1,000 residents, thereby providing sufficient park facilities to meet the demand generated by the projected population at buildout. Therefore, while the other foreseeable projects may result in a cumulatively significant effect by causing an increased regional need for additional recreational facilities, the project would not result in a cumulatively considerable contribution to this cumulatively significant effect.

In addition to the on-site facilities, the new residents generated by the project and other foreseeable projects would also be expected to use existing off-site recreational facilities such as the Folsom Lake SRA, Prairie City OHV Park, and American River Parkway, including bicycle trails, campgrounds, boat launch facilities, and sports parks. Additional use of facilities could cause the potential physical deterioration of existing off-site local and regional park facilities. Although it cannot be fully ascertained with any degree of certainty exactly how many residents and with what frequency they would choose to use off-site recreational facilities, for purposes of this analysis, it is assumed that revenues from use charges and admission fees of these off-site facilities would increase along with increased usage, thus supporting increased maintenance. Similarly, increases in use from other foreseeable projects would be expected to result in an increase in admission revenues for park maintenance. As a result, the project and other foreseeable projects would not contribute to physical deterioration of regional park facilities, and the project would not result in a cumulatively considerable incremental contribution to a significant cumulative effect related to deterioration of regional park facilities.

3.13 SOCIOECONOMICS

3.13.1 INTRODUCTION

The term “socioeconomic” describes basic attributes and resources associated with the human environment, with particular emphasis on population, employment, and housing. Substantial changes in these fundamental socioeconomic indicators may in turn influence related variables such as provision of community services and utilities, and cost of available housing.

This section documents historic population and housing data, employment and labor force trends, prominent business and industry types, and government and finance and presents estimates of changes to those conditions that could occur with implementation of the alternatives under consideration. Section 3.7, “Environmental Justice,” describes race, ethnic origin, and economic status in the primary and extended study areas and analyzes the potential of alternatives under consideration to result in disproportionately high and adverse effects on minority and low-income populations.

3.13.2 AFFECTED ENVIRONMENT

The Cordova Hills and Pilatus sites are contained within U.S. Census Bureau Census Tract (CT) 86 in Sacramento County, which encompasses an area in which the project may have the majority of effects on the surrounding area. CT 86 is located in a rural, unincorporated area of Sacramento County. Approximately 81 percent of the population within CT 86 is located within the Rancho Murieta Census Designated Place (CDP).

Because of the often wide-ranging, interdependent nature of socioeconomic resources, economic effects of the project would be dispersed over a greater geographical area. Therefore, the following discussion includes a description of socioeconomic conditions for the Rancho Cordova Census-County Division (CCD) since this area would likely contribute goods and services to the construction activities needed to implement the project. The Rancho Cordova CCD includes the city of Rancho Cordova and a portion of the city of Carmichael, and portions of the unincorporated communities of Gold River, Mather, La Riviera, and Rosemont. Comparable data for Sacramento County and the state of California are also presented below.

POPULATION AND GROWTH TRENDS

Table 3.13-1 presents historical, current, and projected population trends for Sacramento County and its unincorporated areas; nearby cities of Elk Grove, Folsom, and Rancho Cordova; and the state of California as a whole. This information was obtained from California Department of Finance (DOF) since it provided the most comprehensive dataset for these geographic areas. Current population data for CT 86 were obtained from the 2010 decennial census, as the decennial census is the most recently completed dataset that can be used to show population at the CT level.

As of 2010, the population in Sacramento County was approximately 1.4 million people. From 2000 to 2010, the Sacramento County population increased by 16 percent. From 2000 to 2010, the population of the city of Folsom increased at a rate more than double than Sacramento County as a whole. Population numbers for the cities of Elk Grove and Rancho Cordova for 2000 are unavailable because these cities had not yet incorporated at the time of the census. From 2000 to 2010, the population of the unincorporated area of Sacramento County decreased by 15.8 percent. This decrease is likely due to the incorporation of Elk Grove and Rancho Cordova between the 2000 and 2010 population counts.

**Table 3.13-1
Historical, Current, and Projected Population for the Primary Study Area, Sacramento County,
and Nearby Cities, 1990 Through 2050**

Location	Historic/Current Trends			Projected Conditions			
	2000	2010	Percent Change 2000–2010	2020	2030	2050	Percent Change 2010–2050
Sacramento County	1,223,499	1,418,788	16	1,557,547	1,731,061	2,091,452	47.4
Elk Grove	NA ¹	153,015	—	—	—	—	NA
Folsom	51,884	72,203	39.2	—	—	—	NA
Rancho Cordova	NA ¹	64,776	—	—	—	—	NA
Unincorporated	659,226	554,554	-15.8	—	—	—	NA
State of California	33,871,648	37,253,956	10.0	40,817,839	44,574,756	51,013,984	36.9

Note:

¹ Data for 2000 for Elk Grove and Rancho Cordova is unavailable because these cities incorporated in 2000 and 2003, respectively.

Sources: DOF 2010, 2012a, and 2012b

Population growth projections through 2050 indicate that Sacramento County is projected to grow at a rate more than the state's rate of growth (36.9 percent) with a projected increase of 47.4 percent from 2010 to 2050.

In 2010, the population of CT 86 was 6,784 persons (U.S. Census Bureau 2010). Approximately 81 percent of the population within CT 86 is located within the Rancho Murieta CDP (5,486 persons).

HOUSING

Table 3.13-2 presents housing trends as well as the percentage of single-family dwellings, vacancy rates, and average household size Sacramento County and its unincorporated area; nearby cities of Elk Grove, Folsom, and Rancho Cordova; and the state of California as a whole.

**Table 3.13-2
Housing Trends and Characteristics of the Study Area, Fresno and Merced Counties,
and Nearby Cities and California, 2000–2010**

Location	Trends			Characteristics (2010)		
	2000	2010	Percent Change	Single Family (percent)	Vacancy (percent)	Average Persons per Household
Sacramento County	474,814	555,932	17.1	70.5	7.55	2.71
Elk Grove	NA ¹	50,634	—	90	5.35	3.18
Folsom	17,968	26,109	45.3	74	4.44	2.62
Rancho Cordova	NA ¹	25,479	—	63.2	7.97	2.75
Unincorporated	251,397	219,621	-12.6	70.7	7.7	2.70
California	12,214,550	13,670,304	11.9	64.4	5.9	2.96

Note: NA = not applicable

¹ Data for 2000 for Elk Grove and Rancho Cordova is unavailable because these cities incorporated in 2000 and 2003, respectively.

Sources: DOF 2010, 2012a, and 2012b

In 2010, Sacramento County contained 555,932 housing units. This total represents approximately 4.1 percent of the state’s housing stock. From 2000 through 2010, Sacramento County experienced a 17.1 percent increase in the total number of housing units. The city of Folsom experienced a 45.3 percent increase in housing units during this 10-year period. Housing unit data for 2000 for the cities of Elk Grove and Rancho Cordova is not available because those cities incorporated in 2000 and 2003, respectively. The number of housing units in the unincorporated area of Sacramento County decreased by 12.6 percent between 2000 and 2010, likely due to many housing units being counted in the newly-incorporated cities of Elk Grove and Rancho Cordova.

In addition to housing unit data, Table 3.13-2 lists useful descriptors that characterize housing in the area: the percentage of single-family dwellings, vacancy rates, and average household size. Overall, single-family dwelling units in all the jurisdictions listed in Table 3.13-2 are the predominant housing type and composed more than 63 percent of the housing units. All of the localities listed in the table (with the exception of Rancho Cordova) currently have more single-family housing units as a percentage of the total housing stock than observed at the state level in 2010 (64.4 percent).

The average household size ranged from as low as 2.62 persons per household (Folsom) to as high as 3.18 persons per household (Elk Grove). The average persons per household figure in Sacramento County (2.71) was less than the average persons per household at the state level (2.96 persons).

The relative ability of a community to meet the demands for local housing is analyzed using a “vacancy rate,” which establishes the relationship between housing supply and demand. If the demand for housing units is greater than the available supply, then the vacancy rate is low and the price of housing will most likely increase at a higher rate than an area where supply and demand are more in balance. Vacancy rates in Elk Grove and Folsom were lower than Sacramento County and the state average. Vacancy rates in Sacramento County overall, the city of Rancho Cordova, and the unincorporated areas of Sacramento County were higher than the state average.

INCOME TRENDS

Table 3.13-3 presents the median household income, per capita income, and proportion of individuals living below the poverty threshold for CT 86, the Rancho Cordova CCD, Sacramento County, and the State of California as a whole. Section 3.7, “Environmental Justice,” provides greater detail regarding the median income and distribution of low-income populations.

Geographic Area	Median Income	Per Capita Income	Percent of Population Below Poverty Level
CT 86	\$98,854	\$50,203	3.4
Rancho Murieta CDP ¹	\$101,878	\$52,821	3.7
Rancho Cordova CCD	\$59,742	\$28,081	14.4
Sacramento County	\$56,563	\$27,180	14.9
State of California	\$60,632	\$29,674	14.4

Notes: CCD = Census-County Division; CDP = Census Designated Place; CT = Census Tract
¹ The Rancho Murieta CDP is located within CT 86.
Source: U.S. Census Bureau 2010

LABOR FORCE, EMPLOYMENT, AND INDUSTRY

Labor force, employment, and industry indicators provide useful insight into an area’s economy. A description of industrial makeup provides an aggregate depiction of the types of industries that are established in an area, while identifying major employers illustrates which types of businesses are most successful and represent major employment opportunities for the people of the area. The following discussion describes labor force, recent employment trends, unemployment rates, and industry data.

Information regarding labor force, employment, and industry characteristics described in this section was obtained mainly from the California Employment Development Department (EDD) Labor Market Information division. The discussion focuses on Sacramento County, because of the limited economic data available for CT 86.

Labor Force

Table 3.13-4 presents the total number of workers in the labor force for Sacramento County and the State of California as a whole from 1990 to 2010. According to EDD, California had labor force of 18,330,500 in 2010, which represents an increase of 20.8 percent over the 20-year period. In total, Sacramento County had a labor force of 682,600 in 2010. Therefore, the labor force in Sacramento County accounts for 3.7 percent of California’s total labor force. The number of workers in the labor force in Sacramento County increased by 30.6 percent between 1990 and 2010.

Area	Number of Workers in Labor Force			Percent Change, 1990–2010
	1990	2000	2010	
Sacramento County	522,500	608,800	682,600	30.6
State of California	15,168,500	16,857,600	18,330,500	20.8

Sources: EDD 2013a, 2013b

The following summarizes employment trends in Sacramento County in the last 10 years (County of Sacramento 2008:5-12).

- ▶ The Sacramento County economy diversified, with decreasing reliance on government employment over the long-term.
- ▶ Substantial job growth occurred among companies that serve markets beyond Sacramento County.
- ▶ New jobs included higher-paying professional jobs and lower-paying service and retail jobs. However, three-fourths of new jobs in occupations with the greatest anticipated job growth will pay salaries below the Sacramento County median income.
- ▶ Most employment growth was centered within incorporated areas of the County. However, there will be an increasing potential for job growth through conversion and reuse of older commercial and industrial sites within unincorporated communities.

Employment

Employment growth is one of the primary determinants of housing demand. Working-age individuals often choose a place to live based on employment prospects in the local area. Therefore, employment trends are an important indicator of housing demand. The rate of employment growth, and the types of jobs most likely to be created, would determine how much housing would be needed by type and cost. For example, an economy based on seasonal tourism will generate different housing needs for workers than an economy based on government, education, research, and technology. The following discussions provide the historical, current, and future employment conditions for Sacramento County.

The U.S. experienced an economic recession that began in late 2007 and became apparent beginning in 2008. Changes to the California and U.S. economies attributable to the recession resulted in increases in unemployment rates statewide. California's unemployment rate has been generally 2 percent greater than the nation's since April 2009, with the difference reaching a high of 3.4 percent in December 2010. Declines in construction spending and related losses in financial sectors are main contributing factors behind the state's long-term unemployment rates (EDD 2012a).

Employment and labor data for Sacramento County and the State of California as a whole from 2009 to 2012 are shown in Table 3.13-5. Unemployment rates in the state registered at 10.5 percent in 2012. Since 2009, the unemployment rate in Sacramento County has been within 0.3 percent of state trends. From 2009 through 2012, the unemployment rate in Sacramento County has ranged between 0 percent and 0.3 percent above the statewide rate.

Area	2009		2010		2011		2012	
	Labor Force	Employment ¹	Labor Force	Employment ¹	Labor Force	Employment ¹	Labor Force	Employment ¹
Sacramento County	681,600	604,900 (11.3 percent)	682,600	595,700 (12.7 percent)	678,400	596,500 (12.1 percent)	680,200	608,400 (10.6 percent)
State of California	18,215,700	16,151,100 (11.3 percent)	18,330,500	16,063,500 (12.4 percent)	18,404,500	16,237,300 (11.8 percent)	18,494,900	16,560,300 (10.5 percent)

Note:
¹ Unemployment rate in parentheses.
 Source: EDD 2013b-f

Established businesses, along with new businesses that locate in the area, will play an important role in the expansion of the local economy projected by the state. Table 3.13-6 summarizes EDD data regarding the top employers by employee class for Sacramento County. This list of employers includes a range of businesses with a payroll of over 500 people.

The largest employers in Sacramento County include Intel Corporation and UC Davis Medical Center, each with 5,000-plus employees. Employers with a payroll of over 1,000 include County service offices, hospitals, educational institutions, and state agencies.

**Table 3.13-6
Top Employers in Sacramento County, 2012**

Employee Class Size Over 5,000	
Intel Corporation	UC Davis Medical Center
Employee Class Size Over 1,000	
Aerojet-General Corporation	California Exposition and Fair
AMPAC Fine Chemicals	GenCorp
American River College	IBEW
California Prison Industry Authority	Mercy Hospitals
California Department of Transportation	Mercy San Juan Hospital
California Department of Corrections and Rehabilitation	Sacramento County Municipal Services Agency
California State University	Sacramento Bee
California State University, Sacramento	Sacramento Kings
Delta Dental	Sacramento Regional Transit
Disabled American Veterans	Securitas Security Services
California Employment Development Department	California Department of Water Resources
Source: EDD 2013g	

Industry

As stated above, the United States experienced a recession that began in late 2007 and became apparent beginning in 2008. The transportation, warehousing, and utilities; wholesale trade; construction; and manufacturing industries, all of which experienced a slowdown in job growth between 2007 and 2010. The manufacturing sector lost more than 140,000 jobs or 10 percent of its workforce in 2008 and 2009 (EDD 2012b).

Over a 10-year projection period, California employment is expected to rebound as the economy recovers from prior recessionary job losses. Jobs within the manufacturing sector are expected to rebound as the demand for products rises with the economic recovery, it is anticipated that employment in these industries will grow over the next 10 years. Total nonfarm employment is projected to add more than 2.3 million jobs by 2020. Seventy percent of all projected nonfarm job growth is concentrated in five industry sectors: construction (26.2 percent); educational services (private), health care, and social assistance (25.6 percent); leisure and hospitality (25.5 percent); professional and business services (23.3 percent); and retail and wholesale trades (23.2 percent) (EDD 2012b, 2012c).

Table 3.13-7 shows the industry makeup and growth projection by sector for Sacramento County and for the State of California for EDD industry categories. The top five industries in Sacramento County are government; trade, transportation, and utilities; professional and business services; educational services, health care, and social assistance; and, leisure and hospitality. Government represents the largest industry in Sacramento County with 28.4 percent.

As shown in Table 3.13-7, projections of future growth in the Sacramento Metropolitan Area are very similar to the industrial composition of the state as a whole. Similar to the state, the construction industry in the Sacramento Metropolitan Area is expected to be the area of greatest growth. Between 2010 and 2020, the construction industry is expected to grow by 26.2 percent in both the state and the Sacramento Metropolitan Area.

**Table 3.13-7
Industry Makeup and Growth Projections by Sector for Sacramento Metropolitan Area and California**

Industry	Sacramento Metropolitan Area ¹			California		
	2010	2020	Percent Change, 2010–2020	2010	2020	Percent Change, 2008–2020
Mining and Logging	400 (<1percent)	400 (<1percent)	0	26,800 (<1percent)	29,600 (<1percent)	10.4
Construction	38,400 (4.7percent)	47,100 (5.0percent)	26.2	559,800 (4.0percent)	706,400 (4.3percent)	26.2
Manufacturing	32,800 (4.0percent)	33,600 (3.6percent)	2.4	1,241,000 (8.9percent)	1,246,500 (7.6percent)	0.4
Trade, Transportation, and Utilities	132,500 (16.4percent)	160,600 (17.1percent)	21.1	2,623,500 (18.8percent)	3,200,800 (19.6percent)	22
Information	17,200 (2.1percent)	17,700 (1.9percent)	2.9	427,700 (3.1percent)	463,100 (2.8percent)	8.3
Financial Activities	48,300 (6.0percent)	55,800 (5.9percent)	15.5	760,200 (5.5percent)	868,700 (5.3percent)	14.3
Professional and Business Services	102,200 (12.6percent)	127,100 (13.5percent)	24.4	2,074,400 (14.9percent)	2,558,100 (15.7percent)	23.3
Educational Services, Health Care, and Social Assistance	99,400 (12.3percent)	124,500 (13.2percent)	25.3	1,788,300 (14.9percent)	2,246,400 (13.8percent)	25.6
Leisure and Hospitality	80,200 (9.9percent)	100,700 (10.7percent)	25.6	1,501,600 (10.8percent)	1,884,900 (11.6percent)	25.5
Other Services	28,100 (3.5percent)	32,100 (3.4percent)	14.2	484,900 (3.5percent)	551,400 (3.4percent)	13.7
Government	230,300 (28.4percent)	240,700 (25.6percent)	4.5	2,448,400 (17.6percent)	2,548,800 (15.6percent)	4.1
Total Non-Farm	809,900	940,300	16.1	13,961,700	16,304,700	17.0
Farm Employment	8,100 (<1percent)	8,300 (<1percent)	2.5	382,800 (2.4percent)	388,500 (2.1percent)	1.5

Notes:

Numbers in parentheses indicate the share as a percentage of the total employment. Percentages may not add to 100percent if employment for specific industries in a county is excluded due to nondisclosure rules.

¹ Sacramento Metropolitan Area consists of Sacramento, Placer, Yolo, and El Dorado Counties.

Sources: EDD 2012c, 2012d

The next three industries expected to experience the most growth between 2010 and 2020 are leisure and hospitality; educational services, health care, and social assistance; and, professional and business services. The leisure and hospitality industry is expected to grow in the Sacramento Metropolitan Area and California by 25.6 and 25.5 percent, respectively. The educational services, health care, and social assistance industry is expected to grow in the Sacramento area and California by 25.3 and 25.6 percent, respectively. The professional and business services sector in the Sacramento area and California is expected to grow by 24.4 and 23.3 percent, respectively.

The mining and logging industry in the Sacramento Metropolitan Area is expected to remain static between 2010 and 2020. This sector represents less than one percent of jobs in both the Sacramento Metropolitan Area and California as a whole. While mining and logging in the Sacramento Metropolitan Area is expected to remain constant during the 10-year period, the industry is expected to grow by 10.4 percent for California as a whole.

Government and Finance

This section provides background information on local government and recent financial trends. Local governments provide a wide range of services. Using a mix of funding sources, local officials allocate financial resources for a diverse collection of activities, including providing police and public safety, development review, and educational services in their jurisdictions. The two largest sources of revenue for most local jurisdictions are property taxes and funding from the Federal and state governments. These two sources provide a relatively stable revenue base for funding important local programs. Public health and safety and social services of various forms represent the two biggest expenditures at the local level. These programs serve as a safety net for the local population and are frequently the most visible local programs.

The discussion of the local governments focuses on Sacramento County, because of the limited economic data available for its constituent cities and CT 86. In many cases, cities and towns work with and share funding with their appropriate county governments. Consequently, county data provide an adequate amount of detail for the area. Information pertaining to government and finance for Sacramento County described below was obtained from the California State Controller's Office.

As one of the most densely populated counties in northern California, Sacramento County provides a wide range of services to its approximately 1,418,788 residents. To meet residents' needs, Sacramento County employs a number of funding mechanisms, including property taxes, Federal and state funding, permit fees, and other sources, as shown in Table 3.13-8.

Through these various sources, Sacramento County generated nearly \$2.18 billion in total revenues in the 2009–2010 fiscal year. This total represented decrease of approximately 14 percent over the 2008–2009 fiscal year revenues of \$2.52 billion. In the 2009–2010 fiscal year, the largest source of revenue was Federal and state funding, with more than \$1.29 billion. Property taxes represented another large revenue source for Sacramento County, at more than \$359 million. Revenues from other taxes decreased substantially as a result of the discontinuation of the tobacco tax settlement (California State Controller's Office 2012).

Similar to total revenues, Sacramento County's total expenditures decreased between the 2007–2008 fiscal year and the 2009–2010 fiscal year. Expenditures in the 2007–2008 fiscal year totaled more than \$2.48 billion, compared to only \$2.18 billion spent in the 2009–2010 fiscal year (a 12.2 percent decrease) as a result of decreased spending in all categories with the exception of public ways and facilities and debt services. Public protection and public assistance have consistently been the largest expenditure categories for Sacramento County. Overall, total expenditures exceeded total revenues in all years.

**Table 3.13-8
Revenues and Expenditures in Sacramento County, 2007–2010**

	Revenues and Expenditures		
	FY 2007–2008	FY 2008–2009	FY 2009–2010
Revenues			
Property Taxes	\$398,222,457	\$405,346,464	\$359,487,046
Other Taxes	\$117,327,783	\$133,260,904	\$123,358,755
Special Benefit Assessment	\$414,021	\$381,258	\$379,500
Licenses, Permits, and Franchises	\$46,452,184	\$40,330,184	\$37,140,976
Fines, Forfeitures, and Penalties	\$45,952,078	\$23,580,813	\$43,618,930
Revenue from Use of Money and Property	\$58,063,600	\$39,174,262	\$10,125,212
State Aid	\$756,316,765	\$745,373,289	\$710,469,711
Federal Aid	\$599,671,882	\$614,776,750	\$583,016,021
Other Government Aid	\$26,075,900	\$30,335,744	\$26,940,348
Charges for Current Services	\$205,557,293	\$224,812,804	\$221,772,643
Miscellaneous Revenue	\$21,236,190	\$21,074,177	\$29,912,944
Other Financing Sources	\$64,263,531	\$353,277	\$34,983,577
Total Revenue	\$2,339,553,684	\$2,278,799,926	\$2,181,205,663
Expenditures			
General	\$160,008,667	\$162,313,071	\$122,048,138
Public Protection	\$771,303,396	\$760,427,464	\$633,414,615
Public Ways and Facilities	\$106,827,586	\$100,988,907	\$108,481,516
Health	\$658,811,978	\$680,192,959	\$538,779,032
Public Assistance	\$649,225,855	\$666,768,785	\$622,842,779
Education	\$22,219,434	\$20,567,151	\$15,627,690
Recreation and Cultural Services	\$20,080,311	\$18,438,021	\$14,395,468
Debt Service	\$96,427,379	\$118,129,502	\$126,114,286
Total Expenditures	\$2,484,904,606	\$2,527,825,860	\$2,181,703,524

Sources: California State Controller's Office 2009, 2011, and 2012

3.13.3 REGULATORY FRAMEWORK/APPLICABLE LAWS, REGULATIONS, PLANS, AND POLICIES

State laws and regulations are provided for informational purposes and to assist with NEPA review. USACE has considered applicable state, regional, and local plans and ordinances as a part of the environmental review process for this EIS. Sacramento County certified an EIR and approved the Proposed Action in January 2013. State, regional, and local plans, policies, laws, and ordinances were considered in the EIR and adopted mitigation measures have been incorporated into the Proposed Action.

FEDERAL PLANS, POLICIES, REGULATIONS, AND LAWS

There are no Federal plans, policies, regulations, or laws related to socioeconomics that apply to the alternatives under consideration.

STATE PLANS, POLICIES, REGULATIONS, AND LAWS

There are no state plans, policies, regulations, or laws related to socioeconomics that apply to the alternatives under consideration.

3.13.4 ANALYSIS METHODOLOGY

The examination of socioeconomic conditions in this section is based on information obtained from review of available socioeconomic data and projections, including the Sacramento County General Plan (2011) and Housing Element (2008), Sacramento County General Plan DEIR (2009), EDD, U.S. Census Bureau, DOF, and other sources.

The alternatives under consideration would result in population growth, new housing, and development of mixed-use, office park, and commercial land uses that would result in effects on socioeconomic conditions in Sacramento County over the buildout time period (i.e., 2030). This analysis assumes that project development would generate the numbers of residents, housing units, and jobs as presented in see Table 3.13-9. Under the No Project Alternative, no project-related development would occur and there would be no new urban uses (e.g., residential or commercial land uses) that would increase population in Sacramento County; therefore, the No Project Alternative is not included in the following discussion or in Table 3.13-9.

Alternative	Population	Dwelling Units	Jobs
Proposed Action	25,419	8,000	6,548
Expanded Drainage Preservation	18,174	5,425	5,199
Expanded Preservation	15,203	4,155	3,683
Pilatus	27,439	8,770	5,647
Regional Conservation	24,712	7,740	5,351

Notes:
The total population estimates assume the University/College Campus Center would have an on-campus population of approximately 4,040.
Source: Data compiled by AECOM in 2013

Population projections for the alternatives under consideration were calculated by multiplying the number of proposed housing units by the 2012 DOF persons per dwelling unit factor. Single-family dwelling units were assumed to generate 2.71 persons per dwelling unit. Multifamily and mixed use dwelling units were assumed to generate 2.54 persons per dwelling unit.

Specific indirect effects associated with increased population, employment, and housing, such as traffic congestion, air quality degradation, noise generation, and increased demand for public services and utilities, are addressed in each technical section of this EIS, as appropriate. These technical sections provide a detailed analysis

of other relevant environmental effects of the project; therefore, these indirect effects are not discussed further in this section.

Because the Final EIR has already been certified, all Final EIR Mitigation Measures, the Rezone and Tentative Large Lot Parcel Map Conditions of Approval, and the obligations found in the Development Agreement (collectively referred to as the project entitlements) are considered a part of the Proposed Action. Thus, these measures and requirements are considered when analyzing the significance of effects under the Proposed Action. Because the project entitlements were imposed on the Proposed Action by the County as part of its approval process, it is reasonable to assume that if one of the action alternatives were adopted, the County would impose similar conditions during the entitlement of the alternative.

3.13.5 ENVIRONMENTAL CONSEQUENCES AND MITIGATION MEASURES

THRESHOLDS OF SIGNIFICANCE

The determinations of the significance of effects for this analysis are based on professional standards regularly used in environmental review documents in the region. These thresholds encompass the factors taken into account under NEPA to determine the significance of an action in terms of its context and the intensity of its effects. These are also informed by the environmental checklist in Appendix G of the State CEQA Guidelines. The alternatives under consideration were determined to result in a significant effect related to socioeconomics if they would do any of the following:

- ▶ produce a substantial burden on the existing housing stock within the local community because of an increased housing demand created by nonlocal project employees;
- ▶ require sizeable numbers of new workers in a particular industrial sector from outside the local area during construction or operation;
- ▶ cause a substantial decrease in the number of opportunities for temporary or long-term direct employment within the study area;
- ▶ compete with established industries for workers within the labor force or associated resources to the extent that there would be a shortage of workers available to related businesses;
- ▶ cause a substantial decrease in the number of opportunities for temporary or long-term increases in personal and/or disposable incomes within the study area; or
- ▶ considerably decrease the sales and/or incomes of businesses in Sacramento County.

EFFECTS ANALYSIS

Effects that would occur under each alternative development scenario are identified as follows: NA (No Action), PA (Proposed Action), EDP (Expanded Drainage Preservation), EP (Expanded Preservation), P (Pilatus), and RC (Regional Conservation). The effects for each alternative are compared relative to the PA at the end of each effect conclusion (i.e., similar, greater, lesser).

EFFECT 3.13-1 Place a Substantial New Burden on Existing Housing Stock or Require a Sizeable Number of New Workers from Outside the Project Area. *Project implementation would result in the development of new residential and employment-generating uses resulting in the need for new workers during project construction and operation. However, sufficient new housing would be provided by the project and new workers are expected to be drawn primarily from the existing pool within the Sacramento County Metropolitan Area.*

NA

Under the No Action Alternative, no project-related development would occur and there would be no new uses that would result in the development of new residential and employment-generating uses resulting in the need for new workers during project construction and operation. Therefore, **no indirect** or **direct** adverse effects would occur. *[Lesser]*

Mitigation Measure: No mitigation measures are required.

PA, EDP, EP, P, RC

As discussed in Chapter 2, “Description of the Proposed Action and Alternatives,” the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives would entail construction of a large amount of dwelling units, as well as employment-generating uses. It is not anticipated that any specialty employment trades would be generated by implementation of these alternatives because they all involve traditional construction activities. As shown in Table 3.13-7, the Sacramento Metropolitan Area (which consists of Sacramento, Placer, Yolo, and El Dorado Counties) has a higher percentage of the workforce in the construction industry than the statewide percentage. Therefore, it is likely that most construction workers would come from the Sacramento Metropolitan Area. Thus, construction of the alternatives under consideration would not require nonlocal project employees.

During project operation, the alternatives under consideration would include opportunities for retail, commercial, and educational employment. As shown in Table 3.13-9, the total number of jobs created during the project’s operational phase would range from approximately 3,683 to 6,548, depending on the alternative. None of the uses allowed under the project would be abnormal for the Sacramento Metropolitan Area, so it is unlikely that project operation would require a substantial number of nonlocal workers. While inclusion of a university on the Cordova Hills and Pilatus sites could attract employees from outside the Sacramento Metropolitan Area, this is normal for new college campuses, which require a specialized labor pool. Furthermore, the number of new specialized employees at the college campus would not be substantial in relation to the size of the workforce in the Sacramento Metropolitan Area. As shown in Table 2-2 (in Chapter 2, “Description of the Proposed Action and Alternatives”), the alternatives under consideration all include a large amount of new housing (from 4,155 to 8,770 maximum dwelling units, depending on the alternative), and therefore the new employment opportunities created by the project would not place a substantial burden on existing housing stock in the area.

For the foregoing reasons, construction and operation of the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives would not place a substantial burden on existing housing stock or require a substantial number of workers from outside the local area. Therefore, these **indirect** and **direct** effects would be **less-than-significant**. The additional housing units included in the Proposed

Action, Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives would have the **indirect beneficial** effect of reducing the burden on existing housing stock. No mitigation measures were identified to further reduce effects. *[Similar]*

EFFECT
3.13-2 Cause a Decrease in the Number of Employment Opportunities in the Sacramento Metropolitan Area or Compete with Established Industries Such that a Shortage of Workers Would Occur.
Project implementation would result in an increase in employment opportunities and would not compete with other industries to the extent that a shortage of workers would occur.

NA

Under the No Action Alternative, no project-related development would occur. Thus, there would be no development of new residential and employment-generating uses and no competition with existing industries. Therefore, **no indirect** or **direct** adverse effects would occur. *[Lesser]*

Mitigation Measure: No mitigation measures are required.

PA, EDP, EP, P, RC

As shown in Table 3.13-9, the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives would create a large amount of new employment opportunities for retail, commercial, and education workers (from approximately 3,683 to 6,548 new jobs, depending on the alternative). Therefore, implementation of these alternatives would substantially increase the employment opportunities in the Cordova Hills and Pilatus sites. This **indirect** effect would be **beneficial**. **No direct** effects would occur.

For the foregoing reasons, construction and operation of the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives would not decrease employment opportunities or compete with existing businesses such that a shortage of workers in the Sacramento Metropolitan Area would occur. Therefore, these **indirect** effects would be **less-than-significant**. **No direct** effects would occur. No mitigation measures were identified to further reduce effects. *[Similar]*.

EFFECT
3.13-3 Decrease the Income Potential for Individuals or Businesses in the Sacramento Metropolitan Area.
Project implementation would result in the development of new residential and employment-generating uses, which would increase the income potential for individuals or businesses in the Sacramento Metropolitan Area.

NA

Under the No Action Alternative, no project-related development would occur and there would be no potential for a project-related decrease in the income potential for individuals or businesses. Therefore, **no indirect** or **direct** adverse effects would occur. *[Lesser]*

Mitigation Measure: No mitigation measures are required.

The Proposed Action, Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives would construct a large number of new housing (from approximately 4,155 to 8,770 maximum dwelling units, depending on the alternative) and new employment opportunities (from approximately 3,683 to 6,548 new jobs, depending on the alternative). By creating new employment-generating opportunities, the alternatives would create income potential for currently unemployed workers and would create opportunities for new businesses in the project area. New employment opportunities could also allow workers to move to higher-paying jobs.

By creating opportunities for currently unemployed workers to find employment, businesses in the Sacramento Metropolitan Area would benefit from customers having more disposable income. Therefore, implementation of the alternatives under consideration would result in an **indirect, beneficial** effect. **No direct** effects would occur. *[Similar]*

Mitigation Measure: No mitigation measures are required.

3.13.6 RESIDUAL SIGNIFICANT EFFECTS

All effects associated with socioeconomics would either be less than significant or beneficial. Therefore, there no residual significant effects related to socioeconomics would occur.

3.13.7 CUMULATIVE EFFECTS

Depending on which of the action alternatives were selected for development, implementation of the project would include an estimated population of 15,203–24,419 new residents at full buildout. Population growth, by itself, is not considered a significant cumulative effect because it is not a physical effect on the environment. However, the direct and indirect effects from population growth, such as housing and infrastructure needs, can lead to physical environmental effects, which are considered throughout Chapter 3 of this EIS.

Project implementation would require a substantial number of workers during construction and operation. The larger projects that have not yet been built, but are foreseeable, would also require substantial numbers of new workers. However, the potential burden on existing housing stock caused by the need for construction and operational workers would be less than significant because the Sacramento region has a large number of existing construction workers that are available for employment and a large available labor pool for jobs that would be created during the operational phase, particularly since the economic downturn occurred in 2008. Therefore, a cumulatively significant adverse effect would not occur.

Implementation of the project and other foreseeable projects would create a substantial number of new jobs during construction and operation; this would be beneficial effect. Thus, the project and other foreseeable projects would not substantially decrease job opportunities in the Sacramento region, and a cumulatively significant adverse effect would not occur.

Implementation of the project would create job opportunities within the Sacramento region. By creating jobs, the project would create opportunities for unemployed workers to find employment, or employed workers to find high-paying employment. Given the potential for the project to provide jobs, the project could actually increase income potential for both businesses and individuals within the Sacramento region. Therefore, the project would not result in a cumulatively considerable incremental impact on personal or business income.

3.14 PUBLIC SERVICES

3.14.1 INTRODUCTION

This section provides an overview of effects related to the provision of public services and facilities, including fire protection, law enforcement, and public schools, required to serve the alternatives under consideration. Public services would be provided by the Sacramento Metropolitan Fire District (SMFD), the Sacramento County Sheriff's Department (SCSD), and the Elk Grove Unified School District (EGUSD). The following discussion provides an overview of these public service providers. Effects are evaluated in relation to increased demand for public services associated with the alternatives under consideration, and the actions necessary to provide the requisite services that, in turn, could potentially lead to physical environmental effects. Feasible mitigation measures are recommended, where appropriate, to reduce adverse effects.

3.14.2 AFFECTED ENVIRONMENT

FIRE PROTECTION SERVICES

SMFD currently provides fire protection services to unincorporated areas of Sacramento County, to the cities of Rancho Cordova and Citrus Heights, and to portions of Placer County. SMFD offers fire protection, fire suppression, inspection, plan checking, emergency transportation and medical services, public education, advanced life support, and rescue services. SMFD was formed in 2000 by consolidation of the American River Fire District and the Sacramento County Fire Protection District. As the largest fire district in Sacramento County, SMFD provides service to nearly 640,000 people in a 417-square-mile area. SMFD currently operates 42 stations with a daily shift staffing of 160 personnel (SMFD 2013a). Many of SMFD's engines are staffed by paramedics and emergency medical technicians. SMFD's personnel are trained and equipped to deal not only with emergency medical alarms and structural or wildland fires, but also with swift water emergencies, confined space incidents, technical rescues, hazardous materials incidents, and crash fire rescue.

SMFD's Fire Administration Office is located at 2101 Hurley Way in Sacramento. Station 58 and Station 66 are the closest fire stations to the Cordova Hills and Pilatus sites. Station 58 is located at 7250 Sloughhouse Road in Sloughhouse, approximately 6 miles south of the Cordova Hills and Pilatus sites. Station 58 has one Type III engine company and a water tender (SMFD 2011a). Station 66 is located at 3181 Kilgore Road in Rancho Cordova, approximately 7 miles northwest of the Cordova Hills and Pilatus sites. Station 66 has one engine company, one Type III engine company, a paramedic ambulance, and a water tender (SMFD 2011b). In 2011, Stations 58 and 66 responded to 1,295 and 2,722 alarms, respectively (SMFD 2011a, 2011b).

The Insurance Services Office (ISO) rating is the recognized classification for a fire department or district's ability to defend against major fires. According to the ISO, newly developing urban areas should have a fire station opened within 1.5 miles of all commercial development and 2.5 miles from all residential development when "build-out" exceeds 20 percent of the planning area. The ISO provides ratings of the firefighting capacity of individual fire stations on a scale of 1 to 10, where 10 generally indicates no protection and 1 indicates a high firefighting capability. The ISO rating for SMFD is 3 for hydrant areas and 6 for non-hydrant areas (County of Sacramento 2009:4-27; Perkins, pers. comm., 2010). In 2010, SMFD adopted fire crew deployment measures for urban and suburban areas where there are more than 1,000 people per square mile. SMFD strives to maintain minimum response time of 7 minutes or less, 90 percent of the time in these areas (Citygate Associates 2011). The

Cordova Hills and Pilatus sites are located in a non-hydrant area and fire protection facilities to support new development on the Cordova Hills and Pilatus sites would be required to meet SMFD's minimum response time.

Funding for fire services and facilities resulting from new construction is facilitated through SMFD's Capital Fire Facilities Fee Schedule. The Capital Fire Facilities Fee was established through State Assembly Bill 1600, which provides the authority for the SMFD to fund the full cost of providing new fire services and facilities to new development within its service area. The fee is used exclusively to defray costs and mitigate the effect associated with property acquisition, site preparations, design, construction, and equipping new fire stations that are required to serve new development. The Capital Fire Facilities Fee became effective in June 2003 and remains in effect until December 2020. Additional funds are generated from ambulance transport fees and service fees (mostly from fire prevention plan checking charges) (Sacramento Local Agency Formation Commission [LAFCo] 2004:11).

In February 2011, the Federal Emergency Management Agency (FEMA) awarded SMFD \$5.5 million dollars to hire 24 new firefighters. Through the Staffing for Adequate Fire and Emergency Response Grant Program, SMFD will use these new firefighters to replace firefighters that have been lost through attrition over the last several years. These firefighters will be used to staff two additional truck companies, which will provide an overall increase in public safety within the SMFD service area (SMFD 2013c).

LAW ENFORCEMENT SERVICES

Law enforcement services would be provided to the Cordova Hills and Pilatus sites by the SCSD Patrol Services. SCSD operates several facilities, including a headquarters building, main jail, the Rio Cosumnes Correctional Center, five station houses, ten community service centers, a training academy, firearms training facility, marine enforcement detail, and an air support bureau (County of Sacramento 2009:4-4). Local law enforcement protection consists of response to calls and trouble spots, investigations, surveillance, and routine patrolling (County of Sacramento 2009:4-4). As of 2011, SCSD provides 0.75 police officer for every 1,000 citizens (Coffman, pers. comm., 2011). SCSD is funded through the Sacramento County General Fund and through the Sacramento County Police Services Community Facilities District (CFD) 2005-1 annual special tax (Economic and Planning Systems 2012:3-4).

SCSD encourages the incorporation Crime Prevention through Environmental Design (CPTED) concepts in new development. The CPTED concepts promote the idea of the proper design and effective use of the built environment, which can lead to the reduction of crime. CPTED concepts involve four overlapping strategies, noted below.

- ▶ Natural Surveillance. This strategy is intended to allow intruders and offenders to be easily viewable to people passing the property and those using the property.
- ▶ Territorial Reinforcement. This strategy is intended to define property lines and distinguish private spaces from public spaces using landscape plantings, gateway treatments, and fences
- ▶ Natural Access Control. This strategy is intended to decrease the opportunity for offending by denying access to a crime target and increasing the perception of risk to the offender.

- ▶ **Target Hardening.** This strategy is intended to enhance the physical security of crime target through the use of window locks, dead bolts, and interior door hinges in the design of residences and commercial buildings.

The California Highway Patrol (CHP) provides traffic regulation enforcement, emergency management, and vice assistance on state highways, all Federal interstate highways, and other major roadways in unincorporated portions of eastern Sacramento County. The Cordova Hills and Pilatus sites are located within the CHP Valley Division, which oversees Jackson Highway/State Route 16, Interstate 80, Interstate 5, U.S. Highway 50, and State Route 99. The Valley Division consists of 16 area offices, three resident posts, one commercial inspection facility, one transportation management center, three communications/dispatch centers and is staffed with 785 uniformed officers and 250 non-uniformed personnel (CHP 2012).

PUBLIC SCHOOLS

The Cordova Hills and Pilatus sites are located within the EGUSD boundary. EGUSD is the fifth largest school district by enrollment in California and the largest in northern California. Located in southern and eastern Sacramento County, EGUSD covers 320 square miles and has been in existence for over 53 years. The EGUSD boundaries encompass the entire city of Elk Grove, portions of the city of Sacramento and portions of the city of Rancho Cordova, and most of southern Sacramento County. EGUSD had a 2012–2013 school year enrollment of 62,137 students (California Department of Education [CDE] 2013). EGUSD has 64 schools: 39 elementary schools, 9 middle schools, 9 high schools, 4 alternative education schools, an adult school, a special education school, and one charter school (EGUSD 2013). In addition to the schools listed above, EGUSD has approximately nine future elementary school sites and two future middle school/high school sites planned in the Sunrise-Douglas area west of the Cordova Hills and Pilatus sites, with opening dates to be determined based on market conditions and associated student generation (Williams, pers. comm., 2012). In cases where school capacity is temporarily exceeded during the process of project build-out, students would be redirected to other schools in the EGUSD.

As shown on the EGUSD 2012-2013 school attendance boundaries map, if uses were developed under the action alternatives prior to any other school construction in the Sunrise-Douglas area, students would initially attend Sunrise Elementary School, Katherine Albiani Middle School, and Pleasant Grove High School (EGUSD 2011a, 2011b). Table 3.14-1 identifies the 2012–2013 school-year enrollments for these schools. All three schools are currently exceeding the design capacity.

Table 3.14-1 Elk Grove Unified School District Enrollment, 2012–2013				
School Name	Grade	Current Enrollment	EGUSD Design Capacity	Estimated Remaining Capacity
Sunrise Elementary School	K–6	918	900	-18
Katherine Albiani Middle School	7–8	1,375	1,325	-50
Pleasant Grove High School	9–12	2,533	2,350	-183
Note: Student enrollment in the district changes daily as more students enroll and others leave; therefore, Table 3.14-1 does not necessarily reflect exact current enrollment.				
Source: California Department of Education 2013				

Sunrise Elementary is located at 11821 Cobble Brook Drive, approximately 1.7 miles north of the Cordova Hills and Pilatus sites, and serves elementary school students in grades K–6. The buildings were completed and occupied in August 2007, and consist of 39 classrooms, a multipurpose room, a library, a computer lab, a Learning Center, and an administration building (EGUSD 2012).

Katherine Albiani Middle School is located at 9140 Bradshaw Road, approximately 9.3 miles northwest of the Cordova Hills and Pilatus sites, and serves students in grades 7–8. Katherine L. Albiani Middle School opened in August 2005 and consists of 48 classrooms, a multipurpose room, a library, a dance room, a music room, and an administration building (EGUSD 2012).

Pleasant Grove High School is located at 9531 Bond Road, approximately 12.6 miles southwest of the Cordova Hills and Pilatus sites. The high school serves students in grades 9–12. Pleasant Grove High School was opened in August 2005 with 13 pods containing 87 classrooms, 5 computer labs, administrative and student services offices, two gyms, and a multipurpose room. The library serves both the Pleasant Grove High School and Katherine Albiani Middle School. In 2007, five portables were added to the northwest corner of campus to accommodate student growth. Architectural plans are currently being drafted for a barn to support the Agriculture Education program at Pleasant Grove High School (EGUSD 2012).

The EGUSD is funded by 50 percent state and 50 percent local sources. EGUSD can receive local funding through developer fees, tax revenue from Mello-Roos districts, and General Obligation bonds. Developer fees are the major source of funding for the district. Based on its facility needs assessment, EGUSD demonstrated the need to levy Level II developer fees (described below in Section 3.14.3, “Regulatory Framework/Applicable Laws, Regulations, Plans, and Policies”) that are higher than the statutory fee. As of August 2012, Level II fees for residential development are \$4.66 per square foot and \$0.51 per square foot for commercial/industrial construction. Developer fees may be used to finance new schools and equipment, and to reconstruct existing facilities to maintain adequate housing for all the EGUSD’s students. Additional school funding is also provided through the EGUSD Mello-Roos CFD No.1, which would be extended to include the Cordova Hills and Pilatus sites.

3.14.3 REGULATORY FRAMEWORK/APPLICABLE LAWS, REGULATIONS, PLANS, AND POLICIES

State laws and regulations are provided for informational purposes and to assist with NEPA review. USACE has considered applicable state, regional, and local plans and ordinances as a part of the environmental review process for this EIS.

Sacramento County certified an EIR and approved the Proposed Action in January 2013. State, regional, and local plans, policies, laws, and ordinances were considered in the EIR and adopted mitigation measures have been incorporated into the Proposed Action.

FEDERAL PLANS, POLICIES, REGULATIONS, AND LAWS

There are no Federal plans, policies, regulations, or laws related to public services that apply to the alternatives under consideration.

STATE PLANS, POLICIES, REGULATIONS, AND LAWS

California Occupational Safety and Health Administration

In accordance with California Code of Regulations Title 8 Sections 1270 “Fire Prevention” and 6773 “Fire Protection and Fire Equipment,” the California Occupational Safety and Health Administration has established minimum standards for fire suppression and emergency medical services. The standards include, but are not limited to, guidelines on the handling of highly combustible materials; fire hose sizing requirements; restrictions on the use of compressed air; access roads; and the testing, maintenance, and use of all fire fighting and emergency medical equipment.

Fire Codes and Guidelines

The California Fire Code (CFC) contains regulations relating to construction, maintenance, and use of buildings. Topics addressed in the code include fire department access, fire hydrants, automatic sprinkler systems, fire alarm systems, fire and explosion hazards safety, hazardous materials storage and use, provisions intended to protect and assist fire responders, industrial processes, and many other general and specialized fire-safety requirements for new and existing buildings and the surrounding premises. The CFC contains specialized technical regulations related to fire and personal safety.

All development projects Sacramento County are required to meet various other fire protection requirements identified in the SMFD Fire Prevention Standards. The CFC and SMFD Fire Prevention Standards outline the number and distribution of fire hydrants, the minimum requirements for fire access roads and emergency gates and barriers, and the installation of traffic control devices. In addition, SMFD requires installation of automatic fire sprinklers in all new commercial construction that exceeds 3,599 square feet and some residential properties exceeding 2,999 square feet (County of Sacramento 2009:4-16, SMFD 2012).

An important requirement for fire suppression is adequate fire flow, which is the amount of water expressed in gallons per minute (gpm) that is available to control a given fire, and the length of time that this flow is available. The availability of sufficient water flows and pressure is a basic requirement of the California Building Standards Code. The total fire flow needed to extinguish a structural fire is based on a variety of factors, including building design, internal square footage, construction materials, dominant use, height, number of floors, and distance to adjacent buildings. Minimum requirements for available fire flow at a given building are dependent on standards set in the CFC. These fire flow requirements are 1,500 gpm for low- and medium-density residential (2-hour duration), 2,500 gpm for high-density residential (3-hour duration), and 3,000 gpm for commercial/office and light industrial (3-hour duration). In addition, SMFD requires 1,000 gpm at minimum water pressure of 20 pounds per square inch (3-hour duration) for structures exceeding 3,600 square feet (County of Sacramento 2009:4-16).

State School Funding

California Education Code Section 17620 authorizes school districts to levy a fee, charge, dedication, or other requirement against any development project for the construction or reconstruction of school facilities, provided that the district can show justification for levying the fees. California Government Code Section 65995 limits the fee to be collected to the statutory fee unless a school district conducts a Facility Needs Assessment (California Government Code Section 65995.6) and meets certain conditions.

Senate Bill 50 (Chapter 407, Statutes of 1998) instituted a new school facility program by which school districts can apply for state construction and modernization funds. This legislation limits the power of cities and counties to require developers to mitigate effects on school facilities as a condition of approving new development. This legislation also provides the authority for school districts to levy fees at three different levels:

- ▶ *Level I* fees are the current statutory fees allowed under Education Code Section 17620. As mentioned above, this code section authorizes school districts to levy a fee against residential and commercial developers to fund school construction or reconstruction. These fees are adjusted in January every 2 years in accordance with the statewide cost index for Class B construction as determined by the State Allocation Board.
- ▶ *Level II* developer fees are outlined in California Government Code Section 65995.5. This code section allows a school district to impose a higher fee on residential construction if certain conditions are met. These conditions consist of having a substantial percentage of students on multitrack year-round scheduling, having an assumed debt equal to 15–30 percent of the district’s bonding capacity (the percentage is based on revenue sources for repayment), having at least 20 percent of the district’s teaching stations housed in relocatable classrooms, and having placed (within the last 4 years) a local bond measure on the ballot that received at least 50 percent plus one of the votes cast. A Facility Needs Assessment must demonstrate that the need for new school facilities for unhoused pupils is attributable to projected enrollment growth from the construction of new residential units over the next 5 years. As of August 2012, Level II fees are \$4.66 per square foot for residential development and \$0.51 per square foot for commercial/industrial construction.
- ▶ *Level III* developer fees are outlined in California Government Code Section 655995.7. This code section authorizes a school district that has been approved to collect Level II fees to collect a higher fee on residential construction if state funding becomes unavailable. This fee is equal to twice the amount of Level II fees. However, if a district eventually receives state funding, this excess fee may be reimbursed to the developers or subtracted from the amount of state funding.

3.14.4 ANALYSIS METHODOLOGY

Effects on public services that would result from implementation of the alternatives under consideration were identified by comparing existing service capacity and facilities against future demand associated with project implementation. Evaluation of potential public services effects was based on a review of documents pertaining to the location of the alternatives and vicinity, including the County General Plan Draft EIR (2009), County General Plan (2011), and the Fire Station Location Assessment (Citygate Associates 2011). Additional background information on current services, staffing, and equipment was obtained through consultation with relevant agencies such as SMFD, SCSD, and EGUSD.

Where possible, a quantitative comparison was used to determine effects of the alternatives under consideration with future demands. The following discussion provides the methodology used to calculate demands for public services for the alternatives under consideration based on service ratios provided by SCSD and EGUSD and population projections shown on Table 3.13-1 in Section 3.13, “Socioeconomics.”

The number of new police officers was calculated based the population projections for the alternatives under consideration, including population projections for the University/College Campus Center, and applying SCSD’s ratio 0.75 police officer for every 1,000 citizens. Table 3.14-2 shows the number of new police officers that would be required to adequately serve each action alternative.

Table 3.14-2 Cordova Hills Police Officer Projections	
Action Alternative	Number of Required Police Officers¹
Proposed Action	19
Expanded Drainage Preservation	14
Expanded Preservation	11
Pilatus	21
Regional Conservation	19
Notes:	
¹ The number of required police officers is based on the population projected for each action alternative, including the population projected for the University/College Campus Center, and assumes SCSD's ratio of 0.75 police officer per 1,000 residents.	
Source: Data compiled by AECOM in 2013	

The current student-yield generation rates for EGUSD are used in this analysis to calculate the estimated number of students generated by the alternatives under consideration; the relevant rates for each school tier are provided in Table 3.14-3. The estimated number of new elementary school students, middle school students, and high school students generated under the alternatives under consideration is presented in Table 3.14-4.

Table 3.14-3 Student-Yield Generation Rates for the Elk Grove Unified School District			
Grade level	Single-Family (Students per Dwelling Unit)	Multifamily (Students per Dwelling Unit)	Condominiums (Students per Dwelling Unit)
Elementary (K–5)	0.3763	0.2684	0.0697
Middle (6–8)	0.1127	0.0736	0.0202
High (9–12)	0.2101	0.1333	0.0652
Total	0.6991	0.4753	0.1551
Source: Grambusch, pers. comm., 2010			

Table 3.14-4 Cordova Hills Elementary, Middle, and High School Student Projections				
Action Alternative	Elementary School Students	Middle School Students	High School Students	Total Students (K-12)
Proposed Action	2,547	750	1,416	4,713
Expanded Drainage Preservation	1,621	478	916	3,015
Expanded Preservation	1,372	410	778	2,560
Pilatus	2,609	773	1,479	4,861
Regional Conservation	2,265	668	1,284	4,217
Source: Data compiled by AECOM in 2013				

It is anticipated that the provision of all new public service facilities intended to meet the increased demand for public services would occur on site. Because these facilities would be constructed as part of the project and would be confined to the Cordova Hills site, this EIS addresses the indirect physical environmental effects associated with construction and operation of these facilities (along with development of the project in general) throughout each of the sections in Chapter 3. Therefore, these indirect, physical effects are not addressed in this section.

Because the Final EIR has already been certified, all Final EIR Mitigation Measures, the Rezone and Tentative Large Lot Parcel Map Conditions of Approval, and the obligations found in the Development Agreement (collectively referred to as the project entitlements) are considered a part of the Proposed Action. Thus, these measures and requirements are considered when analyzing the significance of effects under the Proposed Action. Because the project entitlements were imposed on the Proposed Action by the County as part of its approval process, it is reasonable to assume that if one of the action alternatives were adopted, the County would impose similar conditions during the entitlement of the alternative.

THRESHOLDS OF SIGNIFICANCE

The determinations of the significance of effects for this analysis are based on professional standards regularly used in environmental review documents in the region. These thresholds encompass the factors taken into account under NEPA to determine the significance of an action in terms of its context and the intensity of its effects. These are also informed by the environmental checklist in Appendix G of the State CEQA Guidelines. The alternatives under consideration were determined to result in a significant effect related to public services if they would do any of the following:

- ▶ create a need for the development of new service facilities (e.g., fire, police, schools, and other public facilities), the construction of which could result in significant environmental effects;
- ▶ create circumstances where existing services and facilities could not meet established performance standards (i.e., response times, provider-per-resident ratios); or
- ▶ substantially impede existing services.

3.14.5 ENVIRONMENTAL CONSEQUENCES AND MITIGATION MEASURES

EFFECTS ANALYSIS

Effects that would occur under each alternative development scenario are identified as follows: NA (No Action), PA (Proposed Action), EDP (Expanded Drainage Preservation), EP (Expanded Preservation), P (Pilatus), and RC (Regional Conservation). The effects for each alternative are compared relative to the PP at the end of each effect conclusion (i.e., similar, greater, lesser).

EFFECT 3.14-1	Increased Demand for Fire Protection Facilities, Systems, Equipment, and Services. <i>Project implementation would result in increased demand for fire protection facilities and services, potentially resulting in the need for additional staff and equipment to maintain an adequate level of service.</i>
-------------------------	--

NA

Under the No Action Alternative, no project-related development would occur and there would be no new developed uses that would increase demand for fire protection facilities and services. Therefore, **no indirect or direct** effects would occur. *[Lesser]*

Mitigation Measure: No mitigation measures are required.

PA

SMFD would provide fire protection services to the Cordova Hills site. In 2010, SMFD adopted fire crew deployment measures for urban and suburban areas with more than 1,000 people per square mile. SMFD strives to maintain minimum response time of 7 minutes, 90 percent of the time in these areas (Citygate Associates 2011). To maintain adequate levels of service, additional firefighters, facilities, and equipment would be required to serve project development.

In August 2011, Citygate Associates conducted a fire station location assessment using the SMFD's Fire View standards level of coverage model and arterial roadways and some collector streets identified on the Proposed Action land use plan. While Citygate determined that a centrally located fire station would be sufficient to meet future service demands based on the proposed roadway network, they determined that effective response coverage could not be adequately predicted without modeling of interior residential streets where slower travel speeds could affect emergency response times. Therefore, an additional fire station could be required to meet the SMFD's minimum response time of 7 minutes or less in urban and suburban areas (Citygate Associates 2011).

As part of the CEQA EIR certification and project approval process, the project applicant committed to implementing various conditions of approval for the Proposed Action. The conditions of approval that are applicable to this effect that were incorporated into the Proposed Action by the project entitlements are listed below:

- ▶ The final number and locations of the fire stations is to be determined by the comprehensive District's Standards of Coverage Study covering the Cordova Hills' project site and adjacent development areas where fire response may overlap, at the Developer's expense. The final site selection will also be subject to real property negotiations to acquire property for a fire station. The District's requirements for a fire station site include a minimum of 2.5 net acres of level property with a minimum of 330 feet of frontage and 330 feet of depth complete with utilities adequate to support the fire station (*Large Lot Tentative Map Condition of Approval*).

The project applicant would be required to incorporate CFC requirements and SMFD Fire Prevention Standards into all development phases. These standards address access-road length, dimensions, and finished surfaces for firefighting equipment; security gate design requirements; fire hydrant placement; fire flow availability and requirements; and plan submittal requirements (SMFD 2012). SMFD also requires installation of automatic fire sprinklers in all new commercial construction that exceeds 3,599 square feet and some residential properties exceeding 2,999 square feet (County of Sacramento 2009:4-16). SMFD and the Sacramento County Community Development Department Building Division would verify that applicable CFC and SMFD Fire Prevention Standards are incorporated into project designs during review and approval of project plans prior to issuance of building permits, occupancy permits, or final inspections.

Funding for fire services and facilities resulting from new construction is facilitated through SMFD's Capital Fire Facilities Fee Schedule. The fee is used exclusively to defray costs and mitigate the effect associated with property acquisition, site preparations, design, construction, and equipping new fire stations that are required to serve new development. Additional funds are generated by ambulance transport fees and service fees (mostly from fire prevention plan checking charges) (Sacramento LAFCo 2004:11).

The project applicant would provide funding for additional fire facilities and equipment necessary to serve the Proposed Action and would incorporate CFC and SMFD Fire Prevention Standards into alternative designs. Because the above-listed conditions of approval have been incorporated into the Proposed Action, the increased demand for fire protection facilities and services would be **indirect** and **less than significant**. Other **indirect** effects of constructing the fire station are addressed throughout this EIS in connection with discussions of the effects of overall site development. **No direct** effects would occur. No mitigation measures were identified to further reduce these effects.

EDP, EP, P, RC

SMFD would provide fire protection services to the Cordova Hills and Pilatus sites. In 2010, SMFD adopted fire crew deployment measures for urban and suburban areas with more than 1,000 people per square mile. SMFD strives to maintain minimum response time of 7 minutes, 90 percent of the time in these areas (Citygate Associates 2011). To maintain adequate levels of service, additional firefighters, facilities, and equipment would be required to serve project development.

The project applicant would be required to incorporate CFC requirements and SMFD Fire Prevention Standards into all development phases. SMFD and the Sacramento County Community Development Department Building Division would verify that applicable CFC and SMFD Fire Prevention Standards are incorporated into project designs during review and approval of project plans prior to issuance of building permits, occupancy permits, or final inspections. Funding for fire services and facilities resulting from new construction is facilitated through SMFD's Capital Fire Facilities Fee Schedule. The fee is used exclusively to defray costs and mitigate the effect associated with property acquisition, site preparations, design, construction, and equipping new fire stations that are required to serve new development. Additional funds are generated ambulance transport fees and service fees (mostly from fire prevention plan checking charges) (Sacramento LAFCo 2004:11).

The project applicant would provide funding for additional fire facilities and equipment necessary to serve the Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives and would incorporate CFC and SMFD Fire Prevention Standards into alternative designs. Because it is not known at this time if additional fire stations would be required to meet the SMFD's minimum response time of 7 minutes or less, effects on fire protection facilities and services would be **indirect** and **potentially significant**. The other **indirect** effects of constructing the fire station are addressed throughout this EIS in connection with discussions of the effects of overall site development. **No direct** effects would occur. *[Greater]*

As part of the CEQA EIR certification and project approval process, various conditions of approval were incorporated into the project entitlements. Because these conditions of approval were incorporated into the Proposed Action, it is reasonable to assume that they would also be incorporated into the four action alternatives, if any of those alternatives were adopted. The conditions of approval that are applicable to this effect that were incorporated into the Proposed Action by the project entitlements are listed below:

- ▶ The final number and locations of the fire stations is to be determined by the comprehensive District's Standards of Coverage Study covering the Cordova Hills' project site and adjacent development areas where fire response may overlap, at the Developer's expense. The final site selection will also be subject to real property negotiations to acquire property for a fire station. The District's requirements for a fire station site include a minimum of 2.5 net acres of level property with a minimum of 330 feet of frontage and 330 feet of depth complete with utilities adequate to support the fire station (*Large Lot Tentative Map Condition of Approval*).

Implementation of above-listed conditions of approval from the Development Agreement would reduce significant effects due to increased demand for fire protection facilities, systems, equipment, and services under the Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives to a **less-than-significant** level by requiring completion of a fire station location assessment and verifying availability of adequate police protection facilities and equipment prior to approval of final maps by the Sacramento County Planning Division and issuance of building permits by the Sacramento County Community Development Department Building Division. No other mitigation measures were identified to further reduce these effects.

EFFECT 3.14-2 Increased Demand for Fire Flow. *Project implementation would include the development of residential, commercial, public schools, a University/College Campus Center, and other urban uses that would require adequate available water flow for fire suppression. Lack of adequate fire flow could impede effective fire suppression.*

NA

Under the No Action Alternative, no project-related development would occur and there would be no new uses that would require adequate available water flow for fire suppression. Therefore, **no indirect or direct** effects on increased demand for fire flow would occur. [*Lesser*]

Mitigation Measure: No mitigation measures are required.

PA, EDP, EP, P, RC

SMFD maintains oversight authority to ensure that adequate water volume and pressure are available in its service area. The total fire flow needed to extinguish a structural fire is based on a variety of factors, including building design, internal square footage, construction materials, dominant use, height, number of floors, and distance to adjacent buildings. Minimum requirements for available fire flow at a given building are dependent on standards set in the CFC. Generally, fire flow requirements for the type of development included in the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives are identified by the CFC. These fire flow requirements are 1,500 gpm for low- and medium-density residential (2-hour duration), 2,500 gpm for high-density residential (3-hour duration), and 3,000 gpm for commercial/office and light industrial (3-hour duration).

In addition to meeting minimum CFC water flow requirements, all development projects in the SMFD service area are required to meet various other fire protection requirements identified by SMFD Fire Prevention Standards. SMFD requires 1,000 gpm at minimum water pressure of 20 pounds per square inch (3-hour duration) for structures exceeding 3,600 square feet (County of Sacramento 2009:4-16).

The project applicant would incorporate fire flow requirements into project designs based on specifications identified in the CFC and SMFD Fire Prevention Standards. SMFD and the Sacramento County Community Development Department Building Division would verify that adequate water supply is available during review and approval of project plans prior to issuance of building permits, occupancy permits, or final inspections.

Because SMFD and the Sacramento County Community Development Department Building Division would ensure effective fire suppression service is available to serve the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives, this **indirect** effect would be **less than significant**. **No direct** effects would occur. No mitigation measures were identified to further reduce these effects. *[Similar]*

EFFECT **Increased Demand for Police Protection Facilities, Services, and Equipment.** *Project development 3.14-3 would increase the demand for police protection facilities and services, resulting in the need for additional staff and equipment to maintain an adequate level of service.*

NA

Under the No Action Alternative, no project-related development would occur and there would be no new uses that would increase demand for police protection facilities and services. Therefore, **no indirect** or **direct** effects would occur. *[Lesser]*

Mitigation Measure: No mitigation measures are required.

PA

SCSD would provide law enforcement services for development under the Proposed Action including the University/College Campus Center, during initial stages of development. As of 2011, SCSD is providing 0.75 police officers for every 1,000 citizens. To maintain adequate levels of service, additional officers, facilities, and equipment would be required to serve the project at buildout. As shown in Table 3.14-2 above, it is estimated that 11 new officers would be required to meet demand for police services under the Proposed Action.

The University/College Campus Center could elect to provide its own security separately from or as a supplement to SCSD services. Fewer police officers would be required if the University/College Campus Center implemented on-campus security (Economic and Planning Systems 2012:3-4). The University/College Campus Center would provide a detailed safety and security plan to the County detailing the systems the project applicant intends on installing or implementing to protect students, visitors, employees, and property (Burdette, pers. comm. 2011).

As part of the CEQA EIR certification and project approval process, the project applicant committed to implementing various conditions of approval for the Proposed Action. The conditions of approval that are applicable to this effect that were incorporated into the Proposed Action by the EIR mitigation measures, conditions of approval, and development agreement (project entitlements) are listed below:

- ▶ Prior to the recordation of the first final parcel map, Property Owners shall cooperate with the County Sheriff's Department, in consultation with the City of Rancho Cordova, in the creation and implementation of a police services plan approved by the County for providing adequate levels of police services for the needs of

the Cordova Hills Project Areas during the early phases of development (*Condition of Approval; stipulation of Development Agreement*).

As discussed above, the SCSD encourages the incorporation CPTED concepts in new development. Project designs would incorporate CPTED concepts described in Section 3.14.2, Affected Environment, to the extent feasible. Although incorporation of CPTEDs would not necessarily reduce the need for new officers, these concepts would reduce crime and increase public safety.

Law enforcement services will be funded through the County General Fund and through County Police Services CFD 2005-1 annual special tax. Participation in CFD 2005-01, along with payment of property taxes, a portion of which are allocated the Sacramento County General Fund, would fund the cost to provide sheriff's services to the project, including the University/College Campus Center (Economic and Planning Systems 2012:3-4).

The project applicant would provide funding for additional police facilities and equipment necessary to serve the Proposed Action, and would incorporate SCSD's CPTED concepts into project designs to the extent feasible to reduce crime and increase public safety. Because the above-listed condition of approval has been incorporated into the Proposed Action, **indirect** effects related to increased demands for police protection facilities, services, and equipment would be **less than significant**. Other **indirect** effects of constructing the police substation are addressed throughout this EIS in connection with discussions of the effects of overall site development. **No direct** effects would occur. No other mitigation measures were identified to further reduce these effects.

EDP, EP, P, RC

SCSD would provide law enforcement services to the Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives, including the University/College Campus Center, during initial stages of development. As of 2011, SCSD is providing 0.75 police officer for every 1,000 citizens. To maintain adequate levels of service, additional officers, facilities, and equipment would be required to serve the project at buildout. As shown in Table 3.14-2 above, the number of new officers that would be required to meet the demands for police services under the Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives would range from 11 to 21 officers.

The University/College Campus Center could elect to provide its own security separately from or as a supplement to SCSD services. Fewer police officers would be required if the University/College Campus Center implemented on-campus security (Economic and Planning Systems 2012:3-4). The University/College Campus Center would provide a detailed safety and security plan to the County detailing the systems the project applicant intends on installing or implementing to protect students, visitors, employees, and property (Burdette, pers. comm., 2011).

The project applicant would provide funding for additional police facilities and equipment necessary to serve the Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives through participation in the County Police Services CFD 2005-1 and would incorporate SCSD's CPTED concepts into project designs to the extent feasible to reduce crime and increase public safety. However, it is not known at this time if additional police services would be required to meet to the demands under the Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives and this **indirect** effect would be **potentially significant**. Other **indirect** effects of constructing the fire station are addressed throughout this EIS in connection with discussions of the effects of overall site development. **No direct** effects would occur.

[Greater]

As part of the CEQA EIR certification and project approval process, various conditions of approval were incorporated into the project entitlements. Because these conditions of approval were incorporated into the Proposed Action, it is reasonable to assume that they would also be incorporated into the four action alternatives, if any of those alternatives were adopted. The conditions of approval that are applicable to this effect that were incorporated into the Proposed Action by the project entitlements are listed below:

- ▶ Prior to the recordation of the first final parcel map, Property Owners shall cooperate with the County Sheriff's Department, in consultation with the City of Rancho Cordova, in the creation and implementation of a police services plan approved by the County for providing adequate levels of police services for the needs of the Cordova Hills Project Areas during the early phases of development (*Condition of Approval; stipulation of Development Agreement*).

Implementation of the above-listed condition of approval from the project entitlements would reduce significant effects due to increased demand for police protection facilities, systems, equipment, and services under the Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives to a **less-than-significant** level by requiring completion of a police services plan and verifying availability of adequate police protection facilities and equipment prior to approval of final maps by the Sacramento County Planning Division and issuance of building permits by the Sacramento County Community Development Department Building Division. No mitigation measures were identified to further reduce these effects.

EFFECT 3.14-4 Increased Demand for Public Elementary School Facilities and Services. *Project implementation would increase demand for elementary schools (grades K-5) to serve new students.*

NA

Under the No Action Alternative, no project-related development would occur and there would be no residential or employment-generating land uses that would create a demand for elementary school enrollment (grades K-5). Therefore, **no indirect** or **direct** effects on elementary school facilities and services would occur. [*Lesser*]

Mitigation Measure: No mitigation measures are required.

PA, RC

The Cordova Hills site is within the EGUSD boundaries. During initial phases of project development, including the University/College Campus Center, students living within the Cordova Hills site would attend Sunrise Elementary (located at 11821 Cobble Brook Drive) or other elementary schools in the EGUSD that have available capacity.

The number of new elementary school students (grades K-5) that would be generated under the Proposed Action and Resource Conservation Alternatives were calculated based on the EGUSD's student-yield generation rate shown in Table 3.5-3. As shown in Table 3.5-4, these alternatives would generate the following number of elementary school students (grades K-5) in the EGUSD at buildout:

- ▶ The Proposed Action would generate would generate approximately 2,547 new elementary school students.

- ▶ The Resource Conservation Alternative would generate approximately 2,265 new elementary school students, which would be approximately 282 less elementary school students than under the Proposed Action Alternative.

The Proposed Action and Resource Conservation Alternative propose construction of three elementary schools located in the Town Center Village, University Center Village, and East Valley Village. Each elementary school would have an average capacity of 850 students; therefore, the three proposed elementary schools could accommodate up to 2,550 students. As shown in Table 3.14-4 and discussed above, neither the Proposed Action nor the Resource Conservation Alternative would generate more than 2,550 elementary school students. School attendance boundaries would be adjusted regularly to account for the phases of development and available capacity at completed schools in the SPA. As such, the proposed elementary schools would have sufficient capacity to meet the demands of project-generated elementary school students and would not result in a shortfall of school services or facilities in the EGUSD. Furthermore, the proposed elementary schools would have capacity to accommodate additional students from elsewhere in the EGUSD.

As required by state law, developers of all project phases would pay the state-mandated school fees to EGUSD. As of August 2012, Level II fees for residential development are \$4.66 per square foot and \$0.51 per square foot for commercial/industrial construction in the EGUSD boundaries. The County would determine the assessable square footage that would be subject to the fee at the time of development.

Because sufficient elementary schools would be developed to serve all of the project-generated students and the project applicant would pay state-mandated school fees, implementation of the Proposed Action and Regional Conservation Alternatives would have a **less-than-significant, indirect** effects on elementary school services in the long term. Other **indirect** effects of constructing the elementary school are addressed throughout this EIS in connection with discussions of the effects of overall site development. **No direct** effects would occur. No other mitigation measures were identified to further reduce these effects. *[Similar]*

EDP, EP

The new elementary school students (grades K–5) that would be generated under the Expanded Drainage Preservation and Expanded Preservation Alternatives were calculated based on the EGUSD’s student-yield generation rate shown in Table 3.5-3. As shown in Table 3.5-4, these alternatives would generate the following number of elementary school students (grades K–5) in the EGUSD at buildout:

- ▶ The Expanded Drainage Preservation Alternative would generate approximately 1,621 new elementary school students (approximately 926 less elementary school students than under the Proposed Action).
- ▶ The Expanded Preservation Alternative would generate approximately 1,372 new elementary school students (approximately 1,175 less elementary school students than under the Proposed Action).

The Expanded Drainage Preservation and Expanded Preservation Alternatives propose construction of two elementary schools. Each elementary school would have an average capacity of 850 students; therefore, the three proposed elementary schools would accommodate 1,700 students. As shown in Table 3.14-4 and discussed above, neither the Expanded Drainage Preservation nor the Expanded Preservation Alternative would generate more than 1,700 elementary school students. School attendance boundaries would be adjusted regularly to account for the

phases of development and available capacity at completed schools in the Cordova Hills site. Because the proposed elementary schools would have sufficient capacity to meet the demands of project-generated elementary school students and because the project applicant would pay state-mandated school fees, implementation of the Expanded Drainage Preservation and Expanded Preservation Alternatives would have a **less-than-significant, indirect** effect on elementary school services in the long term. Other **indirect** effects of constructing the elementary school are addressed throughout this EIS in connection with discussions of the effects of overall site development. **No direct** effects would occur. No mitigation measures were identified to further reduce these effects. *[Lesser]*

P

The new elementary school students (grades K–5) that would be generated under the Pilatus Alternative were calculated based on the EGUSD’s student-yield generation rate shown in Table 3.5-3. As shown in Table 3.5-4, the Pilatus Alternative would generate would generate approximately 2,609 new elementary school students (approximately 62 fewer elementary school students than under the Proposed Action).

The Pilatus Alternative would include construction of four elementary schools that would be located in the Pilatus West Parcel, the Town Center Village, the University Center Village, and the East Valley Village. Each elementary school would have an average capacity of 850 students; therefore, the four proposed elementary schools would accommodate 3,400 students. As shown in Table 3.14-4 and discussed above, the Pilatus Alternative would not generate more than 3,400 elementary school students. School attendance boundaries would be adjusted regularly to account for the phases of development and available capacity at completed schools on the Pilatus site.

Because the proposed elementary schools would have sufficient capacity to meet the demands of project-generated students and because the project applicant would pay state-mandated school fees, implementation of the Pilatus Alternative would have a **less-than-significant, indirect** effect on elementary school services in the long term. Other **indirect** effects of constructing the elementary school are addressed throughout this EIS in connection with discussions of the effects of overall site development. No mitigation measures were identified to further reduce these effects. *[Lesser]*

EFFECT 3.14-5	Increased Demand for Public Middle and High School Facilities and Services. Project implementation would increase demand for middle schools (grades 6–8) and high schools (grades 9–12) to serve new students
------------------	---

NA

Under the No Action Alternative, no project-related development would occur and there would be no residential land uses that would generate middle school (grades 6–8) or high school students (grades 9–12). Therefore, **no indirect or direct** effects on elementary school facilities and services would occur. *[Lesser]*

Mitigation Measure: No mitigation measures are required.

PA, EDP, EP, P, RC

The Cordova Hills and Pilatus sites are within the EGUSD boundaries. During initial phases of project development, students living within the Cordova Hills site would attend Katherine Albiani Middle School (located at 9140 Bradshaw Road) or Pleasant Grove High School (located at 9531 Bond Road), or other middle schools and high schools in the EGUSD that have available capacity. The number of new middle school students (grades 6–8) and high school students (grades 9–12) that would be generated under the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives were calculated based on the EGUSD’s student-yield generation rate shown in Table 3.5-3. As shown in Table 3.5-4, these alternatives would generate the following number of middle school (grades 6–8) and high school students (grades 9–12) in EGUSD at buildout:

- ▶ The Proposed Action would generate approximately 750 new middle school students and 1,416 new high school students.
- ▶ The Expanded Drainage Preservation Alternative would generate approximately 478 new middle school students and 916 new high school students (approximately 272 less middle school students and 500 fewer high school students than under the Proposed Action).
- ▶ The Expanded Preservation Alternative would generate approximately 410 new middle school students and 778 new high school students (approximately 340 fewer middle school students and 638 more high school students than under the Proposed Action).
- ▶ The Pilatus Alternative would generate approximately 773 new middle school students and 1,479 new high school students (approximately 23 more middle school students and 63 more high school students than under the Proposed Action).
- ▶ Regional Conservation Alternative would generate approximately 668 new middle school students and 1,284 new high school students (approximately 82 fewer middle school students and 132 fewer high school students than under the Proposed Action).

All five action alternatives propose construction of a new combined middle school and high school that would be located on approximately 79 acres in the East Valley Village. It is anticipated that the middle school would accommodate 1,200 students and the high school would accommodate 2,200 students. As shown in Table 3.14-4 and discussed above, none of the alternatives would generate more than 1,200 middle school students or more than 2,200 high school students. Once constructed, the proposed combined middle school and high school would have sufficient capacity to meet the demands of project-generated middle school and high school students under all five alternatives and would not result in a shortfall services or facilities. Furthermore, under all five action alternatives, the proposed combined middle school and high school would have capacity to accommodate additional students in EGUSD.

As required by state law, the project applicant of all project phases would pay the state-mandated school effect fees to EGUSD. As of August 2012, Level II fees for residential development are \$4.66 per square foot and \$0.51

per square foot for commercial/industrial construction in EGUSD boundaries. The County would determine the assessable square footage that would be subject to the fee at the time of development.

Because sufficient middle and high schools would be developed to serve all of the project-generated students and because the project applicant would pay state-mandated school fees, implementation of the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives would have a **less-than-significant, indirect** effect on middle school and high school services in the long term. Other **indirect** effects of constructing the elementary school are addressed throughout this EIS in connection with discussions of the effects of overall site development. **No direct** effects would occur. No mitigation measures were identified to further reduce these effects. *[Similar]*

3.14.6 RESIDUAL SIGNIFICANT EFFECTS

Implementation of the conditions of approval from the project entitlements along with Mitigation Measures 3.14-1 and 3.14-2 would reduce all public services effects to a less-than-significant level. Therefore, no residual significant effects would occur.

3.14.7 CUMULATIVE EFFECTS

Future development in Sacramento County would increase demands for public services in the region. In terms of cumulative effects, appropriate service providers are responsible for ensuring adequate provision of public services within their service boundaries. Public services would be provided to the Cordova Hills and Pilatus sites by SMFD, SCSD, and EGUSD.

Fire Protection Services

The SMFD currently provides fire protection services to unincorporated areas of Sacramento County, to the cities of Rancho Cordova and Citrus Heights, and to portions of Placer County. Because the project applicant would provide funding for additional fire facilities and equipment necessary to serve the project, would incorporate California Fire Code and SMFD Fire Prevention Standards into project designs, and would comply with conditions of approval adopted as part of the Final EIR, effects associated with increased demand for fire protection facilities and services under the Proposed Action would be less than significant. Implementation of Mitigation Measure 3.14-1 would reduce potentially significant effects related to the increased demand for fire protection facilities, systems, equipment, and services under the Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives to a less-than-significant level by ensuring that the project applicant would provide funding for and construction of sufficient fire stations, equipment, and firefighters to meet future service demands. The other foreseeable projects would also require fire protection services, and therefore a cumulatively significant effect from the regional demand for new fire protection services from the other foreseeable projects could occur. SMFD is currently updating its long-range facilities plan to identify optimal location of facilities needed to serve new growth areas, the cost of the stations, apparatus, equipment, and operating costs to include staffing. The facilities plan is tied into the capital facilities fee, which provides the authority for SMFD to fund the full cost of providing new fire services and facilities to new development within its service area (SMFD 2013b). Because the project applicant would provide funding for additional fire facilities and equipment necessary to serve the project, the project would not result in a cumulatively considerable contribution to this cumulatively significant effect.

Police Protection Services

SCSD provides law enforcement services to the unincorporated areas of Sacramento County and contracts services to the cities of Rancho Cordova and Isleton. Because the project would provide funding for additional police facilities and equipment to serve project development through participation in the County Police Services CFD 2005-1 and would comply with conditions of approval adopted as part of the CEQA process, effects associated with increased demands for police protection facilities, service, and equipment under the Proposed Action would be less than significant. Implementation of Mitigation Measure 3.14-3 would reduce potentially significant effects related to the increased demand for police protection facilities, systems, equipment, and services under the Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives to a less-than-significant level by ensuring that the project applicant would provide funding for and construction of sufficient police stations, equipment, and firefighters sufficient to meet future service demands. In addition, law enforcement services for the related project would also be funded through the County General Fund and through the County Police Services CFD 2005-1. These funds are only used to provide additional, municipal services resources for SCSD, which would maintain existing Countywide levels of service commensurate with the increase in service requirements brought about by the new developments. Therefore, SCSD would ensure adequate police protection services are or would be available to the project. The other foreseeable projects would also require fire protection services, and therefore a cumulatively significant effect from the regional demand for new fire protection services from the other foreseeable projects would occur. Because the project applicant would provide funding for additional police protection services and facilities necessary to serve the project, the project would not result in a cumulatively considerable contribution to this cumulatively significant effect.

Schools

EGUSD boundaries encompass the entire city of Elk Grove, portions of the City of Sacramento and portions of the City of Rancho Cordova, and most of southern Sacramento County. Implementation of the alternatives under consideration would not result in a shortfall of school services or facilities in EGUSD. All five action alternatives propose new elementary schools and a new combined middle school and high school that would have sufficient capacity to meet the demands of project-generated students. Therefore, project-related effects associated with the increased demand for school services and facilities would be less than significant. The other foreseeable projects would also generate new K-12 students and therefore would require school services. However, EGUSD has approximately nine future elementary school sites and two future middle school/high school sites planned in the Sunrise-Douglas area west of the Cordova Hills and Pilatus sites, with opening dates to be determined based on market conditions and associated student generation (Williams, pers. comm., 2012). These schools would meet the demands of the other foreseeable projects for school services within the City of Rancho Cordova, which is adjacent to the western boundary of the Cordova Hills and Pilatus sites. The project and other foreseeable projects within EGUSD boundaries are required to pay state-mandated school fees and the EGUSD Mello-Roos CFD No.1 fees. EGUSD may use these fees to finance new schools and equipment, and to reconstruct existing facilities to maintain adequate housing for all EGUSD's students. The courts have determined that payment of the state-mandated school fees, which is required of every applicant for the project and the other foreseeable projects, provides for full mitigation of environmental effects. For reasons stated above, a cumulatively significant effect related to increased demand for school facilities and services would not occur.

This page intentionally left blank.

3.15 TRAFFIC AND TRANSPORTATION

3.15.1 INTRODUCTION

This section presents a description of the existing environment related to traffic and transportation in the vicinity of the Cordova Hills and Pilatus sites, describes relevant traffic and transportation regulations, and provides an analysis of potential effects of the alternatives under consideration on intersections, roadways, freeway mainline segments and ramps, transit services, and pedestrian and bicycle facilities. Mitigation measures are recommended to address adverse effects, where feasible.

For the analysis, the following scenarios were analyzed to assist in the identification of transportation effects related to the Proposed Action or the Alternatives:

- ▶ **Existing Conditions – No Project (NP) Alternative** – This scenario analyzes existing operations using existing roadway geometrics and existing volumes obtained from traffic count data. Existing transit services and bicycle and pedestrian facilities were surveyed and qualitatively evaluated.
- ▶ **Cumulative Conditions – No Project (NP) Alternative** – This scenario analyzes conditions in the year 2035, assuming that the Proposed Action is not built. All cumulative scenarios incorporate roadway improvement projects associated with assumed development projects in the area; programmed improvements identified in the Sacramento Area Council of Governments (SACOG) *Metropolitan Transportation Plan/Sustainable Communities Strategy 2035* (SACOG 2012); and additional improvements identified within the City of Rancho Cordova’s *Five Year Capital Improvement Plan* (Rancho Cordova 2013).
- ▶ **Cumulative Conditions – Proposed Action (PA) Alternative** – This scenario assumes full development of the Proposed Action in the year 2035. This scenario assumes the same off-site land use and roadway assumptions as the No Project Alternative. This scenario also incorporates the stipulations contained within the conditions of approval, development agreement, and mitigation measures contained in the Cordova Hills Final EIR and mitigation monitoring and reporting program (project entitlements). The Final EIR mitigation measures related to traffic and transportation which the project applicant is required to pay 100 percent of the cost of the improvement are included as part of the roadway network under this scenario.
- ▶ **Cumulative Conditions – Pilatus (P) Alternative** – This scenario assumes full development of the Pilatus Alternative in the year 2035, with the same off-site land use and roadway assumptions as the No Project Alternative.
- ▶ **Cumulative Conditions – Expanded Drainage Preservation (EDP) Alternative** – This scenario assumes full development of the Expanded Drainage Preservation Alternative in the year 2035, with the same off-site land use and roadway assumptions as the Proposed Action.
- ▶ **Cumulative Conditions – Expanded Preservation (EP) Alternative** – This scenario assumes full development of the Expanded Preservation Alternative in the year 2035, with the same off-site land use and roadway assumptions as the Proposed Action.

- **Cumulative Conditions – Regional Conservation (RC) Alternative** – This scenario assumes full development of the Regional Conservation Alternative in the year 2035, with the same off-site land use and roadway assumptions as the Proposed Action.

Detailed traffic analyses were performed for the intersections, roadway segments, freeway facilities, and interchanges listed in Table 3.15-1. Exhibit 3.16-1 (in Appendix J) illustrates the Cordova Hills and Pilatus sites and nearby major roadways. Exhibits 3.16-2 and 3.16-3 show existing study facilities.

Table 3.15-1 Locations of Detailed Traffic Analyses	
Intersections	
<p>Existing Intersections</p> <p><i>Sacramento County</i></p> <ol style="list-style-type: none"> 1. South Watt Avenue/Jackson Road/SR 16 2. Bradshaw Road/Jackson Road/SR 16 3. Mather Boulevard/Douglas Road 4. Excelsior Road/Jackson Road/SR 16 5. Eagles Nest Road/Jackson Road/SR 16 6. Grant Line Road/Sunrise Boulevard 7. Grant Line Road/White Rock Road 8. Prairie City Road/White Rock Road¹ 9. Scott Road (West)/White Rock Road 10. Scott Road (East)/White Rock Road¹ <p><i>City of Elk Grove</i></p> <ol style="list-style-type: none"> 11. Grant Line Road/Calvine Road <p><i>City of Rancho Cordova</i></p> <ol style="list-style-type: none"> 12. Zinfandel Drive/White Rock Road 13. Sunrise Boulevard/Folsom Boulevard 14. Sunrise Boulevard/White Rock Road 15. Sunrise Boulevard/Douglas Road 16. Sunrise Boulevard/Jackson Road/SR 16 17. Grant Line Road/Jackson Road/SR 16 18. Grant Line Road/Kiefer Boulevard 19. Grant Line Road/Douglas Road <p><i>Caltrans State Highways</i></p> <ol style="list-style-type: none"> 20. Mather Field Road/U.S. 50 westbound ramps 21. Mather Field Road/U.S. 50 eastbound ramps 22. Zinfandel Drive/U.S. 50 westbound ramps 23. Zinfandel Drive/U.S. 50 eastbound ramps/Gold Center Drive 24. Sunrise Boulevard/U.S. 50 westbound ramps 25. Sunrise Boulevard/U.S. 50 eastbound ramps 26. Prairie City Road/U.S. 50 westbound ramps 27. Prairie City Road /U.S. 50 eastbound ramps 28. Scott Road/East Bidwell Street/U.S. 50 westbound ramps 29. Scott Road/East Bidwell Street/U.S. 50 eastbound ramps 	<p>Cumulative-Only Intersections</p> <p><i>Sacramento County</i></p> <ol style="list-style-type: none"> 46. Vineyard Road/Kiefer Boulevard 47. Vineyard Road/Jackson Road/SR 16 48. Excelsior Road/Kiefer Boulevard 50. Zinfandel Drive/Douglas Road 51. Eagles Nest Road/Kiefer Boulevard/Zinfandel Drive <p><i>City of Rancho Cordova</i></p> <ol style="list-style-type: none"> 49. Zinfandel Drive/International Drive 52. Sunrise Boulevard/International Drive 53. Sunrise Boulevard/Chrysanthy Boulevard 54. Sunrise Boulevard/Kiefer Boulevard 55. Rancho Cordova Parkway/White Rock Road 56. Rancho Cordova Parkway/Douglas Road 57. Rancho Cordova Parkway/Chrysanthy Boulevard 58. Rancho Cordova Parkway/Kiefer Boulevard 59. Rancho Cordova Parkway/Grant Line Road 60. International Drive/White Rock Road 61. Americanos Boulevard/Douglas Road 62. Americanos Boulevard/Chrysanthy Boulevard <p><i>Caltrans State Highways</i></p> <ol style="list-style-type: none"> 63. Rancho Cordova Parkway/U.S. 50 westbound ramps 64. Rancho Cordova Parkway/US 50 eastbound ramps 65. Oak Avenue Parkway/U.S. 50 westbound ramps 66. Oak Avenue Parkway/U.S. 50 eastbound ramps <p>On-Site Intersections</p> <p><i>Sacramento County</i></p> <ol style="list-style-type: none"> 34. Town Center Drive/North Loop Road 35. Town Center Drive/Chrysanthy Boulevard 36. Town Center Drive/University Boulevard 37. Street A/North Loop Road 38. Street A/University Boulevard 39. Street A/Street B 40. Street C/University Boulevard 41. Street D/North Loop Road 42. Street D/University Boulevard 43. Street D/Street A 44. School Access/North Loop Road 45. Street F/North Loop Road <p><i>City of Rancho Cordova</i></p> <ol style="list-style-type: none"> 30. Grant Line Road/North Loop Road 31. Grant Line Road/Chrysanthy Boulevard 32. Grant Line Road/University Boulevard

**Table 3.15-1
Locations of Detailed Traffic Analyses**

Roadways	
<p>Existing Roadways</p> <p><i>Grant Line Road</i></p> <ol style="list-style-type: none"> 1. Sheldon Road to Calvin Road 2. Calvin Road to Sunrise Boulevard 3. Sunrise Boulevard to Jackson Road/SR 16 4. Jackson Road/SR 16 to Kiefer Boulevard² 5. Kiefer Boulevard to University Boulevard (future) 6. University Boulevard (future) to Chrysanthy Boulevard (future) 7. Chrysanthy Boulevard (future) to North Loop Road (future) 8. North Loop Road (future) to Douglas Road 9. Douglas Road to White Rock Road <p><i>White Rock Road</i></p> <ol style="list-style-type: none"> 10. Kilgore Road to Sunrise Boulevard 11. Sunrise Boulevard to Fitzgerald Road³ 12. Fitzgerald Road to Grant Line Road³ 13. Grant Line Road to Prairie City Road 14. Prairie City Road to Scott Road (West) 15. Scott Road (West) to Scott Road (East) 16. Scott Road (East) to county line <p><i>Jackson Road/SR 16</i></p> <ol style="list-style-type: none"> 17. Watt Avenue to Bradshaw Road 18. Bradshaw Road to Excelsior Road⁴ 19. Excelsior Road to Eagles Nest Road 20. Eagles Nest Road to Sunrise Boulevard 21. Sunrise Boulevard to Grant Line Road <p><i>Douglas Road</i></p> <ol style="list-style-type: none"> 22. Mather Boulevard to Eagles Nest Road⁵ 23. Eagles Nest Road to Sunrise Boulevard 24. Sunrise Boulevard to Rancho Cordova Parkway (future) 25. Rancho Cordova Parkway (future) to Grant Line Road⁶ <p><i>Kiefer Boulevard</i>⁷</p> <ol style="list-style-type: none"> 26. Grant Line Road to Jackson Road/SR 16 <p><i>Sunrise Boulevard</i></p> <ol style="list-style-type: none"> 27. U.S. 50 to Folsom Boulevard 28. Folsom Boulevard to White Rock Road 29. White Rock Road to Douglas Road 30. Jackson Road/SR 16 to Florin Road <p><i>Mather Boulevard</i></p> <ol style="list-style-type: none"> 31. Douglas Road to Femoyer Street <p><i>Zinfandel Drive</i>⁸</p> <ol style="list-style-type: none"> 32. U.S. 50 to White Rock Road <p><i>Prairie City Road</i>⁹</p> <ol style="list-style-type: none"> 33. U.S. 50 to White Rock Road <p><i>Scott Road</i>⁹</p> <ol style="list-style-type: none"> 34. U.S. 50 to White Rock Road 	<p>Cumulative-Only Roadways</p> <p><i>Chrysanthy Boulevard</i></p> <p>Sunrise Boulevard to Rancho Cordova Parkway Rancho Cordova Parkway to Americanos Boulevard Americanos Boulevard to Grant Line Road</p> <p><i>Rancho Cordova Parkway</i></p> <p>White Rock Road to Douglas Road Douglas Road to Chrysanthy Boulevard Chrysanthy Boulevard to Kiefer Boulevard Kiefer Boulevard to Grant Line Road</p> <p><i>Americanos Boulevard</i></p> <p>White Rock Road to Douglas Road Douglas Road to Chrysanthy Boulevard Chrysanthy Boulevard to Kiefer Boulevard</p> <p><i>Oak Avenue</i></p> <p>U.S. 50 to Easton Valley Parkway Easton Valley Parkway to White Rock Road</p> <p>On-Site Roadways</p> <p><i>North Loop Road</i></p> <p>Grant Line Road to Town Center Boulevard Town Center Boulevard to Street A Street A to Street D Street D to Street F Street F to University Boulevard</p> <p><i>Chrysanthy Boulevard</i></p> <p>Grant Line Road to Town Center Boulevard</p> <p><i>University Boulevard</i></p> <p>Grant Line Road to Town Center Boulevard Town Center Boulevard to Street A Street A to Street C Street C to Street D Street D to Street E Street E to North Loop Road</p> <p><i>Town Center Boulevard</i></p> <p>North Loop Road to Chrysanthy Boulevard Chrysanthy Boulevard to University Boulevard</p> <p><i>Street A</i></p> <p>North Loop Road to University Boulevard University Boulevard to Street B Street B to Street D</p> <p><i>Street D</i></p> <p>North Loop Road to University Boulevard University Boulevard to Street A</p> <p><i>Street E</i></p> <p>University Boulevard to Street A</p>

**Table 3.15-1
Locations of Detailed Traffic Analyses**

Freeway Segments	
U.S. 50 Eastbound	U.S. 50 Westbound
1. Power Inn Road/Howe Avenue to Watt Avenue	6. Hazel Avenue to Sunrise Boulevard ¹⁰
2. Watt Avenue to Bradshaw Road	7. Zinfandel Drive to Mather Field Road
3. Bradshaw Road to Mather Field Road	8. Mather Field Road to Bradshaw Road
4. Mather Field Road to Zinfandel Drive	9. Bradshaw Road to Watt Avenue
5. Sunrise Boulevard to Hazel Avenue ¹⁰	10. Watt Avenue to Power Inn Road/Howe Avenue
Interchanges (Freeway-Ramp Merge, Diverge, and Weave Sections)	
Watt Avenue Interchange at U.S. 50	
1. U.S. 50 Eastbound Watt Avenue double off-ramp	
2. U.S. 50 Eastbound Watt Avenue loop on-ramp	
3. U.S. 50 Eastbound Watt Avenue slip on-ramp	
4. U.S. 50 Westbound Watt Avenue double off-ramp	
5. U.S. 50 Westbound Watt Avenue loop on-ramp	
6. U.S. 50 Westbound Watt Avenue slip on-ramp to auxiliary	
Notes: Caltrans = California Department of Transportation; U.S. 50 = U.S. Highway 50	
¹ Assumed to be annexed by the city of Folsom under Cumulative scenarios.	
² Under Cumulative scenarios, analyzed as two segments: Jackson Road/SR 16 to Rancho Cordova Parkway and Rancho Cordova Parkway to Kiefer Boulevard.	
³ Under Cumulative scenarios, analyzed as three segments: Sunrise Boulevard to Rancho Cordova Parkway, Rancho Cordova Parkway to Americanos Boulevard, and Americanos Boulevard to Grant Line Road.	
⁴ Under Cumulative scenarios, analyzed as two segments: Bradshaw Road to Vineyard Road and Vineyard Road to Excelsior Road.	
⁵ Under Cumulative scenarios, analyzed as Excelsior Road to Eagles Nest Road.	
⁶ Under Cumulative scenarios, analyzed as two segments: Rancho Cordova Parkway to Americanos Boulevard and Americanos Boulevard to Grant Line Road.	
⁷ Under Cumulative scenarios, six additional segments analyzed: Bradshaw Road to Vineyard Road, Vineyard Road to Excelsior Road, Excelsior Road to Eagles Nest Road, Eagles Nest Road to Sunrise Boulevard, Sunrise Boulevard to Rancho Cordova Parkway, and Rancho Cordova Parkway to Grant Line Road.	
⁸ Under Cumulative scenarios, two additional segments analyzed: White Rock Road to International Drive and International Drive to Douglas Road.	
⁹ Under Cumulative scenarios, analyzed as two segments: U.S. 50 to Easton Valley Parkway and Easton Valley Parkway to White Rock Road.	
¹⁰ Under Cumulative scenarios, replaced with the segment between Rancho Cordova Parkway and Hazel Avenue.	
Source: AECOM 2013	

3.15.2 AFFECTED ENVIRONMENT

The Cordova Hills and Pilatus sites and the surrounding roadway network are shown in Exhibit 3.15-1. The Cordova Hills and Pilatus sites are located in unincorporated eastern Sacramento County on the east side of Grant Line Road and the north and south sides of Glory Lane, approximately 0.5-mile south of Douglas Road. U.S. Highway 50 (U.S. 50) provides regional access to the Cordova Hills and Pilatus sites.

Because the vicinity is largely undeveloped, existing roadway access to the Cordova Hills and Pilatus sites is limited, although Grant Line Road provides connections with many key roadways in eastern Sacramento County, including White Rock Road, Douglas Road, and Jackson Road/State Route (SR) 16.

EXISTING TRAFFIC VOLUMES

Count data for study intersections, roadway segments, and freeway mainlines and ramps were collected during an approximately 4-year period from 2007 through 2010. Traffic volume count data was taken from the traffic analysis that was previously conducted for the Cordova Hills EIR.

Because the traffic counts are more than 3 years old, a review of the count data was conducted to confirm its validity. The California Department of Transportation (Caltrans) vehicle miles traveled (VMT) historical data and forecasts found within the *2008 California Motor Vehicle Stock, Travel and Fuel Forecast* report (Caltrans 2009a) for Sacramento County were reviewed to characterize, at a macroscopic level, current traffic levels in 2012 in relation to previous years. The Caltrans data and forecasts indicate that VMT has declined since 2007 and is expected to decline through to 2014. Based on this review, any potential increases in turning movement or link volumes at specific study locations are not expected to be substantial enough to materially affect the analysis such that collection of new traffic count data is warranted.

EXISTING TRANSPORTATION OPERATIONS

The operation of the road system is typically described in terms of level of service (LOS). Level of service is a quantitative indication of the magnitude of congestion and delay experienced by motorists traveling along a particular road or through a specific intersection. Levels of service are designated by the letters A through F, with LOS A corresponding to the lowest levels of congestion and LOS F corresponding to the highest level of congestion. The methodology for calculating LOS for different types of intersections, roadways, and freeways is described in detail in Appendix J.

Different jurisdictions apply different LOS standards through policies in their respective general plans. Each agency's respective minimum LOS standard was applied to roadways within their jurisdiction, as follows:

- ▶ Sacramento County – LOS E in urban areas and LOS D in rural areas
- ▶ City of Rancho Cordova – LOS D
- ▶ City of Folsom – LOS C
- ▶ City of Elk Grove – LOS D

Sacramento County uses an LOS E standard for urban areas and an LOS D standard for rural areas. The city of Elk Grove and the city of Rancho Cordova both use an LOS D standard for their roadways. The city of Folsom uses an LOS C standard for their intersections.

Caltrans defines acceptable LOS standards for state-controlled facilities, including U.S. 50. The acceptable LOS standards for U.S. 50 are presented in the *Highway 50 Corridor System Management Plan (CSMP)* (Caltrans 2009b). The 20-year Concept LOS for U.S. 50 is LOS F, so this traffic analysis applies an LOS E standard to the analyzed segments of U.S. 50 as a conservative approach for identifying effects. The LOS standard used for U.S. 50 is consistent with what was used for other studies conducted in the Sacramento region. Although SR 16 is also a state-controlled roadway, SR 16 is planned for eventual relinquishment to local jurisdictions as described below in the "Regulatory Framework/Applicable Laws, Regulations, Plans, and Policies" subsection. Therefore, an LOS D standard was applied for roadway segments within the city of Rancho Cordova and an LOS E standard was applied for segments within unincorporated Sacramento County.

Intersection Operations

The existing peak-hour traffic volumes, traffic control, and intersection lane configurations were used to calculate LOS at the study intersections. Table 3.15-2 summarizes intersection LOS under existing conditions. The existing LOS results for intersections, as well as all other study facilities, were taken from the *Cordova Hills Traffic Analysis: Technical Report* prepared by DKS Associates (2011). All inputs needed (i.e., existing peak-hour volumes and lane configurations) to determine the existing LOS remain the same as when the Proposed Action was analyzed for the Cordova Hills EIR.

The following intersections currently operate at unacceptable conditions during either or both of the weekday A.M. and P.M. peak traffic hours:

► Sacramento County Intersections:

- Intersection #7 (Grant Line Road/White Rock Road) – weekday P.M. peak-hour
- Intersection #8 (Prairie City Road/White Rock Road) – weekday A.M. and P.M. peak hours

Table 3.15-2 Intersection Levels of Service – Existing Conditions									
Intersection	Control	Level of Service (LOS) Methodology		Weekday A.M. Peak-Hour			Weekday P.M. Peak-Hour		
		Analysis Methodology	Policy	Delay ¹	v/c	LOS	Delay ¹	v/c	LOS
Sacramento County									
1. South Watt Avenue/ Jackson Road/SR 16	Signal	Circular 212	E	--	0.80	C	--	0.90	D
2. Bradshaw Road/Jackson Road/SR 16	Signal	Circular 212	E	--	0.96	E	--	0.87	D
3. Mather/Douglas Road	All-way stop	2000 HCM	E	47.5	--	E	12.9	--	B
4. Excelsior Road/Jackson Road/SR 16	Signal	Circular 212	E	--	0.57	A	--	0.55	A
5. Eagles Nest Road/Jackson Road/SR 16	Two-way stop	2000 HCM	E	12.5	--	B	21.3	--	C
6. Grant Line Road/Sunrise Boulevard	Signal	Circular 212	E	--	0.81	D	--	0.93	E
7. Grant Line Road/White Rock Road	One-way stop	2000 HCM	E	17.5	--	C	>50	--	F
8. Prairie City Road/White Rock Road	All-way stop	2000 HCM	D	35.3	--	E	>50	--	F
9. Scott Road (West)/White Rock Road	One-way stop	2000 HCM	D	14.2	--	B	17.1	--	C
10. Scott Road (East)/White Rock Road	All-way stop	2000 HCM	D	13.2	--	B	20.4	--	C
City of Elk Grove									
11. Grant Line Road/Calvine Road	Signal	2000 HCM	D	16.3	--	B	13.1	--	B

**Table 3.15-2
Intersection Levels of Service – Existing Conditions**

Intersection	Control	Level of Service (LOS)		Weekday A.M. Peak-Hour			Weekday P.M. Peak-Hour		
		Methodology		Delay ¹	v/c	LOS	Delay ¹	v/c	LOS
		Analysis Methodology	Policy						
City of Rancho Cordova									
12. Zinfandel Drive/White Rock	Signal	Circular 212	D	--	0.61	B	--	0.94	E
13. Sunrise Boulevard/Folsom Boulevard	Signal	Circular 212	D	--	0.76	C	--	0.64	B
14. Sunrise Boulevard/White Rock Road	Signal	Circular 212	D	--	0.74	C	--	0.82	D
15. Sunrise Boulevard/Douglas Road	Signal	Circular 212	D	--	0.52	A	--	0.45	A
16. Sunrise Boulevard/Jackson Road/SR 16	Signal	Circular 212	D	--	0.95	E	--	0.84	D
17. Grant Line Road/Jackson Road/SR 16	Signal	Circular 212	D	--	1.04	F	--	1.13	F
18. Grant Line Road/Kiefer Boulevard	All-way stop	2000 HCM	D	13.6	--	B	14.4	--	B
19. Grant Line Road/Douglas Road	One-way stop	2000 HCM	D	21.6	--	C	12.0	--	B
Caltrans State Highways									
20. Mather Field Road/U.S. 50 WB Ramps	Signal	2000 HCM	E	20.6	--	C	16.3	--	B
21. Mather Field Road/U.S. 50 EB Ramps	Signal	2000 HCM	E	21.7	--	C	17.3	--	B
22. Zinfandel Drive/U.S. 50 WB Ramps	Signal	2000 HCM	E	17.3	--	B	14.3	--	B
23. Zinfandel Drive/U.S. 50 EB Ramps	Signal	2000 HCM	E	28.6	--	C	>80	--	F
24. Sunrise Boulevard/U.S. 50 WB Ramps	Signal	2000 HCM	E	14.2	--	B	13.0	--	B
25. Sunrise Boulevard/U.S. 50 EB Ramps	Signal	2000 HCM	E	19.2	--	B	17.6	--	B
26. Prairie City Road/U.S. 50 WB Ramps	Signal	2000 HCM	E	20.2	--	C	23.0	--	C
27. Prairie City Road/U.S. 50 EB Ramps	Signal	2000 HCM	E	17.0	--	B	16.7	--	B
28. Scott Road/U.S. 50 WB Ramps	Signal	2000 HCM	E	19.7	--	B	12.5	--	B
29. Scott Road/U.S. 50 EB Ramps	Signal	2000 HCM	E	16.3	--	B	15.1	--	B
Notes: EB = eastbound ramps; HCM = Highway Capacity Manual; LOS = Level of Service; U.S. 50 = U.S. Highway 50; v/c = volume-to-capacity ratio; WB = westbound ramps									
¹ Delay reported for one-way and two-way stop-controlled intersections is for the worst approach; delay reported for all-way stop-controlled and signalized intersections is for all approaches (i.e., intersection average delay). Delay is reported in seconds per vehicle. Shaded areas indicate intersection operating at an unacceptable LOS.									
Source: DKS Associates 2011									

- ▶ City of Rancho Cordova Intersections:
 - Intersection #12 (Zinfandel Drive/White Rock Road) – weekday P.M. peak-hour
 - Intersection #16 (Sunrise Boulevard/Jackson Road/SR 16) – weekday A.M. peak-hour
 - Intersection #17 (Grant Line Road/Jackson Road/SR 16) – weekday A.M. and P.M. peak hours
- ▶ Caltrans State Highway intersections:
 - Intersection #23 (Zinfandel Drive/U.S. 50 eastbound ramps) – weekday P.M. peak-hour

The following unsignalized intersections which operate unacceptably meet the peak-hour volume traffic signal warrant as described in the California Manual on Uniform Traffic Control Devices (CMUTCD) during either or both of the weekday A.M. and P.M. peak traffic hours:

- ▶ Intersection #7 (Grant Line Road/White Rock Road) – weekday P.M. peak-hour
- ▶ Intersection #8 (Prairie City Road/White Rock Road) – weekday A.M. and P.M. peak hours

Roadway Operations

Table 3.15-3 summarizes roadway LOS under existing conditions. The following roadway segments operate at unacceptable conditions based on average daily traffic (ADT):

- ▶ City of Elk Grove Roadways:
 - Roadway Segment #1 (Grant Line Road—Sheldon Road to Calvine Road)
- ▶ City of Rancho Cordova Roadways:
 - Roadway Segment #27 (Sunrise Boulevard—U.S. 50 to Folsom Boulevard)
 - Roadway Segment #28 (Sunrise Boulevard—Folsom Boulevard to White Rock Road)

Table 3.15-3 Roadway Levels of Service – Existing Conditions								
Roadway Segment	Jurisdiction	Facility	Lanes	Policy	Volume	v/c	LOS	
1. Grant Line Road—Sheldon Road to Calvine Road	Elk Grove	Rural S	2	D	12,800	0.64	E	
2. Grant Line Road—Calvine Road to Sunrise Boulevard	Sacramento County	Rural S	2	E	14,200	0.71	E	
3. Grant Line Road—Sunrise Boulevard to Jackson Road/ SR 16		Rural S	2	E	7,900	0.40	D	
4. Grant Line Road—Jackson Road/SR 16 to Kiefer Boulevard		Rural S	2	D	7,800	0.39	D	
5. Grant Line Road—Kiefer Boulevard to University Boulevard	Rancho Cordova	Rural S	2	D	6,500	0.33	C	
6. Grant Line Road—University Boulevard to Chrysanthy Boulevard		Rural S	2	D	6,500	0.33	C	
7. Grant Line Road—Chrysanthy Boulevard to North Loop Road		Rural S	2	D	6,500	0.33	C	
8. Grant Line Road—North Loop Road to Douglas Road		Rural S	2	D	6,500	0.33	C	
9. Grant Line Road—Douglas Road to White Rock Road		Rural NS	2	D	9,600	0.56	D	

**Table 3.15-3
Roadway Levels of Service – Existing Conditions**

Roadway Segment	Jurisdiction	Facility	Lanes	Policy	Volume	v/c	LOS
10. White Rock Road—Kilgore Road to Sunrise Boulevard		Arterial M	6	D	27,000	0.50	A
11. White Rock Road—Sunrise Boulevard to Fitzgerald Road	Rancho Cordova	Arterial M	4	D	9,800	0.27	A
12. White Rock Road—Fitzgerald Road to Grant Line Road		Rural NS	2	D	3,400	0.20	B
13. White Rock Road—Grant Line Road to Prairie City Road		Rural NS	2	E	9,900	0.58	D
14. White Rock Road—Prairie City Road to Scott Road (West)	Sacramento County	Rural NS	2	D	7,000	0.41	D
15. White Rock Road—Scott Road (West) to Scott Road (East)		Rural NS	2	D	7,000	0.41	D
16. White Rock Road—Scott Road (East) to county line		Rural NS	2	D	7,500	0.44	D
17. Jackson Road/SR 16—Watt Ave. to Bradshaw Road		Arterial M	2	E	12,800	0.71	C
18. Jackson Road/SR 16—Bradshaw Road to Excelsior Road		Rural Hwy	2	E	10,800	0.47	D
19. Jackson Road/SR 16—Excelsior Road to Eagles Nest Road	Sacramento County	Rural Hwy	2	E	9,200	0.40	D
20. Jackson Road/SR 16—Eagles Nest Road to Sunrise Boulevard		Rural Hwy	2	E	9,200	0.40	D
21. Jackson Road/SR 16—Sunrise Boulevard to Grant Line Road	Rancho Cordova	Rural Hwy	2	D	13,000	0.57	D
22. Douglas Road—Mather Boulevard to Eagles Nest Road	Sacramento County	Arterial M	2	E	6,500	0.36	A
23. Douglas Road—Eagles Nest Road to Sunrise Boulevard		Arterial M	2	D	6,300	0.35	A
24. Douglas Road—Sunrise Boulevard to Rancho Cordova Parkway	Rancho Cordova	Arterial M	2	D	4,400	0.24	A
25. Douglas Road—Rancho Cordova Parkway to Grant Line Road		Arterial M	2	D	2,300	0.13	A
26. Kiefer Boulevard—Grant Line Road to Jackson Road/SR 16	Sacramento County	Rural NS	2	D	2,900	0.17	B
27. Sunrise Boulevard—U.S. 50 to Folsom Boulevard		Arterial M	6	D	54,500	1.01	F
28. Sunrise Boulevard—Folsom Boulevard to White Rock Road	Rancho Cordova	Arterial M	6	D	49,500	0.92	E
29. Sunrise Boulevard—White Rock Road to Douglas Road		Arterial M	6	D	28,200	0.52	A
30. Sunrise Boulevard—Jackson Road/SR 16 to Florin Road	Sacramento County	Rural S	2	E	11,100	0.56	D
31. Mather Boulevard—Douglas Road to Femoyer Street	Rancho Cordova	Arterial M	2	D	6,500	0.36	A
32. Zinfandel Drive—U.S. 50 to White Rock Road	Sacramento County	Arterial M	6	D	43,300	0.80	D
33. Prairie City Road—U.S. 50 to White Rock Road	Sacramento County	Rural NS	2	D	5,900	0.35	C
34. Scott Road—U.S. 50 to White Rock Road	Sacramento County	Rural NS	2	D	4,800	0.28	C

Notes: Arterial M = medium access control arterial; LOS = level of service; Rural Hwy = rural highway; Rural NS = rural road with no shoulders; Rural S = rural road with shoulders; U.S. 50 = U.S. Highway 50; v/c = volume-to-capacity ratio
Shaded areas indicate roadway segment is operating at an unacceptable LOS.
Source: DKS Associates 2011

Freeway Segment Operations

Table 3.15-4 summarizes freeway segment LOS under existing conditions. The following freeway segments operate at unacceptable conditions based on LOS:

- ▶ Freeway Segment #5 (Eastbound U.S. 50—Sunrise Boulevard to Hazel Avenue) – weekday P.M. peak-hour
- ▶ Freeway Segment #6 (Westbound U.S. 50—Hazel Avenue to Sunrise Boulevard) – weekday A.M. peak-hour

Table 3.15-4 Freeway Segment Levels of Service – Existing Conditions										
Freeway Segment	Lanes			Weekday A.M. Peak-Hour			Weekday P.M. Peak-Hour			
	ML	HOV	Aux	Volume	Density ¹	LOS	Volume	Density ¹	LOS	
Eastbound U.S. 50										
1. Power Inn Road/Howe Avenue to Watt Avenue	4	0	0	7,230	34	D	7,550	37	E	
2. Watt Avenue to Bradshaw Road	4	0	0	7,720	38	E	7,630	38	E	
3. Bradshaw Road to Mather Field Road	4	0	0	7,200	34	D	6,920	32	D	
4. Mather Field Road to Zinfandel Drive	4	0	1	6,420	24	C	7,190	28	D	
5. Sunrise Boulevard to Hazel Avenue	3	1	0	4,750	27	D	7,060	52	F	
Westbound U.S. 50										
6. Hazel Avenue to Sunrise Boulevard	3	1	0	7,100	56	F	4,480	24	C	
7. Zinfandel Drive to Mather Field Road	4	0	1	7,420	29	D	6,370	28	D	
8. Mather Field Road to Bradshaw Road	4	0	0	7,290	35	D	6,770	31	D	
9. Bradshaw Road to Watt Avenue	4	0	0	7,870	40	E	7,590	37	E	
10. Watt Avenue to Power Inn Road/Howe Avenue	4	0	1	8,350	34	D	7,130	27	D	
Notes: Aux = auxiliary; HOV = high-occupancy vehicle; LOS = Level of Service; ML = mainline; U.S. 50 = U.S. Highway 50										
¹ Flow calculation assumes a free-flow speed of 65 miles per hour (mpg), a capacity of 2,350 passenger cars per hour pre lane (pc/h/ln), a peak-hour factor (PHF) of 0.9, a heavy vehicle factor of 0.976, and population factor of 1.0, and excludes HOV volume and capacity. Auxiliary lane capacity is based on the HCM volume-ratio (VR) methodology. Density is reported in passenger cars per mile per lane (pc/mi/ln).										
Shaded areas indicate freeway segment is operating at an unacceptable LOS.										
Source: DKS Associates 2011										

Freeway Interchange Operations

Table 3.15-5 summarizes freeway interchange LOS under existing conditions. As shown in Table 3.15-5, all study on- and off-ramps currently operate at acceptable conditions.

EXISTING TRANSIT SERVICE

The Sacramento Regional Transit District (Sacramento RT) operates bus and light-rail transit (LRT) service in Sacramento County. The existing transit services in the vicinity of the Cordova Hills and Pilatus sites are described below.

Table 3.15-5 Interchange Level of Service – Existing Conditions										
Freeway Ramp	Lanes	Weekday A.M. Peak-Hour				Weekday P.M. Peak-Hour				
		Volume	Density ¹	v/c	LOS	Volume	Density ¹	v/c	LOS	
Eastbound U.S. 50										
1. Watt Avenue double off-ramp	2	1,186	11	--	B	1,570	14	--	B	
2. Watt Avenue loop on-ramp	1	1,484	36	--	E	1,041	35	--	E	
3. Watt Avenue slip on-ramp	1	619	32	--	D	475	30	--	D	
Westbound U.S. 50										
4. Watt Avenue double off-ramp	2	1,598	14	--	B	2,146	18	--	B	
5. Watt Avenue loop on-ramp	1	708	37	--	E	566	32	--	D	
6. Watt Avenue slip on-ramp (to auxiliary lane)	1	1,484	--	0.8	E	1,041	--	0.6	C	
Notes: LOS = Level of Service; U.S. 50 = U.S. Highway 50										
¹ Density is reported in passenger cars per mile per lane (pc/mi/ln).										
Source: DKS Associates 2011										

Fixed-Route Bus Service

Fixed-route bus service is currently not provided in the immediate vicinity of the Cordova Hills and Pilatus sites, but is available to the northwest (in Rancho Cordova).

- ▶ **Route 21** provides service between the Mather Field/Mills Station on the Gold Line light rail line (Downtown Sacramento – Folsom) and Citrus Heights via Sunrise Boulevard. Service is provided between approximately 5:30 a.m. and 10 p.m. on weekdays and between 7 a.m. and 8 p.m. on Saturdays, Sundays, and holidays. Headways (the amount of time between buses) are generally 30 minutes on weekdays and Saturdays and 60 minutes on Sundays and holidays.
- ▶ **Route 28** provides service between the Cordova Town Center Station on the Gold Line and Fair Oaks via Fair Oaks Boulevard. Service is provided between approximately 6:30 a.m. and 6:30 p.m. on weekdays on 60-minute headways. No weekend or holiday service is provided.
- ▶ **Route 72** provides service between the Watt/Manlove Station and the Mather Field/Mills Station on the Gold Line via Rosemont and Lincoln Village. Service is provided between approximately 6 a.m. and 8:30 p.m. on weekdays, 8:30 a.m. and 6:30 p.m. on Saturdays, and 8:30 a.m. and 6 p.m. on Sundays and holidays. Headways are generally 30 minutes on weekdays and 60 minutes on weekends and holidays.
- ▶ **Route 74** provides service between Mather Field/Mills Station and Sunrise Station on the Gold Line. Service is provided between approximately 6:30 a.m. and 7:30 p.m. on weekdays on 60-minute headways. No weekend or holiday service is provided.
- ▶ **Route 75** provides service between Mather Field/Mills Station on the Gold Line and areas north of Mather Airport on a loop route. Service is provided at 60-minute headways between 6:30 a.m. and 7:30 p.m. on weekdays and between 7:30 a.m. and 5:30 p.m. on weekends and holidays.

- ▶ **Route 109** (Hazel Express) provides peak-hour-only express service connecting Orangevale, Fair Oaks, and Gold River with Downtown Sacramento via Hazel Avenue and U.S. 50. Two trips are provided during the morning commute into downtown Sacramento, along with two trips during the evening commute to Gold River, Fair Oaks, and Orangevale. No weekend or holiday service is provided. Stops are provided only at either end of the route, in Downtown Sacramento or along Hazel Avenue. The closest stop to the Cordova Hills and Pilatus sites is at Hazel Avenue/Gold Country Boulevard/Nimbus Road.

Light Rail Transit Service

LRT service is provided along the U.S. 50/Folsom Boulevard corridor by the Gold Line, which links Folsom with Downtown Sacramento via Rancho Cordova. The closest stations to the Cordova Hills and Pilatus sites are the Sunrise Station (487-space park-and-ride lot, with connecting bus service provided by Route 74) and the Hazel Station (432-space park-and-ride lot). Service is provided between approximately 5 a.m. and 11 p.m. on weekdays, 5:30 a.m. and 11 a.m. on Saturdays, and 5:30 a.m. and 9 a.m. on Sundays. Headways are generally 15 minutes on weekdays (increasing to 30 minutes in the evenings) and 30 minutes on weekends.

EXISTING BICYCLE AND PEDESTRIAN SYSTEM

The Cordova Hills and Pilatus sites are located in a rural area of unincorporated Sacramento County, and there are limited provisions for bicycle or pedestrian circulation in the vicinity. All roads in the immediate vicinity, including Grant Line Road, Douglas Road, and Kiefer Boulevard, are unimproved and currently lack sidewalks, marked crosswalks, and bikeways.

3.15.3 REGULATORY FRAMEWORK/APPLICABLE LAWS, REGULATIONS, PLANS, AND POLICIES

State laws and regulations are provided for informational purposes and to assist with NEPA review. USACE has considered applicable state, regional, and local plans and ordinances as a part of the environmental review process for this EIS.

Sacramento County certified an EIR and approved the Proposed Action in January 2013. State, regional, and local plans, policies, laws, and ordinances were considered in the EIR and adopted mitigation measures have been incorporated into the Proposed Action.

FEDERAL PLANS, POLICIES, REGULATIONS, AND LAWS

There are no Federal plans, policies, regulations, or laws related to traffic and transportation that apply to the alternatives under consideration. Federal regulations that apply to traffic and transportation are administered by Caltrans and local jurisdictions.

STATE PLANS, POLICIES, REGULATIONS, AND LAWS

Caltrans is responsible for planning, designing, constructing, operating, and maintaining all state-owned roadways, including those in Sacramento County. Federal highway standards are implemented in California by Caltrans.

Caltrans policies related to traffic analyses are summarized in Caltrans's *Guide for the Preparation of Traffic Impact Studies* (Caltrans 2002). These guidelines identify circumstances under which Caltrans believes that a traffic impact study would be required, information that Caltrans believes should be included in the study, analysis scenarios, and guidance on acceptable analysis methodologies.

In addition to these policies, Caltrans prepares a long-term planning document called a Transportation Concept Corridor Report (TCCR) for each of its facilities. The purpose of a TCCR is to determine how a highway will be developed and managed so that it delivers the targeted LOS and quality of operations that are feasible to attain over a 20-year period. These are indicated in the "route concept." In addition to the 20-year route concept level, the TCCR includes an "ultimate concept," which is the ultimate goal for the route beyond the 20-year planning horizon. Ultimate concepts must be used cautiously, however, because unforeseen changes in land use and other variables make forecasting beyond 20 years difficult.

Caltrans's *Highway 50 CSMP* serves as the TCCR for U.S. 50, and describes the ultimate concept for the highway as a 10- to 12-lane freeway between Sunrise Boulevard and SR 99. However, the *Highway 50 CSMP* identifies LOS F as the 20-year Concept LOS for U.S. 50 in the study area because measures to improve operations to LOS E are not feasible due to environmental, right-of-way, financial, and other constraints.

For SR 16, Caltrans has designated a 20-year Concept LOS of LOS D for rural segments and LOS E for urban segments of the route, as described in the *Transportation Corridor Concept Report State Route 16* (Caltrans 2012). However, Caltrans considers the segment of SR 16 west of Amador County a route of local significance and has established a framework for relinquishment of the route to local jurisdictions (city of Sacramento, city of Rancho Cordova, and Sacramento County), as described in the *State Route 16 (Jackson Road) Corridor Study* (Fehr and Peers 2012). As such, the minimum acceptable operating conditions for Jackson Road (SR 16) as assumed in this analysis are based on thresholds established by the relevant local jurisdiction (in this case, Sacramento County or the city of Rancho Cordova).

REGIONAL AND LOCAL PLANS, POLICIES, REGULATIONS, AND ORDINANCES

Metropolitan Transportation Plan/Sustainable Communities Strategy 2035

SACOG is the Metropolitan Planning Organization (MPO) responsible for developing the state and Federally-required Metropolitan Transportation Plan (MTP) every four years. The *Metropolitan Transportation Plan/Sustainable Communities Strategy 2035* is the Federally mandated long-range planning document for identifying and programming roadway improvements throughout the Sacramento region, which was adopted in 2012. To receive Federal funding, transportation projects nominated by cities, counties, and agencies must be consistent with the MTP. The MTP was also adopted by the County Transportation Commission to serve as the County's Regional Transportation Plan (RTP). An RTP is a planning document developed by regional transportation planning agencies in cooperation with Caltrans and other stakeholders. The plans are developed to provide a vision of the regional transportation goals, policies, objectives, and strategies. This vision must be realistic and within fiscal constraints.

Sacramento County Measure A

Measure A is a half-cent sales tax that was approved by voters to implement transportation improvements in the Sacramento region. Some Measure A funding has been identified to fund specific roadway improvements along

Sunrise Boulevard, as well as other key roadways further from the Cordova Hills and Pilatus sites that are expected to serve traffic generated by the Proposed Action or one of the Alternatives, such as Hazel Avenue, Folsom Boulevard, Bradshaw Road, and U.S. 50.

Sacramento County Bicycle Master Plan

The *Sacramento County Bicycle Master Plan* (Sacramento County 2011b) identifies existing and planned bicycle routes for unincorporated areas of Sacramento County. The only existing facilities identified in the plan in the vicinity of the Cordova Hills and Pilatus sites are Class II facilities (bike lanes) along Sunrise Boulevard between Douglas Road and Kiefer Boulevard, as well as a Class I facility (bike path) along the Folsom South Canal west of Sunrise Boulevard, connecting Jackson Road/SR 16 with Class II facilities along Folsom Boulevard, Gold Country Boulevard, and Hazel Avenue and the American River Bike Trail (Class I facility) near Lake Natoma.

The plan identifies several bikeway improvements in the vicinity of the Cordova Hills and Pilatus sites, including Class II facilities along most major roads in the area:

- ▶ **Grant Line Road**—along the full length of the road from Kammerer Road in Elk Grove north to White Rock Road.
- ▶ **Kiefer Boulevard**— between Grant Line Road and Jackson Road/SR 16.
- ▶ **White Rock Road**—from Sunrise Boulevard in Rancho Cordova east into El Dorado County.
- ▶ **Sunrise Boulevard**—an extension of the existing Class II facilities south of Kiefer Boulevard to Grant Line Road and into Sheldon Hills.

The plan also proposed Several Class I facilities:

- ▶ **Grant Line – White Rock Trail**—stretching from the Union Pacific (UP) Fresno Subdivision just east of SR 99 in Elk Grove north via Grant Line Road and White Rock Road into El Dorado County.
- ▶ **Laguna Creek Trail**—stretching from areas near the border with El Dorado County west to Grant Line Road and paralleling Laguna Creek into Elk Grove.
- ▶ **Folsom South Canal**—an extension of the existing Class I facilities south of Jackson Road/SR 16 to Grant Line Road and into Wilton.

The master plan also contains design, safety, and traffic control standards for use in constructing and/or upgrading facilities.

City of Rancho Cordova Transit Master Plan

The City of Rancho Cordova's *Transit Master Plan* (City of Rancho Cordova 2006b) is a 20-year plan that identifies routes and transit corridors planned within the city of Rancho Cordova boundaries. While the project itself does not lie within city limits, several of the routes and corridors in the Transit Master Plan may provide transit service to or within close proximity of the Cordova Hills and Pilatus sites.

In particular, the Transit Master Plan identifies a “Signature Route” transit corridor, which may be operated with light rail vehicles (LRVs) at full build-out, between Rancho Cordova’s downtown area (north of U.S. 50) and Grant Line Road, traveling along the future Rancho Cordova Parkway. The route would be built out in phases; Stages 6 and 7, the final stages of the route, would be closest to the Cordova Hills and Pilatus sites.

The plan also identifies several bus rapid transit (BRT) corridors to supplement the Gold Line light-rail line and provide transit connections at the regional level. Identified corridors in the vicinity include Grant Line Road and White Rock Road (from El Dorado County west to Downtown Rancho Cordova and south to Elk Grove), Jackson Road/SR 16 (from Watt Avenue east to Grant Line Road), and Sunrise Boulevard (from Grant Line Road north to Sunrise Mall).

Development Financing Plans

Sacramento County and the city of Rancho Cordova have implemented several financing plans for implementing roadway improvements with specific plan developments in southeastern Sacramento County. The following financing plans are in place and have identified funding for improvements in the study area:

- ▶ **Villages of Zinfandel Public Facilities Financing Plan**—financing plan for development within the Villages of Zinfandel Specific Plan area in Rancho Cordova.
- ▶ **Sunridge Public Facilities Financing Plan**—financing plan for development within the Sunridge Specific Plan area in Rancho Cordova.
- ▶ **SunCreek Public Facilities Financing Plan**—financing plan for development within the SunCreek Specific Plan area in Rancho Cordova.
- ▶ **Mather Field Public Facilities Financing Plan**—financing plan for development within the Mather Field Specific Plan area in Sacramento County.
- ▶ **North Vineyard Station Public Facilities Financing Plan**—financing plan for development within the North Vineyard Station Specific Plan area in Sacramento County.
- ▶ **Vineyard Springs Comprehensive Plan Public Facilities Financing Plan**—financing plan for development within the Vineyard Springs Comprehensive Plan area in Sacramento County.
- ▶ **Rio Del Oro Public Facilities Financing Plan**—financing plan for development within the Rio del Oro Specific Plan area in Rancho Cordova.

City of Rancho Cordova Capital Improvement Plan

The City of Rancho Cordova’s Capital Improvement Plan (CIP) summarizes the city’s various funding programs for capital improvements and provides information regarding the scope/description, financing, and tentative schedules of specific projects selected for implementation during the CIP period in question. The latest plan covers fiscal year (FY) 2013/2014 through FY 2017/2018 and identifies a variety of improvements along Americanos Boulevard, Chrysanthy Boulevard, Douglas Road, Easton Valley Parkway, Folsom Boulevard, International Boulevard, Kiefer Boulevard, Rancho Cordova Parkway, Rio del Oro Parkway, Sunrise Boulevard,

and White Rock Road, as well as new traffic signals, sidewalk and pedestrian safety improvements, and street rehabilitation projects.

Sunrise/Douglas Community Plan and Sunridge Specific Plan

The Sunrise/Douglas Community Plan establishes the general policy framework for development between Sunrise Boulevard and Grant Line Road, north of SR 16 and south of White Rock Road, excluding the Rio del Oro Specific Plan. The SunCreek Specific Plan (formerly referred to as Sunrise Douglas 2) makes up about 20 percent of the Community Plan area. It is the focus of the Community Plan to provide housing to meet demand generated by job development in the U.S. 50 corridor. However, the Sunrise/Douglas Community Plan was superseded when the Rancho Cordova General Plan was adopted in 2003.

The Sunridge Specific Plan is generally bounded by Sunrise Boulevard, Douglas Road, Grant Line Road, and Kiefer Boulevard. Conditions of approval were applied to the Sunridge Specific Plan identifying development thresholds that could not occur unless specific roadway improvements in the area were either under construction or completed. Of note, a condition requiring construction of the Rancho Cordova Parkway interchange (or other roadway improvements) was applied to a development threshold of 6,500 units to ease congestion levels on Sunrise Boulevard.

Rancho Cordova has completed an improvement phasing study that identified the timing for potential roadway improvements (consistent with the city's CIP) to prioritize improvements to accommodate development south of U.S. 50 and east of Sunrise Boulevard. The phasing study correlated the development thresholds for all development south of U.S. 50 and east of Sunrise Boulevard to roadway improvement packages consistent with the city's CIP roadway system.

Mobility Strategies for County Corridors (Sacramento County Mobility Study)

The *Mobility Strategies for County Corridors* (County of Sacramento and Fehr & Peers 2004) is a planning-level opportunities study to develop candidate strategies for 11 of the county's most congested corridors. The purposes of the study were to enhance mobility, as defined by reduced travel times and improved travel-time reliability; increase the people-moving capacity; and improve safety for all users of the transportation system. Sacramento County and the city of Rancho Cordova incorporated the findings from the study into their Circulation Elements and Transportation Plans of their respective General Plans.

50 Corridor Mobility Partnership

The 50 Corridor Mobility Partnership prepared a report identifying recommendations regarding future transportation infrastructure along and near U.S. 50 in eastern Sacramento County and western El Dorado County. The findings were supported by Sacramento County, city of Rancho Cordova, city of Folsom, and El Dorado County.

Because infrastructure was identified as only partially funded, a technical memorandum (Fehr & Peers 2007) approved by the Sacramento County Department of Environmental Review and Assessment (DERA) and the Department of Transportation (DOT) was released to identify improvements that could be assumed under cumulative conditions as being fully funded for EIR/EIS analyses in eastern Sacramento County. The priority improvements agreed upon for EIR/EIS analyses in eastern Sacramento County are presented in Table 3.15-6.

**Table 3.15-6
Cumulative Priority Improvements (Fully Funded) for EIR/EIS Analyses in Eastern Sacramento County**

Project ID #	Project	Improvement
1	Rancho Cordova Parkway	6 lanes from U.S. 50 to Douglas Road
2	Rancho Cordova Parkway/U.S. 50 interchange	Construct interchange and includes auxiliary lanes from Sunrise Boulevard interchange to Hazel Avenue interchange on U.S. 50
3	Easton Valley Parkway	6 lanes from Rancho Cordova Parkway to Empire Ranch Road
4	International Drive extension	Construct as 6 lanes from Kilgore Road to Rancho Cordova Parkway
5	White Rock Road widening	6 lanes from Sunrise Boulevard to the County line
6	Zinfandel Drive extension and widening	6 lanes from White Rock Road to Douglas Road
7	Empire Ranch Road/U.S. 50 interchange	Construct interchange and includes auxiliary lanes from Empire Ranch Road interchange to El Dorado Hills Boulevard interchange on U.S. 50
8	Silva Valley Road/U.S. 50 interchange	Construct interchange
9	Kiefer Boulevard extension	4 lanes from Bradshaw Road to Grant Line Road
10	Douglas Road widening	Widen to 4 lanes from Mather Boulevard to Sunrise Boulevard
11	Sunrise Boulevard widening	6 lanes from SR 16 to Grant Line Road
12	Excelsior Road widening and extension	4 lanes from Kiefer Boulevard to SR 16 and 4 lanes from Kiefer Boulevard to Mather Boulevard
13	Oak Avenue Parkway extension	4 lanes from Iron Point Road to White Rock Road
14	Scott Road widening	6 lanes from U.S. 50 to Easton Valley Parkway and 4 lanes from Easton Valley Parkway to White Rock Road
15	Empire Ranch Road extension	4 lanes from U.S. 50 to Latrobe Road
16	Latrobe Road widening	4 lanes from U.S. 50 to Empire Ranch Extension
17	Prairie City Road widening	6 lanes from U.S. 50 to Easton Valley Parkway and 4 lanes from Easton Valley Parkway to White Rock Road

Notes: SR = State Route; U.S. 50 = U.S. Highway 50

The recommended roadway improvements above would be applied to the SunCreek and Westborough developments in Rancho Cordova, the Teichert Quarry and Easton developments in Sacramento County, and the Folsom South of U.S. 50 development in the city of Folsom (eastern Sacramento County).

Funding estimates were based on the *50 Corridor Mobility Partnership Draft Final Report* (Parsons Brinckerhoff and DKS Associates, June 29, 2006).

Source: Fehr & Peers 2007

3.15.4 ANALYSIS METHODOLOGY

This analysis relies on information provided by various public agencies, as well as site-specific technical planning studies generated to support the proposed development. Traffic and transportation studies reviewed in support of this analysis consist of the following documents:

- ▶ *Cordova Hills Final EIR* (County of Sacramento 2012);
- ▶ *Cordova Hills Traffic Analysis Technical Report* (DKS Associates 2011);

- ▶ Cordova Hills Development Agreement; and
- ▶ Cordova Hills Tentative large Lot Parcel Map Conditions of Approval.

ANALYSIS SCENARIOS

As described previously in this section, the following scenarios were analyzed within this EIS:

- ▶ Existing Conditions – No Action (NA) Alternative
- ▶ Cumulative Conditions – No Action (NA) Alternative
- ▶ Cumulative Conditions – Proposed Action (PA) Alternative
- ▶ Cumulative Conditions – Pilatus (P) Alternative
- ▶ Cumulative Conditions – Expanded Drainage Preservation (EDP) Alternative
- ▶ Cumulative Conditions – Expanded Preservation (EP) Alternative
- ▶ Cumulative Conditions – Regional Conservation (RC) Alternative

A quantitative analysis was conducted for the Proposed Action and the Pilatus Alternative. Since the Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives would generate fewer vehicle trips than the Proposed Action and the Pilatus Alternative, these alternatives were analyzed qualitatively.

Traffic and transportation effects that could result from construction and operation of the Proposed Action or the Pilatus Alternative were evaluated based on expected construction practices, the materials that would be used, and the anticipated locations and duration of activities related to the Proposed Action or the Alternatives. The effects of the proposed development were compared to environmental baseline conditions (i.e., cumulative no action alternative conditions) to determine the duration and magnitude of effects.

CUMULATIVE LAND USE MODIFICATIONS

Future conditions within the study area were developed for a 2035 horizon year using the 2012 SACOG regional travel demand model (SACOG model). The 2012 SACOG model includes updates to incorporate the demographic and growth projections and roadway and transit improvements from SACOG's 2012 MTP/SCS. As compared to the 2008 land use database used in the previous version of the SACOG model, the 2012 MTP/SCS projected less development overall throughout the SACOG region, plus a shift in development from exurban areas and greenfield sites (i.e., generally undeveloped suburban areas) to urbanized and infill areas. Therefore, the 2012 SACOG model forecasts less growth in the vicinity of the Cordova Hills and Pilatus sites compared to the 2008 model.

With this emphasis on infill development, there are multiple rural sites and master plans that are not explicitly included in the 2012 MTS/SCS land use projections. In addition to Cordova Hills, the City of Rancho Cordova and the County of Sacramento have identified 32 foreseeable development projects within approximately 15 miles of the Cordova Hills and Pilatus sites. These projects are currently either under construction, approved, under review, or proposed (the list of projects, the proposed land uses associated with each, and the project status are provided in Appendix J).

Implementation of these nearby projects could affect the future roadway conditions in the area; as such, they needed to be accounted for as part of the 2035 future conditions. Since they are at different stages of implementation, this study does not assume that all of the nearby projects would be fully constructed by the 2035

horizon year. Instead, this study used the following multi-step process to estimate travel demand associated with these nearby projects:

- ▶ the 32 projects were separated into categories according to their status (under construction, approved/pending approval, proposed, and future);
- ▶ based on these categories, the percentage of development that was assumed to occur by the 2035 horizon year was estimated;
- ▶ for each development site, the total number of households and employment were determined based on the project description and standard model methodology;
- ▶ the location of each project site within the SACOG model was identified, including its Transportation Analysis Zone (TAZ) and its aggregated subdivided Regional Analysis District (SubRAD);
- ▶ the population and employment totals for each model SubRAD that contained a project were compared to the values of the nearby projects that would be located within that SubRAD;
- ▶ for SubRADs that are located within infill areas (i.e., those in the urbanized areas of city of Rancho Cordova, city of Folsom, and adjacent unincorporated Sacramento County along the U.S. 50 corridor), the MTS/SCS projected population/employment estimates were reduced to account for the current build-out levels and availability of developable parcels within in TAZ;
- ▶ if the MTS/SCS projections did not account for growth associated with each project site, the difference between the population/employment estimates for all nearby projects and the MTS/SCS projections were added to the MTS/SCS totals; and
- ▶ these additive population and employment values were distributed to the each of the TAZs within the SubRADs, based on the general boundaries of the individual development sites.

The modified population and employment totals were added to the 2012 SACOG model's land use database, and updated 2035 horizon year forecasts were produced.

The 2012 SACOG model was not available at the time that Sacramento County prepared its EIR for the Proposed Action. Instead, the County used the then-current 2008 model. Because different models (incorporating both different baseline conditions and different land use and roadway forecasts for the 2035 horizon year) were used for the EIR and the EIS, effect significance varies for some locations between the EIR and the EIS.

CUMULATIVE ROADWAY NETWORK MODIFICATIONS

Cumulative Scenario

In addition to currently existing roadways, the roadway network assumed for the cumulative scenarios includes programmed improvements identified in the SACOG MTP/SCS 2035, improvements within the City of Rancho Cordova's CIP, the priority improvements agreed upon for EIR/EIS analyses in eastern Sacramento County (identified in Table 3.15-6), and improvements identified as final mitigation measures for other cumulative development projects. This analysis assumes that Rancho Cordova's CIP will be fully funded by Year 2035. The

Cumulative Scenario was used for analysis of the No Action and Pilatus Alternatives. In the No Action Alternative, nothing would be constructed, and in the Pilatus Alternative, the access and traffic volumes generated would differ from the Proposed Action, and it is reasonable to expect that the County would apply different mitigation measures. Cumulative study facilities are shown on Exhibits 3.16-4 through 3.16-7 in Appendix J.

Cumulative Plus Proposed Action

The roadway network for the Cumulative Plus Proposed Action scenario is slightly different than the cumulative roadway network. In addition to the improvements included in the Cumulative No Action scenario, the Cumulative Plus Proposed Action scenario also includes stipulations within the conditions of approval, development agreement, and Cordova Hills Final EIR mitigation monitoring and reporting program. The Cumulative Plus Proposed Action scenario includes improvements required by Final EIR mitigation measures where the project applicant is required to pay 100 percent of the cost of the improvement. Table 3.15-7 lists the additional roadway improvements taken from the certified Cordova Hills EIR that are included as part of the Cumulative Plus Proposed Action scenario. Sacramento County has adopted the Proposed Action and has certified an EIR with these conditions and mitigation measures included. For the purposes of the Traffic analysis, these improvements are included for the analysis of the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation alternatives. If one of the other four action alternatives were selected, new County approvals would be required, but based on the similar access points and trip routing for these action alternatives, it is reasonable to assume that the roadway improvements required by the County would be similar for these alternatives.

Table 3.15-7	
Additional Roadway Improvements Included in the Cumulative Plus Proposed Action Scenario	
Intersections	
Intersection	Cordova Hills Final EIR Mitigation Measure
44 School Access/North Loop Road	Provide dual eastbound left-turn lanes (<i>Final EIR Mitigation Measure TR-8</i>)
15 Sunrise Boulevard/Douglas Road	Provide overlap phasing on the eastbound and westbound right turn lanes (<i>Final EIR Mitigation Measure TR-9</i>)
19 Grant Line Road/Douglas Road	Provide a third southbound through lane and overlap phasing on the eastbound right-turn lane. To be consistent with the segment mitigations, a third northbound through lane is included (<i>Final EIR Mitigation Measure TR-9</i>)
30 Grant Line Road/North Loop Road	Provide a westbound free-right turn lane. Also an extra northbound departure lane is needed for the westbound free-right movement (<i>Final EIR Mitigation Measure TR-9</i>)
32 Grant Line Road/University Boulevard	Provide a northbound free-right turn lane. Also an extra eastbound departure lane is needed for the northbound free-right movement (<i>Final EIR Mitigation Measure TR-9</i>)
Roadway Segments	
Roadway Segment	Cordova Hills Final EIR Mitigation Measure
5 Grant Line from Rancho Cordova Parkway to Kiefer Boulevard	Increase roadway capacity by widening this segment to a 6-lane arterial with moderate access control (<i>Final EIR Mitigation Measure TR-11</i>)
6 Grant Line from Kiefer Boulevard to University Boulevard	Increase roadway capacity by widening this segment to a 6-lane arterial with moderate access control (<i>Final EIR Mitigation Measure TR-11</i>)
9 Grant Line from North Loop Road to Douglas Road	Increase roadway capacity by widening this segment to a 6-lane arterial with moderate access control (<i>Final EIR Mitigation Measure TR-11</i>)
Source: Sacramento County 2012	

TRIP GENERATION

Proposed Action

The travel demand associated with the Proposed Action was determined using the SACOG model. The methodology for each land use category is summarized below. In general, each of the proposed land uses was coded into the model within a series of TAZs that represented the Cordova Hills and Pilatus sites. To more accurately reflect the relationship between the proposed land uses and the internal roadway network, additional TAZs were added to the model and the Proposed Action's land use program was assigned to all internal zones. Then, the percentage of internal trips (trips that have both their origin and destination within the Cordova Hills site) and external trips (trips that have either their origin or their destination within the Cordova Hills site), and the mode split (trips by auto or by transit, walk or bicycle) was determined.

Residential, Commercial, and Other Uses

The travel demand for the proposed residential, retail, office, educational, and recreational uses was based directly on the SACOG model output. For each use, the appropriate population and employee estimates were developed for each TAZ on the Cordova Hills and Pilatus sites and coded into the model.

University/College Campus Center

Travel characteristics of colleges and universities can vary widely, depending on factors such as student and faculty population, percentage of on-campus housing, and the availability of pedestrian, bicycle, and transit connections. To assist in determining conditions at the proposed University/College Campus Center, the project applicant conducted a study of other similar facilities throughout the country (a copy of this technical memorandum is provided in Appendix J), including two similar universities in northern California. This data was used to estimate the overall travel demand for the proposed university uses in terms of total daily and peak-hour trips, trips by mode, and vehicle trips.

The university uses were coded into the SACOG model, and the input values were adjusted so that the resulting model output generally matched the projected totals.

Trip Generation Totals

Based on the approaches described above, the SACOG model output was used to determine the estimated number of daily and peak-hour trips. As shown in Table 3.15-8, the Proposed Action is expected to generate an estimated 133,339 person trips on a daily basis, including an estimated 52,074 trips internal to the Cordova Hills site (39 percent) and an estimated 81,265 external to and from the surrounding area (61 percent). In addition, as the table indicates, approximately 93 percent of the person trips would be by auto, with the remaining 7 percent of trips using transit, walk, or bicycle modes. The auto person trips are further adjusted by vehicle occupancy factors to generate vehicle trips.

Table 3.15-9 presents the estimated external vehicle trip generation of the Proposed Action, as obtained from the SACOG model. On a weekday basis, the Proposed Action would generate an estimated 67,002 external daily vehicle trips, including an estimated 5,646 external vehicle trips during the A.M. peak-hour (43 percent inbound/57 percent outbound) and 5,716 external vehicle trips during the weekday P.M. peak-hour (54 percent inbound/46 percent outbound).

Table 3.15-8 Daily Person Trips – Proposed Action			
Trip Mode	Internal	External	Total
Auto Person Trips	44,294	79,245	123,539
Transit, Walk, Bike Person Trips	7,780	2,020	9,800
Total	52,074	81,265	133,339

Notes:
Internal trips defined as having both origin/destination with the Cordova Hills site. External trips have either an origin or a destination outside the Cordova Hills site.
Sources: 2012 SACOG model; AECOM 2014

Table 3.15-9 Daily and Peak-Hour External Vehicle Trips – Proposed Action			
Trip Direction	A.M. Peak-Hour	P.M. Peak-Hour	Daily
Inbound Vehicle Trips	2,420	3,096	33,501
Outbound Vehicle Trips	3,226	2,620	33,501
Total	5,646	5,716	67,002

Note:
Inbound trips defined as a trip starting outside of the Cordova Hills site and ending within Cordova Hills. Outbound trips defined as a trip starting inside Cordova Hills and ending outside of the Cordova Hills site.
Sources: 2012 SACOG model; AECOM 2014

Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives

For the assessment of the Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives, the total land use program (in terms of population and employment) was coded into the SACOG model, and the total daily person trip generation was determined. These totals were then compared to the values for the Proposed Action, and the ratio of the travel demand for each alternative to the Proposed Action was calculated.

Table 3.15-10 presents the resulting daily travel demand estimates for the Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives. As shown in the table, all four alternatives would generate fewer total daily person trips than the Proposed Action. However, the Pilatus Alternative would generate more external daily person trips than the Proposed Action, and an additional review of the SACOG model output was conducted for the Pilatus Alternative. Table 3.15-11 presents the daily and peak-hour external vehicle trip totals for this alternative. As compared to the Proposed Action, the Pilatus Alternative would result in a minor increase in external vehicle trips during both A.M. and P.M. peak hours and on a daily basis.

TRIP DISTRIBUTION

Trip distribution (assignment of the projected vehicle trips generated by the Cordova Hills land uses) was derived from the SACOG model, using the specific land uses. Trip distribution for the alternatives under consideration was estimated by running a “select zone” analysis. Select zone analyses are designed to isolate all trips entering or exiting the selected set of traffic analysis zones and to trace those trips on the travel demand model roadway network.

Alternative	Internal	External	Total
Expanded Drainage Preservation	28,555	66,302	94,857
Expanded Preservation	15,816	56,822	72,639
Pilatus	44,642	84,724	129,366
Regional Conservation	37,633	78,973	116,606

Note: Internal trips defined as having both origin/destination within the Cordova Hills and Pilatus sites. External trips have either an origin or a destination outside the Cordova Hills and Pilatus sites.
Sources: 2012 SACOG model; AECOM 2014

Alternative and Trip Direction	A.M. Peak-Hour	P.M. Peak-Hour	Daily
Pilatus Alternative			
Inbound Vehicle Trips	1,958	3,437	33,573
Outbound Vehicle Trips	3,782	2,360	33,573
Total	5,740	5,797	67,146

Note: Inbound trips defined as a trip starting outside of the Cordova Hills and Pilatus sites and ending within Cordova Hills. Outbound trips defined as a trip starting inside Cordova Hills and ending outside of Cordova Hills.
Sources: 2012 SACOG model; AECOM 2014

TRAFFIC VOLUME FORECASTS

The SACOG model was also used to forecast cumulative (2035) traffic volumes. The traffic volume projections include all past, present, and reasonably foreseeable future projects through 2035, as well as increased traffic on roadway facilities associated with regional growth. The “Furness” method was used to develop cumulative traffic volumes for all study facilities. This methodology uses inputs such as existing traffic counts, existing model link volumes, and future model link volumes to estimate future intersection turning movements.

Truck traffic from the cumulative projects (in particular the two proposed quarries and the Green Cycle Recycling facility to be located in eastern Sacramento County) were added to the post processed cumulative volumes. Truck volumes were converted into passenger car equivalents (PCEs) prior to adding these truck trips into the intersection, roadway, and freeway analyses. This accounts for trucks’ greater effect on roadway operations compared to typical passenger vehicles, due to their increased size and space requirements and their reduced travel speeds and acceleration rates.

Because the Final EIR has already been certified, all Final EIR Mitigation Measures, the Rezone and Tentative Large Lot Parcel Map Conditions of Approval, and the obligations found in the Development Agreement (collectively referred to as the project entitlements) are considered a part of the Proposed Action. Thus, these measures and requirements are considered to already be incorporated into this alternative and are already considered when analyzing the significance of effects under the Proposed Action. For the Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives, the access points and expected trip routing would be similar to those of the Proposed Action, and this analysis assumes that the County would require

similar mitigation actions (roadway improvements) to the Proposed Action, and these improvements are incorporated into the cumulative roadway network. For the Pilatus Alternative, access points and trip routing might differ from the Proposed Action, and so no mitigation measures or other requirements and obligations have been incorporated as a part of the alternative land use plan and project description, and therefore the significance of effects is first analyzed independent of any mitigation measures and obligations.

THRESHOLDS OF SIGNIFICANCE

The determinations of the significance of effects for this analysis are based on professional standards regularly used in environmental review documents in the region. These thresholds encompass the factors taken into account under NEPA to determine the significance of an action in terms of its context and the intensity of its effects. These are also informed by the environmental checklist in Appendix G of the State CEQA Guidelines. For each facility type in each jurisdiction, the alternatives under consideration were determined to result in a significant adverse effect related to traffic and transportation if they would do any of the following:

- ▶ the transportation facility would operate at an acceptable LOS (better than or equal to the standard) without the Proposed Action or Alternatives, and the addition of traffic associated with the Proposed Action or Alternatives would degrade the LOS below the standard; or
- ▶ the transportation facility would operate at an unacceptable LOS (worse than the standard) without the Proposed Action or Alternatives, and the addition of traffic associated with the Proposed Action or Alternatives would cause operations to exceed the stated effects threshold.

The following section defines the significant effects in more detail and summarizes the effects thresholds for each of the jurisdictions based on their respective guidelines and LOS policies.

Intersections

For a signalized intersection, an effect is considered significant if the addition of traffic generated by the alternatives under consideration would do any of the following:

- ▶ Sacramento County Intersections:
 - cause an intersection located within the urban service boundary operating at an acceptable LOS E or better to degrade to an unacceptable LOS F;
 - cause an intersection located outside the urban service boundary operating at an acceptable LOS D or better to degrade to an unacceptable LOS E or F; or
 - increase the volume-to-capacity (v/c) ratio by 0.05 or more at an intersection already operating at an unacceptable LOS.
- ▶ City of Elk Grove Intersections:
 - cause an intersection operating at an acceptable LOS D or better to degrade to an unacceptable LOS E or LOS F; or

- increase the peak-hour average delay by 5 seconds or more at an intersection already operating at an unacceptable LOS E or LOS F.
- ▶ City of Folsom Intersections:
 - cause an intersection operating at an acceptable LOS C or better to degrade to an unacceptable LOS D, LOS E, or LOS F; or
 - increase the peak-hour average delay by 5 seconds or more at an intersection already operating at an unacceptable LOS D, LOS E, or LOS F.
 - ▶ City of Rancho Cordova Intersections:
 - cause an intersection operating at an acceptable LOS D or better to degrade to an unacceptable LOS E or LOS F; or
 - increase the v/c ratio by 0.05 or more at an intersection already operating at an unacceptable LOS E or LOS F.
 - ▶ Caltrans State Highway Intersections:
 - cause an increase in total intersection volume.

For unsignalized intersections (stop-controlled or roundabout intersections), an effect is considered significant if the addition of traffic from the alternatives under consideration would do any of the following:

- ▶ Sacramento County Intersections:
 - cause an intersection located within the urban service boundary operating at an acceptable LOS E or better to degrade to an unacceptable LOS F;
 - cause an intersection located outside the urban service boundary operating at an acceptable LOS D or better to degrade to an unacceptable LOS E or F; or
 - increase control delay by 5 seconds or more at an intersection already operating at an unacceptable LOS (the intersection must satisfy the MUTCD traffic signal warrants).
- ▶ City of Rancho Cordova Intersections:
 - cause an intersection operating at an acceptable LOS D or better to degrade to an unacceptable LOS E or LOS F; or
 - increase control delay by 5 seconds or more at an intersection already operating at an unacceptable LOS E or LOS F (the intersection must satisfy the MUTCD traffic signal warrants).

Roadways

For roadways, an effect is considered significant if the addition of traffic from the alternatives under consideration would do any of the following:

- ▶ Sacramento County Roadways:
 - cause a roadway segment located within the urban service boundary operating at an acceptable LOS E or better to degrade to an unacceptable LOS F;
 - cause a roadway segment located outside the urban service boundary operating at an acceptable LOS D or better to degrade to an unacceptable LOS E or F; or
 - increase the v/c ratio by 0.05 or more on a roadway segment already operating at an unacceptable LOS.
- ▶ City of Elk Grove Roadways:
 - cause a roadway segment operating at an acceptable LOS D or better to degrade to an unacceptable LOS E or LOS F; or
 - increase the v/c ratio by 0.05 or more on a roadway segment already operating at an unacceptable LOS E or LOS F.
- ▶ City of Folsom Roadways:
 - cause a roadway segment operating at an acceptable LOS C or better to degrade to an unacceptable LOS D, LOS E, or LOS F; or
 - increase the v/c ratio by 0.05 or more on a roadway segment already operating at an unacceptable LOS D, LOS E, or LOS F.
- ▶ City of Rancho Cordova Roadways:
 - cause a roadway segment operating at an acceptable LOS D or better to degrade to an unacceptable LOS E or LOS F; or
 - Increase the v/c ratio by 0.05 or more on a roadway segment already operating at an unacceptable LOS E or LOS F.

Freeway Segments

For freeway segments, an effect is considered significant if the addition of traffic under any of the alternatives under consideration would increase total volume on the segment.

Interchanges

For interchanges (freeway-ramp junctions), an effect is considered significant if the addition of traffic from the alternatives under consideration would add 10 trips or more to a freeway ramp that is operating at an unacceptable level. This threshold is consistent with other traffic studies conducted in the Sacramento region.

Bicycle, Pedestrian, and Transit Facilities

Based on Sacramento County guidelines and the Circulation Element of the *Sacramento County General Plan*, a bicycle, pedestrian, or transit facility effect is considered significant if the alternatives under consideration would do any of the following:

- ▶ eliminate or adversely affect an existing bikeway, pedestrian facility, or transit facility in a way that would discourage its use;
- ▶ interfere with the implementation of a planned bikeway as shown in the County’s Bicycle Master Plan, or be in conflict with the Pedestrian Master Plan;
- ▶ result in unsafe conditions for bicyclists or pedestrians, including unsafe bicycle/pedestrian, bicycle/motor vehicle, or pedestrian/motor vehicle conflict; or
- ▶ result in demands to transit facilities greater than there is adequate capacity to accommodate.

3.15.5 ENVIRONMENTAL CONSEQUENCES AND MITIGATION MEASURES

EFFECTS ANALYSIS

Effects that would occur under each alternative development scenario are identified as follows: NA (No Action), PA (Proposed Action), EDP (Expanded Drainage Preservation), EP (Expanded Preservation), P (Pilatus), and RC (Regional Conservation). The effects for each alternative are compared relative to the PA at the end of each effect conclusion (i.e., similar, greater, lesser).

Cumulative Scenarios

All effects of the Proposed Action and Alternatives were evaluated under cumulative (2035) conditions. Effects are identified when the incremental contribution of the Proposed Action or one of the Alternatives would be “cumulatively considerable” and thus are considered significant. Tables 3.15-12 through 3.15-15 summarize the results of the analyses for the No Action, Proposed Action, and Pilatus Alternatives. A quantitative analysis was not prepared for the Expanded Drainage Preservation, Expanded Preservation, or Regional Conservation Alternatives under cumulative (2035) conditions. Instead, the analysis used a qualitative comparison of these alternatives to the Proposed Action; since the number of trips associated with these alternatives would be less than the Proposed Action, they would not result in additional adverse effects.

EFFECT 3.15-1 Increases to Peak-Hour and Daily Traffic Volumes, Resulting in Unacceptable LOS under Cumulative (2035) Conditions. *Implementation of the Proposed Action or one of the Alternatives, along with other reasonably foreseeable development, would cause an increase in A.M. peak-hour, P.M. peak-hour, and daily traffic volumes on area roadways, resulting in an unacceptable LOS and warranting the need for improvements such as traffic signals and additional lanes under cumulative (2035) conditions.*

NA

Under the No Action Alternative, the Cordova Hills and Pilatus sites would not be developed and thus no traffic would be generated. Therefore, there would **no direct** or **indirect** traffic effects to the regional roadway network. *[Lesser]*

Mitigation Measure: No mitigation measures are required.

Introduction to Analysis of Action Alternatives

The following sub-effects and mitigation measures are specific to individual locations. These locations include only those intersections, roadways, freeway segments, and freeway ramps where significant, indirect effects would occur. A summary of each effect is followed by recommended mitigation measures.

Intersections

Sacramento County Intersections

EFFECT 3.15-1a Unacceptable LOS at the Intersection of Grant Line Road/Sunrise Boulevard under Cumulative (2035) Conditions. *This intersection would operate at an unacceptable LOS during the P.M. peak-hour under Cumulative (2035) Conditions. In addition, operations at this intersection would deteriorate, with the v/c ratio increasing by more than 0.05 during the P.M. peak hour.*

PA, EDP, EP, P, RC

This intersection would operate at an unacceptable LOS F without traffic from the Proposed Action or the Alternatives during the P.M. peak-hour. With the addition of traffic from the Proposed Action or the Alternatives, the v/c ratio would increase by more than 0.05 under the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives during the P.M. peak hour. Therefore, this **indirect** adverse effect related to traffic operations at the Sunrise Boulevard/Grant Line Road intersection is considered **significant**. **No direct** adverse effects would result. *[Similar]*

Mitigation Measure 3.15-1a: Pay a Fair Share for Improvements to the Sunrise Boulevard/Grant Line Road Intersection.

Improvements must be made to improve LOS at the Sunrise Boulevard/Grant Line Road intersection. Therefore, the project applicant shall pay a fair share to support the addition of a second right-turn lane to the eastbound approach, creating dual right-turn lanes.

Implementation: Project applicant.

**Table 3.15-12
Intersection Levels of Service—Cumulative Conditions**

Intersection	Control	LOS Methodology			Cumulative No Action Alternative						Cumulative Plus Proposed Action						Cumulative Plus Pilatus Alternative						Effect ID#
		Analysis	Policy	A.M. Peak-Hour			P.M. Peak-Hour			A.M. Peak-Hour			P.M. Peak-Hour			A.M. Peak-Hour			P.M. Peak-Hour				
				Delay ¹	v/c	LOS	Delay ¹	v/c	LOS	Delay ¹	v/c	LOS	Delay ¹	v/c	LOS	Delay ¹	v/c	LOS	Delay ¹	v/c	LOS	Delay ¹	
Sacramento County																							
1.	South Watt Avenue/Jackson Road/SR 16	S	C212	E	--	0.96	E	--	0.85	D	--	0.97	E	--	0.86	D	--	0.97	E	--	0.86	D	
2.	Bradshaw Road/Jackson Road/SR 16	S	C212	E	--	0.95	E	--	1.01	F	--	0.97	E	--	1.03	F	--	0.98	E	--	1.03	F	
3.	Mather Field Road/Zinfandel Road	S	C212	E	--	0.39	A	--	0.52	A	--	0.48	A	--	0.60	B	--	0.49	A	--	0.61	B	
4.	Excelsior Road/Jackson Road/SR 16	S	C212	E	--	0.43	A	--	0.43	A	--	0.46	A	--	0.46	A	--	0.47	A	--	0.47	A	
5.	Eagles Nest Road/Jackson Road/SR 16	S	C212	E	--	0.22	A	--	0.32	A	--	0.27	A	--	0.37	A	--	0.28	A	--	0.38	A	
6.	Grant Line Road/Sunrise Boulevard	S	C212	E	--	0.84	D	--	1.10	F	--	0.90	D	--	1.17	F	--	0.91	E	--	1.16	F	3.15-1a
7.	Grant Line Road/White Rock Road	S	C212	E	--	0.60	A	--	0.45	A	--	0.60	A	--	0.57	A	--	0.60	A	--	0.58	A	
46.	Vineyard Road/Kiefer Boulevard	S	C212	E	--	0.44	A	--	0.37	A	--	0.46	A	--	0.39	A	--	0.46	A	--	0.40	A	
47.	Vineyard/Jackson Road/SR 16	S	C212	E	--	0.32	A	--	0.36	A	--	0.35	A	--	0.39	A	--	0.36	A	--	0.39	A	
48.	Excelsior Road/Kiefer	S	C212	E	--	0.55	A	--	0.50	A	--	0.58	A	--	0.53	B	--	0.59	A	--	0.53	A	
50.	Zinfandel Road/Douglas Road	S	C212	E	--	0.49	A	--	0.63	B	--	0.54	A	--	0.73	C	--	0.53	A	--	0.74	C	
51.	Eagles Nest Road/Kiefer Boulevard	S	C212	E	--	0.39	A	--	0.33	A	--	0.43	A	--	0.36	A	--	0.44	A	--	0.35	A	
City of Folsom																							
8.	Prairie City Road/White Rock Road	S	HCM	C	14.9	--	B	15.1	--	B	16.2	--	B	17.5	--	B	16.2	--	B	18.1	--	B	
9.	Scott Road (West)/White Rock Road	S	HCM	C	19.6	--	B	22.4	--	C	24.1	--	C	26.2	--	C	23.3	--	C	26.5	--	C	
10.	Scott Road (East)/White Rock Road	S	HCM	C	26.3	--	C	20.3	--	C	26.5	--	C	20.0	--	B	26.6	--	C	20.1	--	C	
City of Elk Grove																							
11.	Grant Line/Calvine Road	S	HCM	D	8.8	--	A	5.2	--	A	9.6	--	A	5.9	--	A	9.4	--	A	6.0	--	A	
City of Rancho Cordova																							
12.	Zinfandel/White Rock Road	S	C212	D	--	0.87	D	--	0.97	E	--	0.95	E	--	1.00	E	--	0.97	E	--	1.00	E	3.15-1b
13.	Sunrise Boulevard/Folsom Boulevard	S	C212	D	--	0.91	E	--	0.70	B	--	0.94	E	--	0.72	C	--	0.94	E	--	0.71	C	
14.	Sunrise Boulevard/White Rock Road	S	C212	D	--	0.81	D	--	0.96	E	--	0.85	D	--	0.99	E	--	0.84	D	--	1.00	E	
15.	Sunrise Boulevard/Douglas Road	S	C212	D	--	0.75	C	--	0.98	E	--	0.90	D	--	0.86	D	--	0.90	E	--	0.99	E	3.15-1c
16.	Sunrise Boulevard/Jackson/SR 16	S	C212	D	--	0.52	A	--	0.48	A	--	0.58	A	--	0.55	A	--	0.59	A	--	0.56	A	
17.	Grant Line Road/Jackson Road/SR 16	S	C212	D	--	0.55	A	--	0.52	A	--	0.69	B	--	0.59	A	--	0.66	B	--	0.58	A	
18.	Grant Line Road/Kiefer Boulevard	S	HCM	D	--	0.48	A	--	0.41	A	--	0.68	B	--	0.57	A	--	0.78	C	--	0.71	C	
19.	Grant Line Road/Douglas Road	S	HCM	D	--	0.37	A	--	0.33	A	--	0.70	B	--	0.90	D	--	1.01	F	--	1.31	F	3.15-1d
30.	Grant Line Road/North Loop Road	S	C212	D	--	--	--	--	--	--	--	0.77	C	--	0.92	E	--	0.78	C	--	0.95	E	3.15-1e
31.	Grant Line Road/Chrysanthy Boulevard	S	C212	D	--	0.21	A	--	0.26	A	--	0.53	A	--	0.72	C	--	0.68	B	--	0.65	B	
32.	Grant Line Road/University Boulevard	S	C212	D	--	--	--	--	--	--	--	0.89	D	--	0.80	D	--	1.16	F	--	1.05	F	3.15-1f
49.	Zinfandel Road/International Boulevard	S	C212	D	--	0.83	D	--	1.00	F	--	0.95	E	--	1.09	F	--	0.96	E	--	1.09	F	3.15-1g
52.	Sunrise Boulevard/International Boulevard	S	C212	D	--	0.90	E	--	0.77	C	--	1.00	E	--	0.79	C	--	1.02	F	--	0.78	C	3.15-1h
53.	Sunrise Boulevard/Chrysanthy Boulevard	S	C212	D	--	0.45	A	--	0.36	A	--	0.45	A	--	0.36	A	--	0.45	A	--	0.36	A	
54.	Sunrise Boulevard/Kiefer Boulevard	S	C212	D	--	0.26	A	--	0.30	A	--	0.29	A	--	0.33	A	--	0.30	A	--	0.33	A	
55.	Rancho Cordova Boulevard/White Rock Road	S	C212	D	--	0.77	C	--	0.53	A	--	0.81	D	--	0.54	A	--	0.81	D	--	0.54	A	

**Table 3.15-12
Intersection Levels of Service—Cumulative Conditions**

Intersection	Control	LOS Methodology			Cumulative No Action Alternative						Cumulative Plus Proposed Action						Cumulative Plus Pilatus Alternative						Effect ID#
		Analysis	Policy	Delay ¹	A.M. Peak-Hour			P.M. Peak-Hour			A.M. Peak-Hour			P.M. Peak-Hour			A.M. Peak-Hour			P.M. Peak-Hour			
					v/c	LOS	Delay ¹	v/c	LOS	Delay ¹	v/c	LOS	Delay ¹	v/c	LOS	Delay ¹	v/c	LOS	Delay ¹	v/c	LOS	Delay ¹	
56. Rancho Cordova Parkway/Douglas Road	S	C212	D	--	0.42	A	--	0.49	A	--	0.55	A	--	0.65	B	--	0.56	A	--	0.66	B		
57. Rancho Cordova Parkway/Chrysanthy Boulevard	S	C212	D	--	0.34	A	--	0.30	A	--	0.53	A	--	0.42	A	--	0.55	A	--	0.42	A		
58. Rancho Cordova Parkway/Kiefer Boulevard	S	C212	D	--	0.13	A	--	0.15	A	--	0.16	A	--	0.18	A	--	0.17	A	--	0.18	A		
59. Rancho Cordova Parkway/Grant Line Road	S	C212	D	--	0.18	A	--	0.27	A	--	0.31	A	--	0.40	A	--	0.33	A	--	0.39	A		
60. International Boulevard/White Rock Road	S	C212	D	--	0.28	A	--	0.40	A	--	0.37	A	--	0.57	A	--	0.38	A	--	0.59	A		
61. Americanos Boulevard/Douglas Road	S	C212	D	--	0.15	A	--	0.22	A	--	0.51	A	--	0.41	A	--	0.56	A	--	0.42	A		
62. Americanos Boulevard/Chrysanthy Boulevard	S	C212	D	--	0.08	A	--	0.08	A	--	0.26	A	--	0.33	A	--	0.29	A	--	0.32	A		
Caltrans State Highways																							
20. Mather Field Road/U.S. 50 WB ramps	S	HCM	E	24.5	--	C	20.6	--	C	24.6	--	C	20.7	--	C	24.6	--	C	20.7	--	C		
21. Mather Field Road/U.S. 50 EB ramps	S	HCM	E	30.3	--	C	20.1	--	C	31.4	--	C	20.5	--	C	31.1	--	C	20.5	--	C		
22. Zinfandel Road/U.S. 50 WB ramps	S	HCM	E	17.4	--	B	16.7	--	B	17.4	--	B	16.7	--	B	17.4	--	B	16.7	--	B		
23. Zinfandel Road/U.S. 50 EB ramps	S	HCM	E	36.0	--	D	21.7	--	C	40.7	--	D	29.5	--	C	41.9	--	D	32.0	--	C		
24. Sunrise Boulevard/U.S. 50 WB ramps	S	HCM	E	14.4	--	B	17.2	--	B	14.6	--	B	18.0	--	B	14.6	--	B	17.9	--	B		
25. Sunrise Boulevard/U.S. 50 EB ramps	S	HCM	E	21.3	--	C	19.3	--	B	21.6	--	C	19.4	--	B	21.5	--	C	19.4	--	B		
26. Prairie City Road/U.S. 50 WB ramps	S	HCM	E	22.0	--	C	34.6	--	C	23.1	--	C	42.3	--	D	23.4	--	C	43.3	--	D		
27. Prairie City Road/U.S. 50 EB ramps	S	HCM	E	15.2	--	B	16.6	--	B	14.8	--	B	16.2	--	B	14.7	--	B	16.2	--	B		
28. Scott Road/U.S. 50 WB ramps	S	HCM	E	20.0	--	C	14.1	--	B	20.1	--	C	13.9	--	B	20.2	--	C	13.9	--	B		
29. Scott ramps/U.S. 50 EB ramps	S	HCM	E	14.9	--	B	20.0	--	B	14.7	--	B	20.0	--	C	14.7	--	B	20.1	--	C		
63. Rancho Cordova Parkway/U.S. 50 WB ramps	S	HCM	E	17.9	--	B	24.0	--	C	18.1	--	B	25.2	--	C	18.0	--	B	25.4	--	C		
64. Rancho Cordova Parkway/U.S. 50 EB ramps	S	HCM	E	3.4	--	A	11.5	--	B	3.3	--	A	11.2	--	B	3.3	--	A	11.2	--	B		
65. Oak Avenue/U.S. 50 WB ramps	S	HCM	E	5.7	--	A	4.6	--	A	8.1	--	A	6.8	--	A	7.7	--	A	7.0	--	A		
66. Oak Avenue/U.S. 50 EB ramps	S	HCM	E	16.7	--	B	16.7	--	B	18.2	--	B	18.6	--	B	18.0	--	B	18.6	--	B		

Notes: C212 = Circular 212; EB = eastbound ramps; FHWA = FHWA Roundabout Method; HCM = 2000 HCM; LOS = Level of Service; MSW = Meets signal warrant; R = Roundabout; S = Signalized; SR = State Route; U.S. 50 = U.S. Highway 50; v/c = volume-to-capacity ratio; WB = westbound ramps

¹ Delay reported for intersections is for all approaches (i.e., intersection average delay). Delay is reported in seconds per vehicle.

Bold indicates an unacceptable LOS. **Shaded** areas indicate an adverse effect.

Source: AECOM 2013

**Table 3.15-13
Roadway Levels of Service—Cumulative Conditions**

Roadway Segment	Jurisdiction	Facility	Lanes ¹	Policy	Cumulative No Action Alternative			Cumulative Plus Proposed Action			Cumulative Plus Pilatus Alternative			Effect ID#
					Volume	v/c	LOS	Volume	v/c	LOS	Volume	v/c	LOS	
1. Grant Line Road—Sheldon Road to Calvine Road	Elk Grove	Arterial M	4	D	24,400	0.68	B	28,000	0.78	C	27,300	0.76	C	
2. Grant Line Road—Calvine Road to Sunrise Boulevard	Sacramento County	Arterial M	4	E	23,700	0.66	B	28,200	0.78	C	27,400	0.76	C	
3. Grant Line Road—Sunrise Boulevard to Jackson Road/SR 16		Arterial M	4	E	12,200	0.34	A	16,800	0.47	A	16,000	0.44	A	
4. Grant Line Road—Jackson Road/SR 16 to Rancho Cordova Parkway	Rancho Cordova	Arterial M	4	D	15,100	0.42	A	25,800	0.72	C	24,500	0.68	B	
5. Grant Line Road—Rancho Cordova Parkway to Kiefer Boulevard		Arterial M	4	D	11,800	0.33	A	22,500	0.42	A	21,200	0.39	A	
6. Grant Line Road—Kiefer Boulevard to University Boulevard		Arterial M	4	D	12,000	0.33	A	31,200	0.58	A	28,800	0.53	A	
7. Grant Line Road—University Boulevard to Chrysanthy Boulevard		Arterial M	4	D	12,000	0.33	A	26,500	0.74	C	22,300	0.62	B	
8. Grant Line Road—Chrysanthy Boulevard to North Loop Road		Arterial M	4	D	15,200	0.42	B	23,300	0.65	B	17,700	0.49	A	
9. Grant Line Road—North Loop Road to Douglas Road		Arterial M	4	E	15,200	0.42	B	45,500	0.84	D	44,700	0.83	D	
10. Grant Line Road—Douglas Road to White Rock Road	Rancho Cordova	Arterial M	6	D	27,300	0.51	A	40,700	0.75	C	39,100	0.72	C	
11. White Rock Road—Kilgore Road to Sunrise Boulevard		Arterial M	6	D	27,000	0.50	A	27,500	0.51	A	27,400	0.51	A	
12. White Rock Road—Sunrise Boulevard to Rancho Cordova Parkway		Arterial M	6	D	28,200	0.52	A	29,400	0.54	A	29,300	0.54	A	
13. White Rock Road—Rancho Cordova Parkway to Americanos Boulevard		Arterial M	6	D	12,400	0.23	A	13,700	0.25	A	13,600	0.25	A	
14. White Rock Road—Americanos Boulevard to Grant Line Road	Sac. County	Arterial M	6	D	11,100	0.21	A	11,300	0.21	A	11,300	0.21	A	
15. White Rock Road—Grant Line Road to Prairie City Road		Arterial M	6	E	30,100	0.56	A	41,400	0.77	C	40,400	0.75	C	
16. White Rock Road—Prairie City Road to Scott Road (West)	Folsom	Arterial M	6	C	23,800	0.44	A	30,400	0.56	A	29,700	0.55	A	
17. White Rock Road—Scott Road (West) to Scott Road (East)		Arterial M	6	C	28,100	0.52	A	33,200	0.61	B	32,600	0.60	B	
18. White Rock Road—Scott Road (East) to County line		Arterial M	6	C	21,800	0.40	A	23,600	0.44	A	23,400	0.43	A	
19. Jackson Road/SR 16—Watt Ave. to Bradshaw Road	Sacramento County	Arterial M	4	E	43,700	1.21	F	46,300	1.29	F	46,200	1.28	F	3.15-1i
20. Jackson Road/SR 16—Bradshaw Road to Vineyard Road		Arterial M	4	E	24,400	0.68	B	27,000	0.75	C	26,900	0.75	C	
21. Jackson Road/SR 16—Vineyard Road to Excelsior Road		Arterial M	4	E	18,100	0.50	A	20,900	0.58	A	20,700	0.58	A	
22. Jackson Road/SR 16—Excelsior Road to Eagles Nest Road		Arterial M	4	E	14,400	0.40	A	18,400	0.51	A	18,200	0.51	A	
23. Jackson Road/SR 16—Eagles Nest Road to Sunrise Boulevard		Arterial M	4	E	15,200	0.42	A	19,400	0.54	A	19,200	0.53	A	
24. Jackson Road/SR 16—Sunrise Boulevard to Grant Line Road	Rancho Cordova	Arterial M	4	D	18,400	0.51	A	24,400	0.68	B	24,000	0.67	B	
25. Douglas Road—Excelsior Road to Eagles Nest Road	Sacramento County	Arterial M	4	E	12,700	0.35	A	12,900	0.36	A	12,700	0.35	A	
26. Douglas Road—Eagles Nest Road to Sunrise Boulevard	Rancho Cordova	Arterial M	6	D	33,600	0.62	B	40,300	0.75	C	39,300	0.73	C	
27. Douglas Road—Sunrise Boulevard to Rancho Cordova Parkway		Arterial M	6	D	20,100	0.37	A	34,400	0.64	B	32,600	0.60	B	
28. Douglas Road—Rancho Cordova Parkway to Americanos Boulevard		Arterial M	6	D	15,200	0.28	A	26,400	0.49	A	26,600	0.49	A	
29. Douglas Road—Americanos Boulevard to Grant Line Road		Arterial M	6	D	4,300	0.08	A	21,200	0.39	A	22,000	0.41	A	
30. Kiefer Boulevard—Bradshaw Road to Vineyard Road	Sacramento County	Arterial M	4	E	16,700	0.46	A	17,900	0.50	A	17,800	0.49	A	
31. Kiefer Boulevard—Vineyard Road to Excelsior Road		Arterial M	4	E	15,600	0.43	A	17,100	0.47	A	16,900	0.47	A	
32. Kiefer Boulevard—Excelsior Road to Eagles Nest Road		Arterial M	4	E	5,700	0.16	A	7,000	0.19	A	7,000	0.20	A	
33. Kiefer Boulevard—Eagles Nest Road to Sunrise Boulevard	Rancho Cordova	Arterial M	4	E	9,100	0.25	A	10,900	0.30	A	11,000	0.31	A	
34. Kiefer Boulevard—Sunrise Boulevard to Rancho Cordova Parkway		Arterial M	4	D	3,300	0.09	A	5,100	0.14	A	5,200	0.14	A	
35. Kiefer Boulevard—Rancho Cordova Parkway to Grant Line Road		Arterial M	4	D	5,400	0.15	A	11,600	0.32	A	11,100	0.31	A	
36. Kiefer Boulevard—Grant Line Road to Jackson Road/SR 16	Sacramento County	Rural NS	2	D	5,000	0.29	C	7,200	0.42	D	6,700	0.39	D	

**Table 3.15-13
Roadway Levels of Service—Cumulative Conditions**

Roadway Segment	Jurisdiction	Facility	Lanes ¹	Policy	Cumulative No Action Alternative			Cumulative Plus Proposed Action			Cumulative Plus Pilatus Alternative			Effect ID#
					Volume	v/c	LOS	Volume	v/c	LOS	Volume	v/c	LOS	
37. Sunrise Boulevard—U.S. 50 to Folsom Boulevard		Arterial M	6	D	58,700	1.09	F	62,200	1.15	F	61,900	1.15	F	3.15-1j
38. Sunrise Boulevard—Folsom Boulevard to White Rock Road	Rancho Cordova	Arterial M	6	D	53,000	0.98	E	57,800	1.07	F	57,400	1.06	F	3.15-1k
39. Sunrise Boulevard—White Rock Road to Douglas Road		Arterial M	6	D	37,100	0.69	B	42,500	0.79	C	42,100	0.78	C	
40. Sunrise Boulevard—Jackson Road/SR 16 to Florin Road	Sacramento County	Arterial M	6	E	19,800	0.37	A	21,600	0.40	A	21,400	0.40	A	
41. Mather Boulevard—Douglas Road to Femoyer Street	Rancho Cordova	Arterial M	2	D	4,700	0.26	A	5,200	0.29	A	5,200	0.29	A	
42. Zinfandel Drive—U.S. 50 to White Rock Road		Arterial M	6	D	81,100	1.50	F	85,000	1.57	F	84,900	1.57	F	3.15-1l
43. Zinfandel Drive—White Rock Road to International Drive	Rancho Cordova	Arterial M	6	D	41,800	0.77	C	45,600	0.84	D	45,600	0.84	D	
44. Zinfandel Drive—International Drive to Douglas Road		Arterial M	6	D	47,000	0.87	D	53,300	0.99	E	52,800	0.98	E	3.15-1m
45. Prairie City Road—U.S. 50 to Easton Valley Parkway		Arterial M	6	C	29,200	0.54	A	32,600	0.60	B	32,500	0.60	B	
46. Prairie City Road—Easton Valley Parkway to White Rock Road	Folsom	Arterial M	4	C	18,800	0.52	A	23,400	0.65	B	23,100	0.64	B	
47. Scott Road—U.S. 50 to Easton Valley Parkway	Folsom	Arterial M	6	C	40,500	0.75	C	43,500	0.81	D	43,200	0.80	C	
48. Scott Road—Easton Valley Parkway to White Rock Road		Arterial M	4	C	17,800	0.49	A	21,000	0.58	A	20,600	0.57	A	
49. Chrysanthy Boulevard—Sunrise Boulevard to Rancho Cordova Parkway		Arterial M	4	D	9,000	0.25	A	11,500	0.32	A	10,500	0.29	A	
50. Chrysanthy Boulevard—Rancho Cordova Parkway to Americanos Boulevard	Rancho Cordova	Arterial M	4	D	11,400	0.32	A	22,700	0.63	B	17,400	0.48	A	
51. Chrysanthy Boulevard—Americanos Boulevard to Grant Line Road		Arterial M	4	D	3,300	0.09	A	21,400	0.60	A	12,600	0.35	A	
52. Rancho Cordova Parkway—White Rock Road to Douglas Road		Arterial M	6	D	35,600	0.66	B	37,100	0.69	B	36,800	0.68	B	
53. Rancho Cordova Parkway—Douglas Road to Chrysanthy Boulevard		Arterial M	4	D	16,600	0.46	A	21,100	0.59	A	19,000	0.53	A	
54. Rancho Cordova Parkway—Chrysanthy Boulevard to Kiefer Boulevard	Rancho Cordova	Arterial M	4	D	13,900	0.39	A	15,200	0.42	A	15,000	0.42	A	
55. Rancho Cordova Parkway—Kiefer Boulevard to Grant Line Road		Arterial M	4	D	1,200	0.03	A	2,400	0.07	A	2,200	0.06	A	
56. Americanos Boulevard—White Rock Road to Douglas Road		Arterial M	4	D	11,600	0.32	A	18,100	0.50	A	17,900	0.50	A	
57. Americanos Boulevard—Douglas Road to Chrysanthy Boulevard	Rancho Cordova	Arterial M	4	D	8,100	0.23	A	10,700	0.30	A	9,300	0.26	A	
58. Americanos Boulevard—Chrysanthy Boulevard to Kiefer Boulevard		Arterial M	4	D	3,000	0.08	A	4,400	0.12	A	3,700	0.10	A	
59. Oak Avenue Parkway—U.S. 50 to Easton Valley Parkway		Arterial M	4	C	7,000	0.19	A	8,400	0.23	A	8,200	0.23	A	
60. Oak Avenue Parkway—Easton Valley Parkway to White Rock Road	Folsom	Arterial M	4	C	10,100	0.28	A	11,600	0.32	A	11,400	0.32	A	
61. North Loop Road—Grant Line Road to Town Center Drive		Arterial M	4	E	--	--	--	28,500	0.79	C	--	--	--	
62. North Loop Road—Town Center Drive to Street A		Arterial M	4	E	--	--	--	21,500	0.60	A	--	--	--	
63. North Loop Road—Street A to Street D	Sacramento County	Arterial M	4	E	--	--	--	14,500	0.40	A	--	--	--	
64. North Loop Road—Street D to Street F		Arterial L	4	E	--	--	--	5,500	0.18	A	--	--	--	
65. North Loop Road—Street F to University Boulevard		Residential NF	2	E	--	--	--	1,500	0.15	A	--	--	--	
66. Chrysanthy Boulevard—Grant Line Road to Town Center Drive	Sacramento County	Arterial M	4	E	--	--	--	14,000	0.39	A	--	--	--	

**Table 3.15-13
Roadway Levels of Service—Cumulative Conditions**

Roadway Segment	Jurisdiction	Facility	Lanes ¹	Policy	Cumulative No Action Alternative			Cumulative Plus Proposed Action			Cumulative Plus Pilatus Alternative			Effect ID#
					Volume	v/c	LOS	Volume	v/c	LOS	Volume	v/c	LOS	
67. University Boulevard—Grant Line Road to Town Center Drive	Sacramento County	Arterial M	4	E	--	--	--	25,200	0.70	B	--	--	--	
68. University Boulevard—Town Center Drive to Street A		Arterial M	4	E	--	--	--	12,200	0.34	A	--	--	--	
69. University Boulevard—Street A to Street C		Arterial M	2	E	--	--	--	5,800	0.32	A	--	--	--	
70. University Boulevard—Street C to Street D		Arterial M	2	E	--	--	--	4,600	0.26	A	--	--	--	
71. University Boulevard—Street D to Street E		Residential NF	2	E	--	--	--	3,900	0.39	A	--	--	--	
72. University Boulevard—Street E to North Loop Road		Residential NF	2	E	--	--	--	2,400	0.24	A	--	--	--	
73. Town Center Drive—North Loop Road to Chrysanthy Boulevard	Sacramento County	Arterial L	2	E	--	--	--	4,800	0.32	A	--	--	--	
74. Town Center Drive—Chrysanthy Boulevard to University Boulevard		Arterial L	2	E	--	--	--	2,700	0.18	A	--	--	--	
75. Street A—North Loop Road to University Boulevard	Sacramento County	Residential NF	2	E	--	--	--	5,700	0.57	A	--	--	--	
76. Street A—University Boulevard to Street B		Residential NF	2	E	--	--	--	5,100	0.51	A	--	--	--	
77. Street A—Street B to Street D		Residential NF	2	E	--	--	--	2,600	0.26	A	--	--	--	
78. Street D—North Loop Road to University Boulevard	Sacramento County	Arterial L	2	E	--	--	--	8,800	0.59	A	--	--	--	
79. Street D—University Boulevard to Street A		Residential NF	2	E	--	--	--	4,100	0.41	A	--	--	--	
80. Street E—University Boulevard to Street A	Sacramento County	Residential F	2	E	--	--	--	1,600	0.20	A	--	--	--	

Notes: Arterial M = medium access control arterial; LOS = level of service; Rural Hwy = rural highway; Rural NS = rural road with no shoulders; Rural S = rural road with shoulders; SR = State Route; U.S. 50 = U.S. Highway 50; v/c = volume-to-capacity ratio

¹ Where two values are reported for the number of lanes, the first applies to Cumulative No Project Conditions and Cumulative plus Pilatus Alternative Conditions, while the second applies to Cumulative plus Project Conditions.

Bold indicates an unacceptable LOS. **Shaded** areas indicate adverse effect.

Source: AECOM 2014

**Table 3.15-14
Freeway Segment Levels of Service—Cumulative Conditions**

Freeway Segment	Lanes			Cumulative No Action Alternative						Cumulative Plus Proposed Action						Cumulative Plus Pilatus Alternative						Effect ID#	
	ML	HOV	Aux	Weekday A.M. Peak-Hour			Weekday P.M. Peak-Hour			Weekday A.M. Peak-Hour			Weekday P.M. Peak-Hour			Weekday A.M. Peak-Hour			Weekday P.M. Peak-Hour				
				Vol.	Density ¹	LOS	Vol.	Density ¹	LOS	Vol.	Density ¹	LOS	Vol.	Density ¹	LOS	Vol.	Density ¹	LOS	Vol.	Density ¹	LOS		
Eastbound U.S. 50																							
1. Power Inn Road/Howe Avenue to Watt Avenue	4	1	1	9,010	32	D	9,890	36	E	9,090	32	D	10,120	36	E	9,160	32	D	10,330	37	E		
2. Watt Avenue to Bradshaw Road	4	1	0	9,740	65	F	10,010	65	F	9,820	66	F	10,260	65	F	9,900	68	F	10,500	65	F	3.15-1n	
3. Bradshaw Road to Mather Field Road	4	1	1	8,870	34	D	8,840	32	D	8,940	34	D	9,100	32	D	9,000	34	D	9,340	32	D		
4. Mather Field Road to Zinfandel Drive	4	1	1	8,900	36	E	10,280	49	F	8,950	37	E	10,510	53	F	9,000	37	E	10,720	57	F	3.15-1o	
5. Sunrise Boulevard to Rancho Cordova Parkway	3	1	1	7,910	53	F	9,530	137	F	8,040	56	F	9,610	149	F	8,170	59	F	9,670	161	F	3.15-1p	
Westbound U.S. 50																							
6. Rancho Cordova Parkway to Sunrise Boulevard	3	1	1	9,040	73	F	6,320	29	D	9,120	77	F	6,430	30	D	9,180	81	F	6,530	30	D	3.15-1p	
7. Zinfandel Drive to Mather Field Road	4	1	1	10,700	50	F	8,690	31	D	11,040	55	F	8,790	31	D	11,380	63	F	8,880	32	D	3.15-1o	
8. Mather Field Road to Bradshaw Road	4	1	1	9,370	54	F	8,430	37	E	9,710	56	F	8,530	37	E	10,060	56	F	8,630	37	E	3.15-1q	
9. Bradshaw Road to Watt Avenue	4	1	0	10,340	92	F	9,360	49	F	10,650	94	F	9,500	50	F	10,990	96	F	9,620	50	F	3.15-1n	
10. Watt Avenue to Power Inn Road/Howe Avenue	4	1	1	10,760	55	F	8,880	32	D	11,040	57	F	9,010	32	D	11,330	59	F	9,120	32	D	3.15-1r	

Notes: Aux = auxiliary; HOV = high-occupancy vehicle; LOS = Level of Service; ML = mainline; U.S. 50 = U.S. Highway 50
¹ Flow calculation assumes a free-flow speed of 65 miles per hour (mpg), a capacity of 2,350 passenger cars per hour pre lane (pc/h/lane), a peak-hour factor (PHF) of 0.9, a heavy vehicle factor of 0.976, and population factor of 1.0, and excludes HOV volume and capacity. Auxiliary lane capacity is based on the HCM volume-ratio (VR) methodology. Density is reported in passenger cars per mile per lane (pc/mi/lane).
Bold indicates an unacceptable LOS. **Shaded** areas indicate adverse effect.
 Source: AECOM 2014

**Table 3.15-15
 Interchange Level of Service—Cumulative Conditions**

Freeway Ramp	Lanes	Cumulative No Action Alternative				Cumulative Plus Proposed Action				Cumulative Plus Pilatus Alternative				Effect ID#
		Volume	Density ¹	v/c	LOS	Volume	Density ¹	v/c	LOS	Volume	Density ¹	v/c	LOS	
A.M. Peak-Hour														
1. U.S. 50 EB Watt Avenue Double Off	2	1,663	19	--	B	1,663	19	--	B	1,663	19	--	B	
2. U.S. 50 EB Watt Avenue Loop On	1	1,768	41	--	E	1,772	42	--	E	1,772	42	--	E	
3. U.S. 50 EB Watt Avenue Slip-On	1	924	38	--	F	924	38	--	F	924	38	--	F	
4. U.S. 50 WB Watt Avenue Double Off	2	1,739	21	--	F	1,782	22	--	F	1,795	22	--	F	3.15-1s
5. U.S. 50 WB Watt Avenue Loop On	1	747	45	--	E	747	46	--	E	747	46	--	E	
6. U.S. 50 WB Watt Avenue Slip-On to Auxiliary	1	1,706	--	0.97	E	1,710	--	0.97	E	1,710	--	0.97	E	
P.M. Peak-Hour														
1. U.S.50 EB Watt Avenue Double Off	2	2,020	24	--	C	2,020	25	--	C	2,020	25	--	C	
2. U.S. 50 EB Watt Avenue Loop On	1	1,173	44	--	E	1,195	45	--	E	1,193	45	--	E	
3. U.S. 50 EB Watt Avenue Slip-On	1	691	38	--	F	691	39	--	F	691	39	--	F	
4. U.S. 50 WB Watt Avenue Double Off	2	2,021	21	--	C	2,035	22	--	C	2,034	22	--	C	
5. U.S. 50 WB Watt Avenue Loop On	1	715	41	--	E	715	41	--	E	715	41	--	E	
6. U.S. 50 WB Watt Avenue Slip-On to Auxiliary	1	915	--	0.52	C	916	--	0.52	C	916	--	0.52	C	
Notes: EB = eastbound; LOS = Level of Service; U.S. 50 = U.S. Highway 50; v/c = volume-to-capacity; WB = westbound														
Bold indicates an unacceptable LOS. Shaded areas indicate adverse effect.														
Source: AECOM 2014														

Timing: Before approval of grading plans and building permits of all phases.

Enforcement: Sacramento County Department of Transportation and City of Rancho Cordova Department of Public Works.

Implementation of Mitigation Measure 3.15-1a would reduce the potentially significant adverse effect associated with unacceptable traffic operations at the intersection of Sunrise Boulevard/Grant Line Road for the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives under Cumulative (2035) Conditions to a less-than-significant level, by improving operations at this intersection to an acceptable LOS E or better. However, the identified improvements fall under the jurisdiction of the City of Rancho Cordova and Sacramento County; therefore, neither the USACE nor the project applicant would have control over their timing or implementation. Additionally, as lead agency under CEQA, Sacramento County would not have control over the timing or implementation of improvements outside of the County's jurisdiction (i.e., within the City of Rancho Cordova). No other mitigation measures were identified to further reduce effects. Thus, this adverse effect would remain **potentially significant and unavoidable**.

City of Rancho Cordova Intersections

EFFECT 3.15-1b Unacceptable LOS at the Intersection of Zinfandel Drive/White Rock Road under Cumulative (2035) Conditions. *This intersection would degrade to an unacceptable LOS with the addition of traffic from the Proposed Action or Alternatives during the A.M. peak-hour under Cumulative (2035) Conditions.*

PA, EDP, EP, P, RC

This intersection would degrade from an acceptable LOS D without traffic from the Proposed Action or the Alternatives to an unacceptable LOS F with the addition of traffic from the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives. Therefore, this **indirect** adverse effect related to traffic operations at the Zinfandel Drive/White Rock Road intersection is considered **significant**. No **direct** adverse effects would result. *[Similar]*

Mitigation Measure 3.15-1b: Pay a Fair Share for Improvements to the Zinfandel Drive/White Rock Road Intersection.

Improvements must be made to improve LOS at the Zinfandel Drive/White Rock Road intersection. The project applicant shall pay its fair share for the conversion of the dual northbound left-turn lanes to an exclusive northbound through lane, or implement partial grade separation.

Implementation: Project applicant.

Timing: Before approval of grading plans and building permits of all phases.

Enforcement: City of Rancho Cordova Department of Public Works.

Implementation of Mitigation Measure 3.15-1b would reduce the potentially significant effect associated with unacceptable traffic operations at the intersection of Zinfandel/White Rock Road for the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives under Cumulative (2035) Conditions to a less-than-significant level, by improving operations at this intersection to an

acceptable LOS D or better. However, the identified improvements fall under the jurisdiction of the City of Rancho Cordova; therefore, neither the USACE nor the project applicant would have control over their timing or implementation. Additionally, as lead agency under CEQA, Sacramento County would not have control over the timing or implementation of improvements outside of the County's jurisdiction (i.e., within the City of Rancho Cordova). No mitigation measures were identified to further reduce effects. Thus, this adverse effect would remain **potentially significant and unavoidable**. This impact conclusion differs from the EIR because of the differences in the models (2008 SACOG model in the EIR analysis and 2012 SACOG model with foreseeable projects in this EIS). The EIR identified a significant impact, and imposed a mitigation measure requiring a fair-share contribution to construct dual right-turn lanes on the westbound approach to the intersection, reducing the effect to a less-than-significant level. That EIR mitigation measure was not included in the roadway network for the EIS because the project applicant would provide a fair-share contribution (rather than constructing the improvement). However, the modeling conducted for the EIS does not indicate the need for this EIR mitigation measure.

EFFECT Unacceptable LOS at the Intersection of Sunrise Boulevard/Douglas Road under Cumulative (2035)
3.15-1c Conditions. *This intersection would degrade to an unacceptable LOS with the addition of project-related traffic during both the A.M. and P.M. peak hours under Cumulative (2035) Conditions.*

PA, EDP, EP, RC

This intersection would operate at an unacceptable level for the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives.

As part of the CEQA EIR certification and project approval process, the project applicant committed to implementing various mitigation measures for the Proposed Action. Because these mitigation measures were incorporated into the Proposed Action, it is reasonable to assume that they would also be incorporated into the four action alternatives, if any of those alternatives were adopted. The mitigation measures that are applicable to this effect that were incorporated into the Proposed Action by the project entitlements are listed below:

- ▶ Sunrise Boulevard and Douglas Road – Provide overlap phasing on the eastbound and westbound right turns. (*Final EIR Mitigation Measure TR-9*).

Because Final EIR Mitigation Measure TR-9 has been incorporated into the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives, this intersection would operate at an acceptable level and this **indirect** adverse effect related to traffic operations at the Grant Line Road/ University Boulevard intersection is considered **less-than-significant**. **No direct** adverse effects would result. No other mitigation measures were identified to further reduce effects.

P

This intersection would degrade from an acceptable LOS D without traffic from the Proposed Action or the Alternatives to an unacceptable LOS E with the addition of traffic from the Pilatus Alternative during both the A.M. and P.M. peak hours. Therefore, this **indirect** adverse effect related to traffic operations at the Sunrise Boulevard/Douglas Road intersection is considered **significant**. **No direct** adverse effects would result. [*Greater*]

As part of the CEQA EIR certification and project approval process, various mitigation measures were incorporated into the project entitlements. Because these mitigation measures were incorporated into the Proposed Action, it is reasonable to assume that they would also be incorporated into the four action alternatives, if any of those alternatives were adopted. The mitigation measures that are applicable to this effect that were incorporated into the Proposed Action by the project entitlements are listed below:

- ▶ Sunrise Boulevard and Douglas Road – Provide overlap phasing on the eastbound and westbound right turns. (*Final EIR Mitigation Measure TR-9*).

In addition to the mitigation measures from the CEQA EIR, the project applicant shall also implement the mitigation measure listed below.

Mitigation Measure 3.15-1c: Pay a Fair Share for Improvements to the Sunrise Boulevard/Douglas Road Intersection.

The project applicant shall pay a fair share for adding a third through lane to the westbound approach (resulting in two left-turn lanes, three through lanes, and one right-turn lane on the westbound approach) or for implementing partial grade separation.

Implementation: Project applicant.

Timing: Before approval of grading plans and building permits of all phases.

Enforcement: Sacramento County Department of Transportation and City of Rancho Cordova Department of Public Works.

Implementation of Final EIR Mitigation Measure TR-9 and Mitigation Measure 3.15-1c would reduce the potentially significant effect associated with unacceptable traffic operations at the intersection of Sunrise Boulevard/Douglas Road for the Pilatus Alternative under Cumulative (2035) Conditions to a less-than-significant level, by improving operations at this intersection to an acceptable LOS D or better. However, the identified improvements fall under the jurisdiction of the City of Rancho Cordova; therefore, neither the USACE nor the project applicant would have control over their timing or implementation. Additionally, as lead agency under CEQA, Sacramento County would not have control over the timing or implementation of improvements outside of the County’s jurisdiction (i.e., within the City of Rancho Cordova). No mitigation measures were identified to further reduce effects. Thus, this adverse effect would remain **potentially significant and unavoidable**.

EFFECT 3.15-1d	Unacceptable LOS at the intersection of Grant Line Road/Douglas Road under Cumulative (2035) Conditions. <i>This intersection would degrade to an unacceptable LOS with the addition of traffic from the Proposed Action or the Alternatives during both the A.M. and P.M. peak hours under Cumulative (2035) Conditions.</i>
-------------------	---

PA, EDP, EP, RC

This intersection would operate at an acceptable level for the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives. As part of the CEQA EIR certification and project approval process, the project applicant committed to implementing various mitigation measures for the

Proposed Action. Because these mitigation measures were incorporated into the Proposed Action, it is reasonable to assume that they would also be incorporated into the four action alternatives, if any of those alternatives were adopted. The mitigation measures that are applicable to this effect that were incorporated into the Proposed Action by the project entitlements are listed below:

- ▶ Grant Line Road and Douglas Road – Provide a third southbound through lane and overlap phasing on the eastbound right turn lane. To be consistent with the segment mitigations a third northbound through lane is included. (*Final EIR Mitigation Measure TR-9*).

Because Final EIR Mitigation Measure TR-9 has been incorporated into the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives, this intersection would operate at an acceptable level and this **indirect** adverse effect related to traffic operations at the Grant Line Road/University Boulevard intersection is considered **less-than-significant**. **No direct** adverse effects would result. No other mitigation measures were identified to further reduce effects.

P

This intersection would degrade from an acceptable LOS A without project-related traffic to an unacceptable LOS F with the addition of traffic from the Pilatus Alternative during both the A.M. and P.M. peak hours. Therefore, this **indirect** adverse effect related to traffic operations at the Grant Line Road/Douglas Road intersection is considered **significant**. **No direct** adverse effects would result. [*Greater*]

As part of the CEQA EIR certification and project approval process, various mitigation measures were incorporated into the project entitlements. Because these mitigation measures were incorporated into the Proposed Action, it is reasonable to assume that they would also be incorporated into the four action alternatives, if any of those alternatives were adopted. The mitigation measures that are applicable to this effect that were incorporated into the Proposed Action by the project entitlements are listed below:

- ▶ Grant Line Road and Douglas Road – Provide a third southbound through lane and overlap phasing on the eastbound right turn lane. To be consistent with the segment mitigations a third northbound through lane is included. (*Final EIR Mitigation Measure TR-9*).

In addition to the mitigation measures from the CEQA EIR, the project applicant shall also implement the mitigation measure listed below.

Mitigation Measure 3.15-1d: Pay a Fair Share for Improvements to the Grant Line Road/Douglas Road Intersection.

The project applicant shall pay a fair share for the addition of a second right-turn lane to the eastbound approach, creating dual right-turn lanes.

Implementation: Project applicant.

Timing: Before approval of grading plans and building permits of all phases.

Enforcement: Sacramento County Department of Transportation and City of Rancho Cordova
Department of Public Works

Implementation of Final EIR Mitigation Measure TR-9 and Mitigation Measure 3.15-1d would reduce the potentially significant effect associated with unacceptable traffic operations at the intersection of Grant Line Road/Douglas Road for the Pilatus Alternative under Cumulative (2035) Conditions to a less-than-significant level, by improving operations at this intersection to an acceptable LOS D or better. The identified improvements fall under the jurisdiction of the City of Rancho Cordova and Sacramento County; therefore, neither the USACE nor the project applicant would have control over their timing or implementation. Additionally, as lead agency under CEQA, Sacramento County would not have control over the timing or implementation of improvements outside of the County's jurisdiction (i.e., within the City of Rancho Cordova). No other mitigation measures were identified to further reduce effects. Thus, this adverse effect would remain **potentially significant and unavoidable**.

EFFECT **Unacceptable LOS at the intersection of Grant Line Road/North Loop Road under Cumulative (2035)**
3.15-1e **Conditions.** *This intersection would operate an unacceptable LOS during the P.M. peak hour under Cumulative (2035) Conditions.*

PA, EP, EDP, RC

This intersection would operate at an unacceptable LOS E under the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives during the P.M. peak-hour.

As part of the CEQA EIR certification and project approval process, the project applicant committed to implementing various mitigation measures for the Proposed Action. Because these mitigation measures were incorporated into the Proposed Action, it is reasonable to assume that they would also be incorporated into the four action alternatives, if any of those alternatives were adopted. The mitigation measures that are applicable to this effect that were incorporated into the Proposed Action by the project entitlements are listed below:

- ▶ Grant Line Road and North Loop Road – Provide a westbound free right-turn lane. Also an extra northbound departure lane is needed for the westbound free-right movement. (*Final EIR Mitigation Measure TR-9*).

In addition to the mitigation measures from the CEQA EIR, the project applicant shall also implement the mitigation measure listed below.

Mitigation Measure 3.15-1e: Pay Fair Share for Improvements to the Grant Line Road/North Loop Road Intersection.

Improvements must be made to improve LOS at the Grant Line Road/North Loop Road intersection. Therefore, the project applicant shall pay a fair share contribution to construct an auxiliary lane to permit right-turning traffic from westbound North Loop Road to accelerate prior to merging with northbound traffic on Grant Line Road.

Implementation: Project applicant.

Timing: Before approval of grading plans and building permits of all phases.

Enforcement: Sacramento County Department of Transportation and City of Rancho Cordova Department of Public Works.

Implementation of Final EIR Mitigation Measure TR-9 and Mitigation Measure 3.15-1e would reduce the potentially significant effect associated with unacceptable traffic operations at the intersection of Grant Line Road/North Loop Road for the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives under Cumulative (2035) Conditions to a less-than-significant level, by improving operations at this intersection to an acceptable LOS D or better. However, the identified improvements fall under the jurisdiction of the City of Rancho Cordova and Sacramento County; therefore, neither the USACE nor the project applicant would have control over their timing or implementation. Additionally, as lead agency under CEQA, Sacramento County would not have control over the timing or implementation of improvements outside of the County's jurisdiction (i.e., within the City of Rancho Cordova). No other mitigation measures were identified to further reduce effects. Thus, this adverse effect would remain **potentially significant and unavoidable**. This effect conclusion differs from the EIR because of the differences in the models (2008 SACOG model in the EIR analysis and 2012 SACOG model with foreseeable projects in this EIS). The EIR found a less-than-significant effect for this intersection.

P

This intersection would operate at an unacceptable LOS E under the Pilatus Alternative during the P.M. peak-hour. Therefore, this **indirect** adverse effect related to traffic operations at the Grant Line Road/North Loop Road intersection is considered **significant**. **No direct** adverse effects would result. *[Greater]*

As part of the CEQA EIR certification and project approval process, various mitigation measures were incorporated into the project entitlements. Because these mitigation measures were incorporated into the Proposed Action, it is reasonable to assume that they would also be incorporated into the four action alternatives, if any of those alternatives were adopted. The mitigation measures that are applicable to this effect that were incorporated into the Proposed Action by the project entitlements are listed below:

- ▶ Grant Line Road and North Loop Road – Provide a westbound free right-turn lane. Also an extra northbound departure lane is needed for the westbound free-right movement. (*Final EIR Mitigation Measure TR-9*).

In addition to the mitigation measures from the CEQA EIR, the project applicant shall also implement the mitigation measure listed below.

Mitigation Measure: Implement Mitigation Measure 3.15-1e.

Implementation of Final EIR Mitigation Measure TR-9 and Mitigation Measure 3.15-1e would reduce the potentially significant effect associated with unacceptable traffic operations at the intersection of Grant Line Road/North Loop Road for the Pilatus Alternative under Cumulative (2035) Conditions to a less-than-significant level, by improving operations at this intersection to an acceptable LOS D or better. However, the identified improvements fall under the jurisdiction of the City of Rancho Cordova and Sacramento County; therefore, neither the USACE nor the project applicant would have control over their timing or implementation. Additionally, as lead agency under CEQA, Sacramento County would not have control over the timing or implementation of improvements outside of the County's jurisdiction (i.e., within the City of Rancho Cordova). No other mitigation measures were identified to further reduce effects. Thus, this adverse effect would remain **potentially significant and unavoidable**.

EFFECT 3.15-1f Unacceptable LOS at the Intersection of Grant Line Road/University Boulevard under Cumulative (2035) Conditions. *This intersection would operate at an unacceptable LOS during both the A.M. and P.M. peak hours under Cumulative (2035) Conditions.*

PA, EDP, EP, RC

This intersection would operate at an unacceptable level during both the A.M. and P.M. peak hours for the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives.

As part of the CEQA EIR certification and project approval process, the project applicant committed to implementing various mitigation measures for the Proposed Action. Because these mitigation measures were incorporated into the Proposed Action, it is reasonable to assume that they would also be incorporated into the four action alternatives, if any of those alternatives were adopted. The mitigation measures that are applicable to this effect that were incorporated into the Proposed Action by the project entitlements are listed below:

- ▶ Grant Line Road and University Boulevard – Provide a northbound free-right turn lane. Also an extra departure lane is needed for the northbound free-right turn movement. (*Final EIR Mitigation Measure TR-9*).

Because Mitigation Measure TR-9 has been incorporated into the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives, the intersection would operate at an acceptable level and therefore this **indirect** adverse effect related to traffic operations at the Grant Line Road/University Boulevard intersection is considered **less-than-significant**. **No direct** adverse effects would result. No other mitigation measures were identified to further reduce adverse effects.

P

The intersection would operate at an unacceptable LOS F with the addition of the traffic from the Pilatus Alternative during both the A.M. and P.M. peak hours. Therefore, this **indirect** adverse effect related to traffic operations at the Grant Line Road/University Boulevard intersection is considered **significant**. **No direct** adverse effects would result. [*Greater*]

As part of the CEQA EIR certification and project approval process, various mitigation measures were incorporated into the project entitlements. Because these mitigation measures were incorporated into the Proposed Action, it is reasonable to assume that they would also be incorporated into the four action alternatives, if any of those alternatives were adopted. The mitigation measures that are applicable to this effect that were incorporated into the Proposed Action by the project entitlements are listed below:

- ▶ Grant Line Road and University Boulevard – Provide a northbound free-right turn lane. Also an extra departure lane is needed for the northbound free-right turn movement. (*Final EIR Mitigation Measure TR-9*).

In addition to the mitigation measures from the CEQA EIR, the project applicant shall also implement the mitigation measure listed below.

Mitigation Measure 3.15-1f: Pay a Fair Share for Improvements to the Grant Line Road/University Boulevard Intersection.

The project applicant shall pay a fair share contribution to provide a westbound free-right turn lane and an additional northbound departure lane to accommodate the westbound free-right movement.

Implementation: Project applicant.

Timing: Before approval of grading plans and building permits of all phases.

Enforcement: Sacramento County Department of Transportation City of Rancho Cordova
Department of Public Works.

Implementation of Final EIR Mitigation Measure TR-9 and Mitigation Measure 3.15-1f would reduce the potentially significant adverse effect associated with unacceptable traffic operations at the intersection of Grant Line Road/University Boulevard for the Pilatus Alternative under Cumulative (2035) Conditions to a less-than-significant level, by improving operations at this intersection to an acceptable LOS D or better. However, the identified improvements fall under the jurisdiction of the city of Rancho Cordova and Sacramento County; therefore, neither the USACE nor the project applicant would have control over their timing or implementation. Additionally, as lead agency under CEQA, Sacramento County would not have control over the timing or implementation of improvements outside of the County's jurisdiction (i.e., within the City of Rancho Cordova). No other mitigation measures were identified to further reduce adverse effects. Thus, this adverse effect would remain **potentially significant and unavoidable**.

EFFECT 3.15-1g **Unacceptable LOS at the Intersection of Zinfandel Drive/International Drive under Cumulative (2035) Conditions.** *This intersection would operate at an unacceptable LOS during both the A.M. and P.M. peak hours under Cumulative (2035) Conditions. In addition, operations at this intersection would deteriorate, with the v/c ratio increasing by more than 0.05 during the P.M. peak hour. Under Cumulative (2035) Conditions, this intersection would degrade to an unacceptable LOS with the addition of traffic from the Proposed Action and Alternatives during the A.M. peak hour. During the P.M. peak hour, the intersection would operate at an unacceptable LOS, and the Proposed Action and Alternatives would cause operations at this intersection to deteriorate, with the v/c ratio increasing by more than 0.05.*

PA, EDP, EP, P, RC

During the A.M. peak-hour, this intersection would degrade from an acceptable LOS D without traffic from the Proposed Action or the Alternatives to an unacceptable LOS E with the addition of traffic from the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives. During the P.M. peak-hour, this intersection would operate an unacceptable LOS F with and without traffic from the Proposed Action or the Alternatives, but the volume-to capacity ratio would increase by 0.05 or more with the addition of traffic from the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation, Alternatives. Therefore, this **indirect** adverse effect related to traffic operations at the Zinfandel Drive/International Drive intersection is considered **significant**. **No direct** adverse effects would result. *[Similar]*

No feasible mitigation is available to reduce this effect to a less-than-significant level without providing four through lanes, which would be inconsistent with the Rancho Cordova General Plan. These improvements may also be infeasible due to geometric, physical, and/or environmental constraints. Thus, this adverse effect would remain **potentially significant and unavoidable**.

EFFECT **Unacceptable LOS at the Intersection of Sunrise Boulevard/International Drive under Cumulative**
3.15-1h **(2035) Conditions.** *This intersection would operate at an unacceptable LOS during the A.M. peak-hour under Cumulative (2035) Conditions. In addition, operations at this intersection would deteriorate with the addition of traffic from the Proposed Action or the Alternatives such that the v/c ratio would increase by more than 0.05 during the A.M. peak-hour.*

PA, EDP, EP, RC

This intersection would operate an unacceptable LOS E without traffic from the Proposed Action or the Alternatives during the A.M. peak-hour. With the addition of this traffic, the v/c ratio would increase by 0.05 or more under the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives during the A.M. peak-hour. Therefore, this **indirect** adverse effect related to traffic operations at the Sunrise Boulevard/International Drive intersection is considered **significant**. **No direct** adverse effects would result. *[Similar]*

Mitigation Measure 3.15-1h1: Pay a Fair Share for Improvements to the Sunrise Boulevard/International Drive Intersection.

Improvements must be made to improve LOS at the Sunrise Boulevard/International Drive intersection. Therefore, the project applicant shall pay a fair share contribution to create an overlap phase for the southbound right-turn lane.

Implementation: Project applicant.

Timing: Before approval of grading plans and building permits of all phases.

Enforcement: City of Rancho Cordova Department of Public Works.

Implementation of Mitigation Measure 3.15-1h1 would reduce the potentially significant adverse effect associated with unacceptable traffic operations at the intersection of Sunrise Boulevard/International Drive for the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives under Cumulative (2035) Conditions to a less-than-significant level, by improving operations at this intersection to an acceptable LOS D or better. However, the identified improvements fall under the jurisdiction of the City of Rancho Cordova; therefore, neither the USACE nor the project applicant would have control over their timing or implementation. Additionally, as lead agency under CEQA, Sacramento County would not have control over the timing or implementation of improvements outside of the County's jurisdiction (i.e., within the City of Rancho Cordova). No other mitigation measures were identified to further reduce effects. Thus, this adverse effect would remain **potentially significant and unavoidable**.

This intersection would operate an unacceptable LOS E without traffic from the Pilatus Alternative during the A.M. peak-hour. With the addition of this traffic, the volume-to capacity ratio would increase by 0.05 or more under the Pilatus, Alternative during the A.M. peak-hour. Therefore, this **indirect** adverse effect related to traffic operations at the Sunrise Boulevard/International Drive intersection is considered **significant**. **No direct** adverse effects would result. [*Greater*]

Mitigation Measure 3.15-1h2: Pay a Fair Share for Improvements to the Sunrise Boulevard/International Drive Intersection.

Improvements must be made to improve LOS at the Sunrise Boulevard/International Drive intersection. Therefore, the project applicant shall pay a fair share contribution to create overlap phases for the southbound right-turn lane and westbound right-turn lane.

Implementation: Project applicant.

Timing: Before approval of grading plans and building permits of all phases.

Enforcement: Sacramento County Department of Transportation and City of Rancho Cordova Department of Public Works.

Implementation of Mitigation Measure 3.15-1h2 would reduce the potentially significant adverse effect associated with unacceptable traffic operations at the intersection of Sunrise Boulevard/International Drive for the Pilatus Alternative under Cumulative (2035) Conditions to a less-than-significant level, by improving operations at this intersection to an acceptable LOS D or better. However, the identified improvements fall under the jurisdiction of the city of Rancho Cordova and Sacramento County; therefore, neither the USACE nor the project applicant would have control over their timing or implementation. Additionally, as lead agency under CEQA, Sacramento County would not have control over the timing or implementation of improvements outside of the County's jurisdiction (i.e., within the City of Rancho Cordova). No other mitigation measures were identified to further reduce effects. Thus, this adverse effect would remain **potentially significant and unavoidable**.

Roadway Segments

Sacramento County Roadway Segments

EFFECT 3.15-1i	Unacceptable LOS on Jackson Road/SR 16 between Watt Avenue and Bradshaw Road under Cumulative (2035) Conditions. <i>This roadway segment would operate at an unacceptable LOS under Cumulative (2035) Conditions. In addition, operations on this roadway segment would deteriorate with the addition of traffic from the Proposed Action or the Alternatives such that the v/c ratio would increase by more than 0.05.</i>
-------------------	---

PA, EDP, EP, P, RC

This roadway segment would operate an unacceptable LOS without traffic from the Proposed Action or the Alternatives. With the addition of this traffic, the v/c ratio would increase by 0.05 or more under the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation

Alternatives. Therefore, this **indirect** adverse effect related to traffic operations on Jackson Road/SR 16 between Watt Avenue and Bradshaw Road is considered **significant**. **No direct** adverse effects would result. *[Similar]*

Mitigation Measure 3.15-1i: Pay a Fair Share for Improvements to Jackson Road/SR 16 between Watt Avenue and Bradshaw Road.

Improvements must be made to improve LOS on Jackson Road/SR 16 between Watt Avenue and Bradshaw Road. Therefore, the project applicant shall pay a fair share contribution to widen this roadway segment to six lanes or provide additional parallel roadway capacity improvements.

Implementation: Project applicant.

Timing: Before approval of grading plans and building permits of all phases.

Enforcement: City of Rancho Cordova Department of Public Works and Sacramento County Department of Transportation.

Implementation of Mitigation Measure 3.15-1i would reduce the potentially significant adverse effect associated with unacceptable traffic operations along the roadway segment of Jackson Road/SR 16 between Watt Avenue and Bradshaw Road for the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives under Cumulative (2035) Conditions to a less-than-significant level, by improving operations at this roadway segment to an acceptable LOS D or better. However, the improvements may be infeasible due to geometric, physical, and/or environmental constraints. The identified improvements fall under the jurisdiction of Sacramento County; therefore, neither the USACE nor the project applicant would have control over their timing or implementation. Additionally, as lead agency under CEQA, Sacramento County would not have control over the timing or implementation of improvements outside of the County's jurisdiction (i.e., within the City of Rancho Cordova). No other mitigation measures were identified to further reduce effects. Thus, this adverse effect would remain **potentially significant and unavoidable**. This effect conclusion differs from the EIR because of the differences in the models (2008 SACOG model in the EIR analysis and 2012 SACOG model with foreseeable projects in this EIS). The EIR found a less-than-significant effect for this roadway segment.

City of Rancho Cordova Roadway Segments

EFFECT 3.15-1j Unacceptable LOS on Sunrise Boulevard between U.S. 50 and Folsom Boulevard under Cumulative (2035) Conditions. *This roadway segment would operate at an unacceptable LOS under Cumulative (2035) Conditions. In addition, operations at this roadway segment would deteriorate with the addition of traffic from the Proposed Action or the Alternatives such that the v/c ratio would increase by more than 0.05.*

PA, EDP, EP, P, RC

This roadway segment would operate an unacceptable LOS F without traffic from the Proposed Action or the Alternatives. With the addition of this traffic, the volume-to capacity ratio would increase by 0.05 or more under the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives. Therefore, this **indirect** adverse effect related to traffic operations on Sunrise

Boulevard between U.S. 50 and Folsom Boulevard is considered **significant**. **No direct** adverse effects would result. *[Similar]*

No feasible mitigation is available to reduce this effect to a less-than-significant level without providing four through lanes, which would be inconsistent with the Rancho Cordova General Plan. These improvements may also be infeasible due to geometric, physical, and/or environmental constraints. Thus, this adverse effect would remain **potentially significant and unavoidable**.

EFFECT **Unacceptable LOS on Sunrise Boulevard between Folsom Boulevard and White Rock Road under Cumulative (2035) Conditions.** *This roadway segment would operate at an unacceptable LOS under Cumulative (2035) Conditions. In addition, operations at this roadway segment would deteriorate with the addition of traffic from the Proposed Action or the Alternatives such that the v/c ratio would increase by more than 0.05.*

3.15-1k

PA, EDP, EP, P, RC

This roadway segment would operate an unacceptable LOS E without traffic from the Proposed Action or the Alternatives. With the addition of this traffic, the v/c ratio would increase by 0.05 or more under the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives. Therefore, this **indirect** adverse effect related to traffic operations on Sunrise Boulevard between Folsom Boulevard and White Rock Road is considered **significant**. **No direct** adverse effects would result. *[Similar]*

No feasible mitigation is available to reduce this significant effect to a less-than-significant level without providing four through lanes, which would be inconsistent with the Rancho Cordova General Plan. These improvements may also be infeasible due to geometric, physical, and/or environmental constraints. Thus, this adverse effect would remain **potentially significant and unavoidable**.

EFFECT **Unacceptable LOS on Zinfandel Drive between U.S. 50 and White Rock Road under Cumulative (2035) Conditions.** *This roadway segment would operate at an unacceptable LOS under Cumulative (2035) Conditions. In addition, operations at this roadway segment would deteriorate with the addition of traffic from the Proposed Action or the Alternatives such that the v/c ratio would increase by more than 0.05.*

3.15-1l

PA, EDP, EP, P, RC

This roadway segment would operate an unacceptable LOS F without traffic from the Proposed Action or the Alternatives. With the addition of this traffic, the v/c ratio would increase by 0.05 or more under the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives. Therefore, this **indirect** adverse effect related to traffic operations on Sunrise Boulevard between U.S. 50 and White Rock Road is considered **significant**. **No direct** effects would result. *[Similar]*

No feasible mitigation is available to reduce this effect to a less-than-significant level without providing four through lanes, which would be inconsistent with the Rancho Cordova General Plan. These improvements may

also be infeasible due to geometric, physical, and/or environmental constraints. Thus, this adverse effect would remain **potentially significant and unavoidable**.

EFFECT Unacceptable LOS on Zinfandel Drive between International Drive and Douglas Road under
3.15-1m Cumulative (2035) Conditions. *This roadway segment would operate at an unacceptable LOS under Cumulative (2035) Conditions with the addition of traffic from the Proposed Action or the Alternatives.*

PA, EDP, EP, P, RC

This roadway segment would deteriorate from an acceptable LOS D to an unacceptable LOS E with the addition of traffic from the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives. Therefore, this **indirect** adverse effect related to traffic operations on Zinfandel Drive between International Drive and Douglas Road is considered **significant**. **No direct** adverse effects would result. *[Similar]*

No feasible mitigation is available to reduce this significant effect to a less-than-significant level without providing four through lanes, which would be inconsistent with the Rancho Cordova General Plan. These improvements may also be infeasible due to geometric, physical, and/or environmental constraints. Thus, this adverse effect would remain **potentially significant and unavoidable**.

Freeway Mainline

EFFECT Unacceptable LOS on Eastbound and Westbound U.S. 50 between Watt Avenue and Bradshaw Road
3.15-1n under Cumulative (2035) Conditions. *This freeway segment would operate at an unacceptable LOS with the addition of traffic from the Proposed Action or the Alternatives under Cumulative (2035) Conditions. In addition, the Proposed Action or the Alternatives would increase traffic on this freeway segment under Cumulative (2035) Conditions.*

PA, EDP, EP, P, RC

Both the eastbound and westbound directions of U.S. 50 from Watt Avenue to Bradshaw Road would operate at an unacceptable LOS F without traffic from the Proposed Action or the Alternatives during both the A.M. and P.M. peak hours. The addition of traffic from the Proposed Action or the Alternatives would contribute to this unacceptable LOS under the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives. Therefore, this **indirect** adverse effect related to traffic operations on Eastbound and Westbound U.S. 50 between Watt Avenue and Bradshaw Road is considered **significant**. **No direct** adverse effects would result. *[Similar]*

Caltrans currently has no plans to expand the segments beyond the build-out capacities assumed in this analysis, nor are any funding mechanisms established to collect money to fund such improvements. No feasible mitigation exists to offset effects to freeway segments. USACE does not have the authority to enforce any mitigation measures to reduce this effect. No mitigation measures were identified to further reduce effects. Thus, this adverse effect would remain **potentially significant and unavoidable**. This effect conclusion differs from the EIR because of the differences in the models (2008 SACOG model in the EIR analysis and 2012 SACOG model with foreseeable projects in this EIS). The EIR found a less-than-significant effect for this roadway segment.

EFFECT 3.15-1o **Unacceptable LOS on Eastbound and Westbound U.S. 50 between Mather Field Road and Zinfandel Drive under Cumulative (2035) Conditions.** *This freeway segment would operate at an unacceptable LOS with the addition of traffic from the Proposed Action or the Alternatives under Cumulative (2035) Conditions. In addition, the project would increase traffic on this freeway segment under Cumulative (2035) Conditions.*

PA, EDP, EP, P, RC

Both the eastbound and westbound directions of U.S. 50 between Mather Field Road and Zinfandel Drive would operate at an unacceptable LOS F without traffic from the Proposed Action or the Alternatives during the p.m. peak-hour. The addition of this traffic would contribute to the unacceptable LOS under the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives. Therefore, this **indirect** adverse effect related to traffic operations on Eastbound and Westbound U.S. 50 between Sunrise Boulevard and Rancho Cordova Parkway is considered **significant**. **No direct** adverse effects would result. *[Similar]*

Caltrans currently has no plans to expand the segments beyond the build-out capacities assumed in this analysis, nor are any funding mechanisms established to collect money to fund such improvements. USACE does not have the authority to enforce any mitigation measures to reduce this effect. No feasible mitigation exists to offset effects to freeway segments. No mitigation measures were identified to further reduce effects. Thus, this adverse effect would remain **potentially significant and unavoidable**. This effect conclusion differs from the EIR because of the differences in the models (2008 SACOG model in the EIR analysis and 2012 SACOG model with foreseeable projects in this EIS). The EIR found a less-than-significant effect for this roadway segment.

EFFECT 3.15-1p **Unacceptable LOS on Eastbound and Westbound U.S. 50 between Sunrise Boulevard and Rancho Cordova Parkway under Cumulative (2035) Conditions.** *This freeway segment would operate at an unacceptable LOS with the addition of traffic from the Proposed Action or the Alternatives under Cumulative (2035) Conditions. In addition, the Proposed Action or the Alternatives would increase traffic on this freeway segment under Cumulative (2035) Conditions.*

PA, EDP, EP, P, RC

Both the eastbound and westbound freeway directions of U.S. 50 between Sunrise Boulevard and Rancho Cordova Parkway would operate at an unacceptable LOS F without traffic from the Proposed Action or the Alternatives during the A.M. and/or P.M. peak hours. The addition of traffic from the Proposed Action or the Alternatives would contribute to this unacceptable LOS under the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives. Therefore, this **indirect** adverse effect related to traffic operations on Eastbound and Westbound U.S. 50 between Sunrise Boulevard and Rancho Cordova Parkway is considered **significant**. **No direct** adverse effects would result. *[Similar]*

Caltrans currently has no plans to expand the segments beyond the buildout capacities assumed in this analysis, nor are any funding mechanisms established to collect money to fund such improvements. No feasible mitigation exists to offset effects to freeway segments. No mitigation measures were identified to further reduce effects. Thus, this adverse effect would remain **potentially significant and unavoidable**.

EFFECT 3.15-1q Unacceptable LOS on Westbound U.S. 50 from Mather Field Road to Bradshaw Road under Cumulative (2035) Conditions. *This freeway segment would operate at an unacceptable LOS with the addition of traffic from the Proposed Action or the Alternatives under Cumulative (2035) Conditions. In addition, the Proposed Action or the Alternatives would increase traffic on this freeway segment under Cumulative (2035) Conditions.*

PA, EDP, EP, P, RC

The westbound direction of U.S. 50 from Mather Field Road to Bradshaw Road would operate at an unacceptable LOS F without traffic from the Proposed Action or the Alternatives during the A.M. peak-hour. The addition of this traffic would contribute to this unacceptable LOS under the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives. Therefore, this **indirect** adverse effect related to traffic operations on Westbound U.S. 50 from Mather Field Road to Bradshaw Road is considered **significant**. **No direct** adverse effects would result. *[Similar]*

Caltrans currently has no plans to expand the segments beyond the build-out capacities assumed in this analysis, nor are any funding mechanisms established to collect money to fund such improvements. No feasible mitigation exists to offset effects to freeway segments. No mitigation measures were identified to further reduce effects. Thus, this adverse effect would remain **potentially significant and unavoidable**.

EFFECT 3.15-1r Unacceptable LOS on Westbound U.S. 50 from Watt Avenue to Power Inn Road/Howe Avenue under Cumulative (2035) Conditions. *This freeway segment would operate at an unacceptable LOS with the addition of traffic from the Proposed Action or the Alternatives under Cumulative (2035) Conditions. In addition, the Proposed Action or the Alternatives would increase traffic on this freeway segment under Cumulative (2035) Conditions.*

PA, EDP, EP, P, RC

The westbound direction of U.S. 50 from Watt Avenue to Power Inn Road/Howe Avenue would operate at an unacceptable LOS F without traffic from the Proposed Action or the Alternatives during the A.M. peak-hour. The addition of traffic from the Proposed Action or the Alternatives would contribute to this unacceptable LOS under the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives. Therefore, this **indirect** adverse effect related to traffic operations on Westbound U.S. 50 from Watt Avenue to Power Inn Road/Howe Avenue is considered **significant**. **No direct** adverse effects would result. *[Similar]*

Caltrans currently has no plans to expand the segments beyond the build-out capacities assumed in this analysis, nor are any funding mechanisms established to collect money to fund such improvements. No feasible mitigation exists to offset effects to freeway segments. No mitigation measures were identified to further reduce effects. Thus, this adverse effect would remain **potentially significant and unavoidable**.

Freeway Interchange

EFFECT 3.15-1s Unacceptable LOS on U.S. 50 Westbound Watt Avenue Off-Ramp under Cumulative (2035) Conditions. *This freeway ramp would operate at an unacceptable LOS with the addition of traffic from the Proposed Action or the Alternatives under Cumulative (2035) Conditions. In addition, the Proposed Action or the Alternatives would increase traffic on this freeway ramp under Cumulative (2035) Conditions.*

PA, EDP, EP, P, RC

The U.S. 50 westbound Watt Avenue off-ramp would operate at an unacceptable LOS F without traffic from the Proposed Action or the Alternatives during the A.M. peak-hour. The Proposed Action or the Alternatives would add 10 trips or more to this off-ramp under the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives. Therefore, this **indirect** adverse effect related to traffic operations on the U.S. 50 Westbound Watt Avenue off-ramp is considered **significant**. **No direct** adverse effects would result. [*Similar*]

Caltrans currently has no plans to make additional changes to this interchange beyond the build-out capacities assumed in this analysis, nor are any funding mechanisms established to collect money to fund such improvements. No feasible mitigation exists to offset effects to this freeway interchange. No mitigation measures were identified to further reduce effects. Thus, this adverse effect would remain **potentially significant and unavoidable**.

Construction Traffic

EFFECT 3.15-2 Increased Traffic Volumes and Roadway Level of Service During Project Construction. *Construction activities could result in an increase in roadway traffic.*

NA

Under the No Action Alternative, the Cordova Hills and Pilatus sites would not be developed and thus no temporary construction traffic would be generated. Therefore, there would be **no direct** or **indirect** adverse effects. [*Lesser*]

Mitigation Measure: No mitigation measures are required.

PA, EDP, EP, P, RC

Implementation of the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, Pilatus, or Regional Conservation Alternatives would generate temporary construction traffic and increase traffic volumes on area roadways during project construction. Construction activities would be temporary and short-term, and construction activities would occur incrementally during the 20-30 year buildout of the Proposed Action or Alternatives. Because construction effects on traffic for individual project phases would be temporary and short term, and because construction of the project would extend over a 20 to 30 year period, the **direct** and **indirect** effects on traffic volumes would be **less than significant**. No other mitigation measures were identified to further reduce effects. [*Similar*]

Alternative Modes of Transportation

EFFECT **Increased Demand for Alternative Modes of Transportation.** *Implementation of the Proposed Action or*
3.15-3 *the Alternatives would create additional demand for alternative transportation mode facilities such as buses,*
bicycle lanes, and sidewalks.

NA

Under the No Action Alternative, the Cordova Hills and Pilatus sites would not be developed and thus no new demand for alternative modes of transportation would be generated. Therefore, there would be **no direct or indirect** adverse effects to alternative modes of transportation. *[Lesser]*

Mitigation Measure: No mitigation measures are required.

PA, EDP, EP, P, RC

The Proposed Action, Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives include a mix of residential densities, commercial uses, and pedestrian and bicycle facilities to promote options for movement beyond the use of motor vehicles. Class I bicycle trails and Class II on-street bicycle lanes would be provided throughout the Cordova Hills site. The Proposed Action and Alternatives would also include a local transit shuttle system consisting of two routes. One route would follow an internal loop on the Cordova Hills site. The second route would travel outside of the Cordova Hills site and provide a connection to the Mather/Mills light rail station. However, the Proposed Action and the Alternatives would also create additional demand for alternative modes of transportation such as buses, bicycle lanes, and sidewalks.

In addition, as part of the EIR certification and project approval process, the project applicant committed to implementing various mitigation measures for the Proposed Action. Because these mitigation measures were incorporated into the Proposed Action, it is reasonable to assume that they would also be incorporated into the four action alternatives, if any of those alternatives were adopted. The mitigation measures that are applicable to this effect are listed below:

- ▶ Construct interim sidewalk improvements (typically a detached asphaltic concrete path) and bicycle lanes along Grant Line Road from Douglas Road to White Rock Road and on Douglas Road from Rancho Cordova Parkway to Grant Line Road, to the satisfaction of the Sacramento County Department of Transportation. *(Final EIR Mitigation Measure TR-7).*
- ▶ Prior to recordation of the first small lot subdivision map or issuance of the first building permit, whichever is first, support formation of a special financing district to fund the transit system and the Cordova Hills Transportation Management Association (TMA). *(Development Agreement 2.3.4)*
- ▶ Form the Cordova Hills TMA prior to issuance of the first residential building permit. *(Development Agreement 2.3.4)*

Because Final EIR Mitigation Measure TR-7 and the above-listed conditions of approval have been incorporated into the Proposed Action and the Alternatives, the Proposed Action and the Alternatives would include sidewalks

and bicycle lanes on existing roadways which would help to provide connectivity to existing off-site bicycle and pedestrian facilities, and would also form a TMA that would provide shuttle services. Thus, the Proposed Action and Alternatives would provide appropriate on- and off-site facilities to meet the increased demand for alternative transportation modes and this **indirect** effect is considered **less-than-significant**. **No direct** adverse effects would result. No other mitigation measures were identified to further reduce effects.

3.15.6 RESIDUAL SIGNIFICANT EFFECTS

Significant effects were identified to intersections, roadway segments, and freeway segments for the alternatives under consideration under Effects 3.15-1a through 3.15-1q. Although mitigation measures are proposed for these effects, in some cases, required mitigation measures would not be feasible due to conflict with applicable general plans or to technical or spatial/environmental considerations. Furthermore, the project applicant and/or USACE (as the Federal lead agency) are not able to direct implementation of some mitigation measures, as they would require actions by other jurisdictions not within their control.

3.15.7 CUMULATIVE EFFECTS

Because this analysis relied on cumulative data and projections, the analysis contained above in Effects 3.15-1 and 3.15-2 already incorporates the analysis of cumulative effects.

3.15.8 CAPITAL SOUTHEAST CONNECTOR PROJECT

To account for this planned future transportation facility in the vicinity of the Cordova Hills, a supplemental assessment was conducted to determine its potential effects to evaluation of the project.

The Capital SouthEast Connector Project (Connector) is a planned 35-mile long multi-modal transportation facility that would link communities in Sacramento and El Dorado Counties, including Elk Grove, Rancho Cordova, Folsom, and El Dorado Hills. The Connector would extend from the Interstate 5 (I-5)/Hood Franklin Road interchange in southwest Sacramento County to U.S. 50 near Silva Valley Parkway in El Dorado Hills. The Connector is planned to be a four- to six-lane expressway with limited access points that would help accommodate traffic currently using local roadways.

According to the final environmental impact report for the project (the *Capital SouthEast Connector Project Final Program Environmental Impact Report* [FPEIR], adopted in 2013), the Connector would include the following improvements:

- ▶ A four-lane expressway segment from the I-5/Hood Franklin Road interchange east along an extension of Kammerer Road to the existing Kammerer Road/Bruceville Road intersection, with at-grade signalized intersections (spaced at a minimum of 1 mile apart) at Franklin Boulevard, Willard Parkway, and Bruceville Road. These intersections would be converted to grade-separated interchanges as required by traffic volumes and LOS conditions. An optional alignment for Kammerer Road has also been identified.
- ▶ A four- to six-lane thoroughfare segment east of Kammerer Road from its intersection with Bruceville Road and then north on Grant Line Road to its intersection with Bond Road, with at-grade signalized intersections spaced 0.5 mile apart where feasible.

- ▶ A four- to six-lane expressway segment on Grant Line Road from its intersection with Calvine Road to White Rock Road, and on White Rock Road from Grant Line Road to the Sacramento County/El Dorado County line, with directional grade-separated interchanges at most major cross-streets when warranted by LOS conditions.
- ▶ A four-lane thoroughfare segment on White Rock Road from the Sacramento County/El Dorado County line to Latrobe Road, and a six-lane thoroughfare segment from Latrobe Road to the U.S. 50/Silva Valley Parkway interchange.
- ▶ An in-corridor multi-use path with non-motorized multi-modal facilities, including Class I, II, and III bike lanes throughout the project corridor, depending on the design.

In the vicinity of the Cordova Hills site, the Connector would be a four-lane expressway, with grade-separated interchanges provided at key locations. At this time, the three access points to the Cordova Hills site have the following configurations:

- ▶ University Avenue: grade-separated interchange proposed.
- ▶ Chrysanthy Boulevard: grade-separated interchange proposed.
- ▶ North Loop Road: no interchange proposed.

However, the Connector is planned to have a grade-separation at Douglas Road, located approximately 0.5 mile north of North Loop Road. Therefore, to accommodate vehicular access into the Cordova Hills and Pilatus site at this location, it may be necessary to relocate North Loop Road to the north to connect to Douglas Road and become the fourth leg of the interchange.

For the FPEIR, conditions with the proposed Connector were evaluated for a series of future horizon years, including 2035 cumulative conditions. The growth in traffic volumes in the area, and the use of the Connector facility, was based on travel demand modeling using the SACOG model. In addition to accounting for planned and proposed development projects along the corridor (including the Cordova Hills site), the modeling effort also assumed a portion of induced travel demand (i.e., drivers that would use the system due to a change in trip generation, trip distribution, model choice, or route choice).

With the proposed expressway and grade-separated interchanges, the Connector would limit vehicular access along its alignment, which would lead to an increase in posted travel speeds and a reduction in vehicular delay (due to the elimination of intersections and traffic signals). As a result, vehicular travel times along the corridor would substantially decrease, and therefore would attract an increase in utilization. Overall, the FPEIR estimated an increase in average daily traffic volumes along Grant Line Road adjacent to the Cordova Hills and Pilatus sites to increase between 11,000 and 23,000 ADT by year 2035.

For the sections of the Grant Line Road between Douglas Road (to the north of the Cordova Hills and Pilatus sites) and Chrysanthy Boulevard, and between Chrysanthy Boulevard and University Boulevard, the FPEIR documented future 2035 conditions without and with the Connector project. Without the Connector, these sections of Grant Line Road were forecasted to operate at LOS F conditions, with the projected future volumes substantially exceeding the available capacity. With the Connector, however, roadway operations would improve to LOS D conditions. Although the Connector would increase traffic volumes along the corridor, the additional capacity would be sufficient to accommodate the future volume growth.

Similarly, the Connector would result in differences to three roadways that would serve the Cordova Hills and Pilatus sites: North Loop Road, Chrysanthy Boulevard, and University Boulevard. With implementation of grade-separated interchanges, there would be a distribution of traffic volumes between the roadways and the potential for minor increase in volumes due to the provision of the Connector. For these roadways, the FPEIR also documented future 2035 conditions without and with the Connector project. With the Connector, there would be minor changes in the projected future traffic volumes, but all roadways would continue to operate with the same levels of service as those described above for conditions without the Connector.

The results of this analysis are summarized in Table 3.15-16.

Overall, the Capital SouthEast Connector Project would result in substantial increases in traffic volumes along its alignment. However, in the vicinity of the Cordova Hills site, the new capacity on the Grant Line Road segment of the Connector would be sufficient to accommodate the projected future traffic growth and therefore would result in improved operating conditions compared to those presented in this EIS. In addition, the changes to the traffic volumes on the local roadways from the Connector would not substantially affect their operating conditions. As such, implementation of the Connector would not result in any additional effects associated with the alternatives under consideration.

Connector Segment	Without Connector			With Connector		
	ADT	v/c	LOS	ADT	v/c	LOS
Grant Line Road between Douglas Road and Chrysanthy Boulevard	51,000	1.42	F	62,100	0.86	D
Grant Line Road between Chrysanthy Boulevard and University Boulevard	38,200	1.06	F	61,000	0.85	D
North Loop Road east of Grant Line Road	24,400	0.68	B	23,000	0.64	B
Chrysanthy Boulevard east of Grant Line Road	15,400	0.43	A	18,300	0.51	A
University Boulevard east of Grant Line Road	22,400	0.62	B	24,500	0.68	B

Notes: ADT = average daily traffic volume; LOS = Level of Service, based on v/c ratio; v/c = volume-to-capacity ratio
Sources: AECOM 2013; Capital SouthEast Connector Joint Powers Authority 2012

This page intentionally left blank.

3.16 UTILITIES AND SERVICE SYSTEMS

3.16.1 INTRODUCTION

This section describes the utilities and service systems that would be required to support implementation of the alternatives under consideration. This section includes demands for wastewater collection, conveyance, and treatment facilities; solid waste facilities; and dry utilities, including electricity, natural gas, and communications service. This section also evaluates effects on energy demand and consumption during construction and operation of the alternatives under consideration. Feasible mitigation measures are recommended, where appropriate, to reduce adverse effects.

Utilities and service systems would be provided to the Cordova Hills and Pilatus sites by the Sacramento Area Sewer District (SASD) (formerly CSD-1), Sacramento Regional County Sanitation District (SRCSD), Sacramento Municipal Utility District (SMUD), Pacific Gas and Electric Company (PG&E), and AT&T. The following discussion provides an overview of these utility service providers.

Effects related to stormwater management and water quality are addressed in Section 3.10, “Hydrology and Water Quality.”

3.16.2 AFFECTED ENVIRONMENT

WASTEWATER COLLECTION, CONVEYANCE, AND TREATMENT FACILITIES

The Cordova Hills and Pilatus sites are presently not served by any municipal wastewater collection and treatment systems. Sanitary sewer service for the alternatives under consideration would be provided by SASD and SRCSD. The following discussion provides an overview of the SASD wastewater collection and conveyance facilities and SRCSD wastewater interceptors and treatment facilities that would serve the Cordova Hills site. The Pilatus site is located directly north the Cordova Hills site and is contiguous with the northern Cordova Hills site boundary; therefore, the following discussion of SASD and Sacramento Regional Wastewater Treatment Plant (SRWTP) facilities is also applicable to the Pilatus site.

Wastewater Collection and Conveyance Facilities

Sacramento Area Sewer District

SASD provides wastewater collection and conveyance to the urbanized, unincorporated areas of Sacramento County, the cities of Citrus Heights, Elk Grove, and Rancho Cordova, and portions of the cities of Sacramento and Folsom. The existing service area covers approximately 270 square miles and serves over 1.1 million people (SASD 2011:1-1). The main SASD collection system includes over 3,000 miles of sewer pipelines ranging in size from 6 to 75 inches in diameter. Sewer collectors generally receive flow directly from individual homes and businesses and are designed to carry less than 1,000,000 gallons per day (mgd) of peak wet-weather flow. Trunk sewers are generally 12 inches in diameter and carry 1 mgd of peak wet-weather flow or more to the SRCSD interceptor system (SASD 2011:1-2).

On January 11, 2012, the SASD Board of Directors adopted the *Sacramento Area Sewer District Sewer System Capacity Plan 2010 Update* (2010 Sewer System Capacity Plan [SSCP]) (SASD 2011), which outlines SASD’s plan to provide sewer service through 2020. SASD evaluated existing and proposed land use plans and growth

projections provided by Sacramento County and the cities within the SASD service area to estimate the sewer system's future capacities and to identify locations where population growth may require new collector and trunk facilities (SASD 2011:2-1). The SASD developed the 2010 SSCP in conjunction with development the *SRCSD Interceptor Sequencing Study* (SRCSD Interceptor Sequencing Study [ISS]) (SRCSD 2013) to consider additional options for planned sewer pipelines, collectors, and interceptors (see the "Sacramento Regional County Sanitation District," subsection below for further discussion).

To plan for the orderly and systematic expansion of the sewer system, SASD identified expansion trunk sheds, which were defined based on their discharge points into an existing SRCSD interceptor system. The 2010 SSCP identified the Cordova Hills site; the Sunrise Douglas Community Plan/Sunridge Specific Plan, Rio del Oro, Arboretum, and SunCreek project sites to the west within the city of Rancho Cordova; and the Westborough project site to the northwest within unincorporated Sacramento County as located in the BR East Rancho trunk shed (SASD 2011:6-1). In the long term, sewer service to these areas requires construction of planned SRCSD interceptors identified in the SRCSD ISS; therefore, the 2010 SSCP anticipates that these areas would use idle capacity in SASD's existing facilities on an interim basis (SASD 2011:6-3).

The 2010 SSCP determined that initial sewer service to the Cordova Hills site could be provided by the existing 18-inch Douglas Road trunk sewer. Wastewater flows from the Cordova Hills site would be conveyed via force mains north along Grant Line Road and then west on along Douglas Road to the Douglas Road truck sewer, approximately 3,900 feet west of Grant Line Road (SASD 2011:Appendix A). Wastewater is conveyed from the existing Douglas Road trunk sewer drain to the Chrysanthy Boulevard sewer pump station at the intersection of Chrysanthy Boulevard and Sunrise Boulevard. The pump station currently pumps sewer flows south along Sunrise Boulevard through an 18-inch force main to Kiefer Boulevard where it then heads west along Kiefer Boulevard and connects to the Northeast Interceptor (MacKay & Soms 2010:8).

Sacramento Regional County Sanitation District

SRCSD is responsible for collection by interceptors (sanitary sewers that are designed to carry flows in excess of 10 mgd) and for wastewater treatment in Sacramento County. SRCSD owns, operates, and is responsible for 177 miles of collection, trunk, and interceptor sewer systems and nine pump stations throughout Sacramento County as well as the SRWTP located south of the community of Freeport (SRCSD 2012:4).

SRCSD prepared the *SRCSD Interceptor System Master Plan 2000* (SRCSD Interceptor Master Plan 2000) (SRCSD 2003) to identify near- and long-term improvements needed for the regional wastewater conveyance system. The master plan describes the regional interceptor projects, along with their timing and costs, so that existing and future deficiencies in the regional system can be more accurately identified and predicted and strategic approaches to remedying these deficiencies can be developed. The plan uses information regarding population growth, wastewater flow generation, and actual system responses to wet weather.

In 2010, SRCSD prepared the SRCSD ISS to identify long-term needs to provide sanitary sewer service to the Sacramento region based on current and projected growth. The SRCSD ISS evaluated the criteria for how SRCSD conveyance facilities are planned, designed, built, and operated. Proposed interceptor facilities identified in the SRCSD Interceptor Master Plan 2000 were evaluated to determine if there were alternatives for providing sewer service, including delaying, realigning, or eliminating proposed interceptors (SRCSD 2013:10). The 2010 SSCP findings were incorporated into the SRCSD ISS.

Growth projections for the SRCSD ISS effort were derived from a combination of historical experience, Sacramento Area Council of Governments (SACOG) population projections through 2050, and land uses and density assumptions in the SRCSD service area (SRCSD 2013:22). In the near term, the growth projections were based on historical growth rates to recognize the current economic downturn and eventual recovery. In the long term, the growth projections in the SRCSD service area are anticipated to match SACOG predicted growth rates. Based on hydraulic modeling using the estimated growth rates, the SRCSD ISS concluded that the following interceptors identified in the SRCSD Interceptor Master Plan 2000 can be eliminated: Laguna Creek, Grant Line, and Sunrise (SRCSD 2013:7). The SRCSD ISS also identified the following six new interceptor conveyance projects: South, Aerojet-2, White Rock, Florin, Elder Creek, and Douglas (SRCSD 2013:8). With current development trends, interceptor construction may not be needed for 10 years or more.

The SRCSD Interceptor Master Plan 2000 anticipated that wastewater flows from the Cordova Hills site, SunCreek, and Arboretum project areas would be conveyed from the Cordova Hills site to the SRWTP via the Laguna Creek Interceptor. However, the 2010 SSCP determined that the Laguna Creek Interceptor would be downsized to a SASD trunk sewer (pipes ranging in size from 12 to 27 inches in diameter). Hydraulic modeling conducted as part of the SRCSD ISS predicts that the Bradshaw Interceptor would have capacity to serve areas previously planned for service by the Laguna Creek Interceptor, including the Cordova Hills site (SRCSD 2013:7).

Wastewater flows generated by the Cordova Hills and Pilatus sites, SunCreek, Arboretum, and Florin Road project sites would ultimately be conveyed to Florin Road. These flows would be routed west via the new Florin Interceptor connecting to the Bradshaw Interceptor (where the Bradshaw Interceptor intersects Florin Road). The SRCSD ISS determined that the Florin Interceptor would have capacity to serve 39,800 dwelling units and have a peak wet-weather flow of 28.9 mgd. SRCSD anticipates that the Florin Interceptor would be in service by 2035 at the earliest (SRCSD 2013:79). As discussed above, SASD has identified sewer collection and conveyance facilities that could provide interim sewer service for the Cordova Hills site.

Wastewater Treatment

Wastewater flows collected from SRCSD interceptors are ultimately transported into the SRWTP. Wastewater conveyed to the SRWTP is treated to a secondary level and is ultimately discharged into the Sacramento River. Currently, the SRWTP has a National Pollutant Discharge Elimination System (NPDES) permit issued by the Central Valley Regional Water Quality Control Board for discharge of up to 181 mgd of treated effluent into the Sacramento River. The SRWTP permitted capacity could be increased from a maximum average dry-weather flow of 181 mgd to a maximum average dry-weather flow of 218 mgd.

The *Sacramento Regional Wastewater Treatment Plant 2020 Master Plan* (2020 Master Plan) (SRCSD 2001) provides a phased program of recommended wastewater treatment facilities and management programs to accommodate planned growth and to meet existing and anticipated regulatory requirements through the year 2020. The master plan addresses both public health and environmental protection issues while providing reliable service at affordable rates for SRCSD customers. The key goals of the master plan are to provide sufficient capacity to meet growth projections and an orderly expansion of SRWTP facilities, comply with applicable water quality standards, and provide for the most cost-effective facilities and programs from a watershed perspective.

The 2020 Master Plan relies on SACOG's population projections to determine SRWTP capacity requirements within the SRCSD service area, which includes the Cordova Hills and Pilatus sites, through 2020 (SRCSD

2003:3-22). The 2020 Master Plan projected that the population in the SRCSD service area would be 1,549,502 persons by 2020 (SRCSD 2003:5-5). The population projections used in the master plan do not represent a buildout population total for SRCSD; rather, they represent the amount of growth expected within SRCSD at the time the 2020 Master Plan was prepared.

Table 3.16-1 summarizes the estimated population-based wastewater flow projections from 2000 to 2020. Flows within the SRCSD service areas were approximately 155 mgd in 2000 and were projected to increase and surpass its permitted average dry-weather flow capacity of 181 mgd by 2010 (Table 3.16-1). Therefore, as part of the 2005 permit renewal process, SRCSD applied to the Central Valley Regional Water Quality Control Board for an NPDES permit to increase its permitted capacity from a maximum average dry-weather flow of 181 mgd to a maximum average dry-weather flow of 218 mgd.

Year	Average Dry-Weather Flow (mgd)	Peak Wet-Weather Flow (mgd) ¹
2000	155	185
2005	174	208
2010	196	235
2015	210	252
2020	218	263

Notes: SRCSD = Sacramento Regional County Sanitation District; mgd = million gallons per day
¹ Flows greater than the permitted average dry-weather flow capacity of 181 mgd are diverted into emergency storage basins or stored within interceptors.
 Source: SRCSD 2003:3-23

In June 2010, SRCSD removed its formal request to the Central Valley Regional Water Quality Control Board for an increase in permitted wastewater discharge capacity. Flows to the SRWTP have decreased from water conservation efforts over the last 10 years and it is anticipated that state legislation passed in 2009, which mandates further water conservation efforts, could substantially reduce the amount of wastewater in the future. In addition, SRCSD has prioritized its goals to increase water recycling in the region as an element to support the comprehensive effort to promote water supply reliability and Sacramento-San Joaquin Delta (Delta) sustainability. Therefore, SRCSD has determined the SRWTP can provide capacity to future development beyond what was originally anticipated. If substantial population growth or new development occurs before 2020, SRCSD will reevaluate expansion needs and phase treatment plant expansion to provide for sufficient long-term capacity (SRCSD 2010). As of 2012, the SRWTP receives and treats an average of 124 mgd (SRCSD 2012:4).

SOLID WASTE

In 2011, the unincorporated area of Sacramento County disposed of approximately 455,530 tons of solid waste (California Department of Resources Recycling and Recovery [CalRecycle] 2011). Sacramento County Department of Waste Management and Recycling provides solid waste and recycling collection services to the County. Solid waste is transported to Kiefer Landfill, near the intersection of Grant Line Road and Kiefer Boulevard.

Sacramento County owns and operates Kiefer Landfill, and the landfill is the primary solid waste disposal facility in the County. Kiefer Landfill is approximately 1,084 acres in size, with a permitted disposal area of 660 acres (CalRecycle 2012a). Kiefer Landfill is classified as a Class III municipal solid waste landfill facility and is permitted to accept general residential, commercial, and industrial refuse for disposal, including municipal solid waste, construction and demolition debris, green materials, agricultural debris, and other nonhazardous designated debris. Kiefer Landfill produces enough renewable energy methane gas to power 9,000 homes (County of Sacramento 2009:4-2).

The landfill is permitted to accept a maximum of 10,800 tons per day (tpd) of solid waste and receives over 700,000 tons of waste per year (Ghirardelli, pers. comm., 2011). Kiefer Landfill currently has a permitted capacity of approximately 117 million cubic yards. As of 2010, Kiefer Landfill has a remaining capacity of 108 million cubic yards (Yeates, pers. comm., 2011). The average intake is only approximately 6,000 tpd and the landfill is currently operating below permitted capacity. The closure date of Kiefer Landfill is anticipated to be approximately 2064 (CalRecycle 2012a).

The California Integrated Waste Management Board (CIWMB) provides an average per-capita solid waste disposal rate for residents and business. In Sacramento County, CIWMB estimates a solid waste disposal rate of 0.36 ton per resident per year (CalRecycle 2009). It is assumed by CIWMB that businesses of a certain type dispose similar wastes at similar rates (per employee) regardless of the location or size of the business. Business waste disposal rates calculated by CalRecycle range from 0.3 ton per employee per year for general merchandise stores to 3.1 tons per employee per year for restaurants (CalRecycle 2012b).

Recycling Facilities

The CIWMA of 1989 requires local agencies to implement source reduction, recycling, and composting that would result in 50 percent diversion of solid waste from landfills, thereby extending the life of landfills. CIWMA established the California Integrated Waste Management Board (now known as CalRecycle) to oversee, manage, and track California's 92 million tons of waste generated each year. As of 2007, the 50 percent diversion requirement is measured in terms of per-capita disposal expressed as pounds per day (ppd) per resident and per employee. The new per capita disposal and goal measurement system shifts the emphasis from an estimated diversion measurement number to using an actual disposal measurement based on population and disposal reported by disposal facilities along with evaluating program implementation efforts. For 2011, the target solid waste generation rate for Sacramento County was 7.7 ppd per resident and 23.2 ppd per employee, and the actual measured generation rate was 4.5 ppd per resident and 16.4 ppd per employee (CalRecycle 2011). Therefore, as of 2011, Sacramento County was exceeding its diversion rate goals.

Sacramento County requires all contractors to comply with the Construction and Demolition Ordinance (Title 6, Chapter 6.20), which applies to all new commercial, office, industrial, multifamily residential, and public/quasi-public building permits, to reduce all project waste by weight from entering landfill facilities by 50 percent through recycling. Covered projects must recycle five different types of debris and materials: scrap metal; inert materials (concrete, asphalt paving, bricks); corrugated cardboard; wood pallets; and clean wood waste. The County requires contractors to prepare a "Waste Management Plan" that identifies the sources of recyclable materials, outlines a recycle method (i.e., self-separation or mixed recovery), and identifies a self-haul or franchise waste hauler before obtaining building permits. Contractors are required to document quantities of building materials recycled, salvaged or reused, and/or disposed during construction on a "Waste Management

Log.” The Waste Management Log must be submitted to the Sacramento County Department of Waste Management and Recycling before scheduling your final inspection (County of Sacramento 2012).

Electrical Service

SMUD generates, transmits, and distributes electric power to an approximately 900-square-mile territory in Sacramento County and a small portion of Placer County. In 2011, SMUD’s service area population was 1.4 million customers, serving 599,826 residences and 68,510 businesses with 2,034 employees and 10,257 miles of transmission lines (SMUD 2011). In 2011, SMUD generated approximately 10,421 million kilowatt-hours (kWh) of electricity within its service area (California Energy Commission [CEC] 2011a). Table 3.16-2 shows SMUD’s historic electrical consumption and forecasts of future consumption.

Table 3.16-2 SMUD Service Area Electrical Consumption and Forecast	
Year	Consumption (GWh) ¹
1990	8,358
2000	9,494
2005	10,536
2010	10,656
2015	11,504
2020	12,131

Notes: SMUD = Sacramento Municipal Utility District; GWh = gigawatt hours; CEC = California Energy Commission
¹ Gigawatt equals 1 billion watts.
 Source: CEC 2009a:178

In the vicinity of the Cordova Hills and Pilatus sites, a SMUD 12-kV overhead transmission line extends south along Grant Line Road from Douglas Road to Kiefer Boulevard. This transmission line originates from the Chrysanthy Substation located in the Anatolia II subdivision west of the Cordova Hills and Pilatus sites. The Chrysanthy Substation has a maximum capacity of 5-6 MWs and can provide electrical service to approximately 1,200 homes (Capitol Utility Specialists 2010:5).

In addition, a SMUD 12-kV overhead transmission line extends east along Glory Road from Grant Line Road and serves several pumps and one residence north of the Cordova Hills site. This transmission line enters the Cordova Hills site at the north-central boundary of the property where it then continues east to Boyle Ranch Road (Capitol Utility Specialists 2010:5).

Energy Sources

SMUD receives power through varied sources, including hydropower, natural-gas-fired generators, renewable energy from solar and wind power, and power purchased on the wholesale market. These power sources are discussed below.

The 500-megawatt (MW) Cosumnes Power Plant (CPP) was completed in 2006. The gas-fired plant provides enough power to meet the annual needs of 450,000 single-family homes (SMUD 2012a). In addition to the CPP, SMUD has the Upper American River Project, which consists of 11 reservoirs and eight powerhouses that

generate enough electricity to meet nearly 15 percent of SMUD's customer demand. The Upper American River Project can provide approximately 1.8 MW of electricity during a normal water year, which is enough energy to power about 180,000 homes (SMUD 2012a).

SMUD has supported several new renewables projects that have begun providing electricity to the grid since 1984. SMUD's utility-scale solar array at Rancho Seco generates 3.2 MW-electricity to power 2,200 single-family homes (SMUD 2012b). The SMUD-owned Solano Wind Project installed wind turbines generating 39 MW in 2002, and an additional 63 MW of wind turbines were installed in 2007. SMUD is planning to construct up to 75 more turbines, adding 128 MW of renewable energy. When in place, the expansion will provide about 13 percent of SMUD's renewable energy goal for 2013 and contribute to meeting SMUD's 2020 renewable energy supply goals (SMUD 2012b, 2011:4).

SMUD has long-term contracts with other generators to provide an additional 1,189 MW of electricity for distribution per day. Throughout the year, SMUD buys and sells energy and capacity on a short-term basis to meet load requirements and reduce costs.

Energy Conservation

SMUD has created two separate programs to grow renewable energy supplies for its customers and conserve energy in its service area: a green pricing program called Greenergy and a Renewables Portfolio Standard (RPS) program. Accounting for SMUD's renewable energy supply is done separately for these two programs and aggregated as SMUD's total, non-large hydro-renewable energy supply. These programs would be available to customers located on the Cordova Hills and Pilatus sites.

SMUD has had the green pricing program called Greenergy since 1997. Greenergy allows customer choice in selecting renewable energy supply for 100 percent or 50 percent of their electricity based on a monthly fee of \$6.00 or \$3.00, respectively (SMUD 2012c). Residential customers also have the option of selecting renewable energy supply for 50 percent of their electricity and offsetting the carbon footprint with special purchases in carbon offset projects for a monthly fee of \$10.00. Commercial Greenergy customers pay \$10.00 per month for 1,000 kWh of renewable energy and \$20.00 per month for 2,000 kWh of renewable energy (SMUD 2012d).

SMUD's RPS program was approved by SMUD's elected board one year before the state RPS program was approved by the legislature and governor. To meet its annual renewables goals, SMUD both contracts for renewable electricity from independent power producers and builds and owns renewable energy power plants. SMUD met its renewable energy supply goals of 24 percent for 2011 (20 percent RPS + 4 percent Greenergy in 2011) (SMUD 2011:4).

NATURAL GAS SERVICE

Natural gas service in Sacramento County is provided by PG&E through portions of PG&E's approximately 46,000 miles of natural gas distribution pipelines. In 2011, PG&E delivered approximately 4,752 million therms (MM therms) of natural gas throughout its service area (CEC 2011b). Of this total, Sacramento County received 329 MM therms, which accounted for 6.9 percent of the total natural gas deliveries within the PG&E service area (CEC 2011c). Table 3.16-3 shows PG&E's historic natural gas consumption and forecasts of future consumption. CEC has determined that the decrease in natural gas consumption between 2005 and 2010 results from both greater energy conservation and the slowdown in construction of new homes and businesses (CEC 2009a:220).

**Table 3.16-3
PG&E Service Area Natural Gas Consumption and Forecast**

Year	Consumption (MM Therms)
1990	5,275
2000	5,291
2005	4,724
2010	4,186
2015	4,315
2020	4,388

Notes: PG&E = Pacific Gas and Electric Company; MM therms = million therms; CEC = California Energy Commission
Source: CEC 2009a:231

PG&E has no existing natural gas facilities in the vicinity of the Cordova Hills and Pilatus sites. An 8-inch high-pressure transmission main is located within Douglas Road, approximately 3/4 of a mile to the northwest of the Cordova Hills and Pilatus sites (Capitol Utility Specialists 2010:10).

COMMUNICATIONS

Currently, there is no existing communications service or infrastructure on the Cordova Hills or Pilatus sites. AT&T would provide communications service to the Cordova Hills and Pilatus sites through extension of existing off-site infrastructure. A Service Area Interface (SAI) box is located adjacent to the Cordova Hills site on the corner of Glory Lane at its intersection with Grant Line Road. Two underground copper telephone lines extend from the SAI box east along Glory Lane to serve several rural residences south this road. Underground fiber optic cables are within Douglas Road, approximately 3/4 of a mile to the northwest. In addition, an aerial telephone line is located on existing SMUD 12-kV overhead transmission lines on Grant Line Road. This aerial telephone line serves one rural residence within the western area of the Cordova Hills site (Capitol Utility Specialists 2010:11).

3.16.3 REGULATORY FRAMEWORK/APPLICABLE LAWS, REGULATIONS, PLANS, AND POLICIES

State laws and regulations are provided for informational purposes and to assist with NEPA review. USACE has considered applicable state, regional, and local plans and ordinances as a part of the environmental review process for this EIS.

Sacramento County certified an EIR and approved the Proposed Action January 2013. State, regional, and local plans, policies, laws, and ordinances were considered in the EIR and adopted mitigation measures have been incorporated into the Proposed Action.

FEDERAL PLANS, POLICIES, REGULATIONS, AND LAWS

There are no Federal plans, policies, regulations, or laws related to utilities and service systems that would be relevant to alternatives under consideration.

STATE PLANS, POLICIES, REGULATIONS, AND LAWS

California Integrated Waste Management Act

CIWMA of 1989 is the result of two pieces of legislation, Assembly Bill (AB) 939 and Senate Bill (SB) 1322. The CIWMA was intended to minimize the amount of solid waste that must be disposed of by transformation and land disposal by requiring all cities and counties to divert 25 percent of all solid waste from landfill facilities by January 1, 1995, and 50 percent by January 1, 2000. Each city is required to develop solid waste plans demonstrating integration of the CIWMA plan with the county plan. The plans must promote (in order of priority) source reduction, recycling and composting, and environmentally safe transformation and land disposal. The *Sacramento County Integrated Waste Management Plan*, adopted in March 1996, implements CIWMA requirements.

CIWMA created the California Integrated Waste Management Board (now known as CalRecycle). CalRecycle is the state agency designated to oversee, manage, and track California's 92 million tons of waste generated each year. They provide grants and loans to help California cities, counties, businesses, and organizations meet the state's waste reduction, reuse, and recycling goals. CalRecycle promotes a sustainable environment where these resources are not wasted, but can be reused or recycled. In addition to many programs and incentives, CalRecycle promotes the use of new technologies for the practice of diverting California's resources away from landfills. CalRecycle is responsible for ensuring that state waste management programs are primarily carried out through local enforcement agencies (LEAs). The State Water Resources Control Board and the Central Valley Regional Water Quality Control Board also regulate waste disposal (the latter regulated solid waste prior to CalRecycle).

California Public Utilities Commission Decision 95-08-038

The California Public Utilities Commission (CPUC) regulates the design, installation, and management of California's public utilities, including electric, natural gas, water, transportation, and telecommunications. CPUC also provides consumer programs and information, such as energy efficiency, low income programs, demand response, and California solar initiative for California's energy consumers. CPUC oversees almost all large utility construction projects and provides approval of other types of utility activity that might have a significant effect on the environment. CPUC must comply with the requirements of CEQA when it approves any requested utility action, of those utility company it regulates that may cause either a direct physical change in the environment or a reasonably foreseeable indirect change in the environment.

California Building Energy Efficiency Standards

The project would be required to comply with changes to Title 24 of the California Code of Regulations regarding energy efficiency. Title 24, which was promulgated by the CEC in 1978 in response to a legislative mandate to create uniform building codes to reduce California's energy consumption, provides energy efficiency standards for residential and nonresidential buildings. These new energy efficiency standards were developed in response to the state's energy crisis as well as AB 970 (Chapter 329, Statutes of 2000), the California Energy and Reliability Act of 2000. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. The Building Energy Efficiency Standards were revised in 2008 and became effective on January 1, 2010 (CEC 2010). CEC is currently in the process of updating the 2010 Building Energy Efficiency Standards. It is anticipated that these revised standards will be adopted in 2014 (CEC 2013).

Implementation of these standards is expected to reduce the growth in electricity use by 561.2 GWh per year and reduce the growth in natural gas use by 19.0 MM therms per year. The energy savings attributable to new single-family and multifamily residential buildings is 102.2 GWh per year of electricity savings and 7.4 MM therms per year of natural gas savings. The energy savings attributable to new nonresidential buildings is 151.2 GWh per year of electricity savings and 3.3 MM therms per year of natural gas savings. Additional energy savings is from the application of new outdoor lighting standards and warehouse refrigeration, which totals 37.3 GWh per year of electricity savings. Alterations to existing nonresidential buildings are a substantial part of the energy savings. These savings result from retrofit insulation requirements for existing roofs and the requirement that renovated lighting systems meet the new requirements. The energy savings attributable to alterations to existing nonresidential buildings is 270.5 GWh per year of electricity savings and 8.2 MM therms per year of natural gas savings (CEC 2007).

In addition, the 2010 California Green Building Code (Part 11, Title 24) standards became effective on January 1, 2011. This code was developed to enhance the design and construction of buildings and sustainable construction practices through planning and design, energy efficiency, water efficiency and conservation, material conservation and resource efficiency, and environmental air quality. It is the intent of this code to encourage green buildings to achieve more than a 15 percent reduction in energy usage when compared to existing standards, to reduce indoor potable water demand by 20 percent, to reduce landscape water usage by 50 percent, and to reduce construction waste by 50 percent. It also requires separate water meters for nonresidential buildings' indoor and outdoor water use, with a requirement for moisture-sensing irrigation systems for larger landscape projects, and mandatory inspections of energy systems (e.g., heat furnace, air conditioner, and mechanical equipment) for nonresidential buildings over 10,000 square feet to ensure that all are working at their maximum capacity and according to their design efficiencies (CEC 2009b).

3.16.4 ANALYSIS METHODOLOGY

Effects on utilities and service systems that would result from implementation of the alternatives under consideration were identified by comparing existing service capacity and facilities against future demand associated with project implementation. A quantitative comparison was used to determine effects of the Proposed Action on future demands while a qualitative comparison was used to determine effects of the alternatives under consideration on future demands. Evaluation of potential utility and service system effects was based on a review of the following regional, local, and project-related planning documents and technical studies pertaining to the Cordova Hills site and surrounding area:

- ▶ Sacramento County General Plan Background to the 1993 General Plan and 2007 General Plan Update (County of Sacramento 2007),
- ▶ *Sacramento County General Plan Update DEIR* (County of Sacramento 2009),
- ▶ *Sacramento Regional County Sanitation District Interceptor System Master Plan 2000* (SRCSD 2003),
- ▶ *Sacramento Regional County Sanitation District Interceptor Sequencing Study* (SRCSD 2013),
- ▶ *Sacramento Regional Wastewater Treatment Plant 2020 Master Plan* (SRCSD 2001),
- ▶ *Sacramento Area Sewer District 2010 Sewer System Capacity Plan* (SASD 2011),

- ▶ *Sewer Master Plan for Cordova Hills* (MacKay & Somps 2010, provided in Appendix K), and
- ▶ *Cordova Hills Technical Dry Utilities Study* (Capitol Utility Specialists 2010, provided in Appendix L).

Additional information was obtained through consultation with appropriate agencies, including SASD, SRCSD, SMUD, PG&E, and field review of the Cordova Hills and Pilatus sites and surroundings.

Because the Final EIR has already been certified, all Final EIR Mitigation Measures, the Rezone and Tentative Large Lot Parcel Map Conditions of Approval, and the obligations found in the Development Agreement (collectively referred to as the project entitlements) are considered a part of the Proposed Action. Thus, these measures and requirements are considered when analyzing the significance of effects under the Proposed Action. Because the project entitlements were imposed on the Proposed Action by the County as part of its approval process, it is reasonable to assume that if one of the action alternatives were adopted, the County would impose similar conditions during the entitlement of the alternative.

THRESHOLDS OF SIGNIFICANCE

The determinations of the significance of effects for this analysis are based on professional standards regularly used in environmental review documents in the region. These thresholds encompass the factors taken into account under NEPA to determine the significance of an action in terms of its context and the intensity of its effects. These are also informed by the environmental checklist in Appendix G of the State CEQA Guidelines. The alternatives under consideration were determined to result in a significant effect related to utilities and service systems if they would do any of the following:

- ▶ exceed wastewater treatment requirements of the applicable RWQCB;
- ▶ require or result in the construction of new wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;
- ▶ result in a determination by the wastewater treatment provider that serves or may serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments;
- ▶ generate solid waste beyond the capacity of existing landfills;
- ▶ violate Federal, state, or local statutes and regulations related to solid waste; or
- ▶ result in inefficient, wasteful, and unnecessary consumption of energy.

3.16.5 ENVIRONMENTAL CONSEQUENCES AND MITIGATION MEASURES

EFFECTS ANALYSIS

Effects that would occur under each alternative development scenario are identified as follows: NA (No Action), PA (Proposed Action), EDP (Expanded Drainage Preservation), EP (Expanded Preservation), P (Pilatus), and RC (Regional Conservation). The effects for each alternative are compared relative to the PA at the end of each effect conclusion (i.e., similar, greater, lesser).

EFFECT **Increased Demand for Wastewater Collection and Conveyance Facilities.** *Project implementation 3.16-1 would result in increased generation of wastewater, thereby increasing the demand for wastewater collection and conveyance facilities to support the project.*

NA

Under the No Action Alternative, no project-related development would occur and there would be no new uses that would increase the demand for wastewater conveyance facilities. Therefore, **no indirect** or **direct** effects would occur. [*Lesser*]

Mitigation Measure: No mitigation measures are required.

PA

The Cordova Hills site is presently not served by municipal wastewater collection and treatment systems, and therefore implementation of the Proposed Action would require construction of wastewater collection and conveyance facilities. Sanitary sewer service for the project would be provided by SASD and SRCSD.

The sewer study prepared for the Proposed Action (MacKay & Soms 2011) addressed the viability of providing sewer service to the Cordova Hills site, identified on- and off-site facility needs and design, and evaluated designs for consistency with SASD’s 2006 Sewerage Facilities Expansion Master Plan Update and the SRCSD Interceptor Master Plan 2000. The on-site sanitary sewer system would consist of gravity pipelines ranging in size from 8-inch collectors through residential streets to 24-inch and 36-inch trunks within major roadways, and would include sewer pump stations in the eastern and southern portions of the Cordova Hills site. The wastewater system would be incrementally expanded to meet the demands of the Proposed Action as development proceeds.

The sewer master plan identified six potential points of connection (POCs) using a combination of the SRCSD’s Bradshaw Interceptor, Mather Interceptor, and Laguna Creek Interceptor to convey on-site wastewater flow to the SRWTP. Sewer service to the Cordova Hills site would be phased as follows (see Exhibit 2-12 in Chapter 2, “Description of the Proposed Action and Alternatives”):

- ▶ **Development Phase 1:** The recommended POC for initial sewer service to the Cordova Hills site is the 18-inch Douglas trunk sewer within Douglas Road approximately 3,900 feet west of Grant Line Road (POC 1). Wastewater is conveyed from the existing Douglas Road trunk sewer drain to the Chrysanthy Boulevard sewer pump station at the intersection of Chrysanthy Boulevard and Sunrise Boulevard. The pump station currently pumps sewer flows south along Sunrise Boulevard through an 18-inch force main to Kiefer Boulevard where it then heads west along Kiefer Boulevard and connects to the Northeast Interceptor (MacKay & Soms 2010:8).
- ▶ **Development Phases 2 and 3:** Five additional alternative POCs could provide sewer service for Phases 2 and 3 of project development. These POCs consist of connection to the Bradshaw Interceptor near Sunrise Boulevard and Monier Circle (POC 2), connection to the Bradshaw Interceptor in the vicinity of Zinfandel Drive (POC 3), connection to the Mather Interceptor at Sunrise Boulevard and Douglas Road (POC 4), connection to the 18-inch sewer force main at the intersection of Sunrise Boulevard and Kiefer Boulevard (POC 5), or connection to the Laguna Creek Interceptor Section 5 in the vicinity of the SunCreek project site (POC 6) (MacKay & Soms 2010:7 and 8).

Since preparation of the project's sewer master plan, SASD adopted the 2010 SSCP and the SRCSD adopted the SRCSD ISS. These plans identify long-term sewer service needs within their respective service areas; plan for the orderly and systematic expansion of the sewer system; and consider additional options for planned sewer pipelines, collectors, and interceptors, including delaying, realigning, or eliminating proposed sewer system facilities. As discussed above, the 2010 SSCP determined that the Laguna Creek Interceptor would be downsized to an SASD trunk sewer (pipes ranging in size from 12 to 27 inches in diameter) and the SRCSD ISS has eliminated the Mather Interceptor as a future interceptor project. The SRCSD ISS anticipates project-related wastewater flows would be conveyed to the Bradshaw Interceptor via the planned Florin Interceptor, which will not likely be built before 2035. In the interim, the 2010 SSCP determined that initial sewer service to the Cordova Hills site could be provided by the existing 18-inch Douglas Road trunk sewer.

The physical environmental effects from construction of the off-site sewer facilities are the responsibility of SASD and SRCSD. A Notice of Exemption for SASD's sewer system capacity plan was prepared by DERA in November 2011. SRCSD would conduct a separate CEQA or NEPA analysis, if necessary, to analyze specific effects and identify any required mitigation measures for construction and operation associated with interceptor projects identified in the SRCSD ISS.

The wastewater collection and conveyance facilities described within the sewer master plan are conceptual and detailed, final sewer master plans have not been completed. It is anticipated that additional work would be performed to define force mains, trunks, major collectors, and interim and permanent pump stations; identify phased construction of facilities; and design tentative small-lot maps, including collector and lateral systems, to serve each lot.

As part of the CEQA EIR certification and project approval process, the project applicant committed to implementing various conditions of approval for the Proposed Action (collectively referred to as the project entitlements). The conditions of approval that are applicable to this effect that were incorporated into the project entitlements, and therefore are part of the Proposed Action, are listed below:

- ▶ Annexation of the SPA to both the SRCSD and SASD shall be required prior to recordation of the Final Map or submission of any improvement plans, whichever occurs first (*Condition of Approval*).
- ▶ Approved sewer study shall be required prior to recordation of the large lot map or submission of any improvement plans, whichever occurs first. The sewer study will be prepared in accordance with SASD's most recent *Minimum Sewer Study Requirements* and in compliance with SASD's Design Standards (*Condition of Approval*).
- ▶ Each parcel with a sewage source shall have a separate connection to the SASD public sewer system. If there is more than one building in any single parcel and the parcel is not proposed for split, then each building on that parcel shall have a separate connection to a private on-site sewer line or the SASD public sewer line (*Condition of Approval*).
- ▶ A Level 2 Sewer Study (Master Plan Level) has already been approved by SASD/SRCSD. However, to address a recently developed sewer alternate for the area an addendum to the Level 2 Sewer study will be required before recordation of the large lot map or submission of any improvement plans (*Condition of Approval*).

- ▶ A Level 3 Sewer Study (Subdivision Level) will also be required before recordation of small lot maps or submission of the improvement plans. The sewer study shall demonstrate the quantity of discharge and any “flow through sewage” along with the appropriate pipe sizes, elevations, downstream connections(s), upstream responsibilities, etc., and shall be done in accordance with SASD’s most recent *Minimum Sewer Study Requirements*. The study shall be done on a no “Shed-Shift” basis unless approved by SASD in advance and in compliance with the SASD Design Standards (*Condition of Approval*).
- ▶ To obtain public sewer service, construction of necessary on-site and off-site sewer infrastructure shall be required to serve this project (*Condition of Approval*).
- ▶ The project applicant shall provide an area for sewer pump station facilities. The location and size of the area will be in accordance with the applicant’s approved sewer study (*Condition of Approval*).
- ▶ The trunk and collector sewer system for the project will not be accepted for operation and maintenance until the downstream sewer system serving the project is also accepted for operation and maintenance. All sewer facilities will be accepted for operation and maintenance prior to issuance of a building permit as necessary to serve this project (*Condition of Approval*).

Because the above-listed conditions of approval have been incorporated into the Proposed Action, sufficient on-site wastewater collection and conveyance infrastructure necessary to serve the proposed development would be constructed. Therefore, implementation of the Proposed Action would result in **no indirect** effects associated with the increased demand for wastewater collection and conveyance facilities. The **direct** physical effects of constructing these on-site facilities are addressed throughout this EIS in each respective topical section in connection with discussions of the effects of overall site development.

EDP, EP, P, RC

The location of the sewer system facilities to serve the Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives would vary somewhat from the Proposed Action due to the difference in street alignments and the spatial distribution of the developable areas. In spite of these differences, on-site sanitary sewer systems under the Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives would consist of similar sizes and types of gravity pipelines as compared to the Proposed Action, ranging in size from 8-inch collectors through residential streets to 24-inch and 36-inch trunks within major roadways and pump stations (see Exhibits 2-15, 2-19, 2-23, and 2-27 in Chapter 2, “Description of the Proposed Action and Alternatives”). In addition, the on-site sewer system would require connection to off-site SASD trunk sewers and SRCSD interceptors to convey wastewater flows to the SRWTP. However, detailed, final sewer master plans have not been completed. Additional work would be necessary to define force mains, trunks, major collectors, and interim and permanent pump stations; identify phased construction of facilities; and design tentative small-lot maps, including collector and lateral systems, to serve each lot.

As part of the CEQA EIR certification and project approval process, various conditions of approval were incorporated into the Proposed Action. Because these conditions of approval were incorporated into the Proposed Action, it is reasonable to assume that they would also be incorporated into the four action alternatives, if any of those alternatives were adopted. The conditions of approval that are applicable to this effect that were incorporated into the Proposed Action by the project entitlements are listed below:

- ▶ Annexation of the project site to both the SRCSD and SASD shall be required prior to recordation of the Final Map or submission of any improvement plans, whichever occurs first (*Condition of Approval*).
- ▶ Approved sewer study shall be required prior to recordation of the large lot map or submission of any improvement plans, whichever occurs first. The sewer study will be prepared in accordance with SASD's most recent *Minimum Sewer Study Requirements* and in compliance with SASD's Design Standards (*Condition of Approval*).
- ▶ Each parcel with a sewage source shall have a separate connection to the SASD public sewer system. If there is more than one building in any single parcel and the parcel is not proposed for split, then each building on that parcel shall have a separate connection to a private on-site sewer line or the SASD public sewer line (*Condition of Approval*).
- ▶ A Level 2 Sewer Study (Master Plan Level) has already been approved by SASD/SRCSD. However, to address a recently developed sewer alternate for the area an addendum to the Level 2 Sewer study will be required before recordation of the large lot map or submission of any improvement plans (*Condition of Approval*).
- ▶ A Level 3 Sewer Study (Subdivision Level) will also be required before recordation of small lot maps or submission of the improvement plans. The sewer study shall demonstrate the quantity of discharge and any "flow through sewage" along with the appropriate pipe sizes, elevations, downstream connections(s), upstream responsibilities, etc., and shall be done in accordance with SASD's most recent *Minimum Sewer Study Requirements*. The study shall be done on a no "Shed-Shift" basis unless approved by SASD in advance and in compliance with the SASD Design Standards (*Condition of Approval*).
- ▶ To obtain public sewer service, construction of necessary on-site and off-site sewer infrastructure shall be required to serve this project (*Condition of Approval*).
- ▶ The project applicant shall provide an area for sewer pump station facilities. The location and size of the area will be in accordance with the applicant's approved sewer study (*Condition of Approval*).
- ▶ The trunk and collector sewer system for the project will not be accepted for operation and maintenance until the downstream sewer system serving the project is also accepted for operation and maintenance. All sewer facilities will be accepted for operation and maintenance prior to issuance of a building permit as necessary to serve this project (*Condition of Approval*).

Implementation of the above-listed conditions of approval would reduce the potentially significant adverse effects associated with increased demand for on- and off-site wastewater collection and conveyance facilities under the Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives. Implementing these Alternatives would result in **no indirect** effects associated with the increased demand for wastewater collection and conveyance facilities. The **direct** physical effects of constructing these on-site facilities are addressed throughout this EIS in each respective topical section in connection with discussions of the effects of overall site development. [*Similar*]

EFFECT 3.16-2 Increased Demand for SRWTP Wastewater Treatment Plant Facilities. *Project implementation would result in increased generation of wastewater, thereby increasing the demand for wastewater treatment facilities to support the project.*

NA

Under the No Action Alternative, no project-related development would occur and there would be no new uses that would increase the demand for wastewater treatment facilities. Therefore, **no indirect** or **direct** effects would occur. *[Lesser]*

Mitigation Measure: No mitigation measures are required.

PA

Collected wastewater flows from the Cordova Hills site would ultimately be transported to the SRWTP for treatment and disposal. Implementation of the Proposed Action would generate approximately 4.99 mgd of average dry-weather and 10.41 of peak wet-weather flows (MacKay & Soms 2010:29).

It is expected that sufficient SRWTP capacity to accommodate projected flows under the Proposed Action would be available through 2020. The SRWTP receives and treats an average of 124 mgd (as of 2012) and has a permitted dry-weather flow design capacity of 181 mgd (SRCSD 2012). SRCSD has determined that growth within SRCSD is less than what was projected in the 2020 Master Plan and the SRWTP can provide capacity to future development beyond what was originally anticipated in the 2020 Master Plan (SRCSD 2012). Over time, additional planning at the SRWTP would occur, and overall capacity would be assessed and additional capacity planned for and added as necessary to meet demand for wastewater treatment (SRCSD 2010). The SRWTP site has sufficient land area to accommodate a substantially higher flow than 218 mgd; however, given SRCSD's withdrawal of its application to expand the treatment plant capacity beyond 181 mgd, future SRCSD plans beyond the next 7 years are too speculative for meaningful consideration. The SRWTP has sufficient capacity to serve the Proposed Action at this time. However, there would be no assurances that the SRWTP would have adequate capacity for new wastewater flows for project development occurring after 2020. The potential lack of treatment capacity past 2020 at full project buildout is considered a **potentially significant, indirect** adverse effect. Because it is unknown if or when the SRWTP would require expansion to meet future wastewater treatment demands, other **indirect** adverse effects associated with future expansion of the SRWTP are too speculative for meaningful consideration. **No direct** effects would occur.

Mitigation Measure 3.16-1: Demonstrate Adequate SRWTP Wastewater Treatment Capacity.

The project applicant for any particular discretionary development application shall demonstrate adequate capacity at the SRWTP for new wastewater flows generated by the project. This shall involve preparing a report prior to construction of each phase of development that identifies the amount of wastewater flows generated by the increment of proposed development, the available SRWTP wastewater treatment plant capacity, and confirming payment of connection and capacity fees as identified by SRCSD. Approval of the final map or improvement plan and issuance of building permits for all project phases shall not be granted until the County verifies adequate SRWTP capacity is available for the amount of proposed development identified in the report.

Implementation:	Project applicant.
Timing:	Before approval of final maps or improvement plans and issuance of building permits for any project phases.
Enforcement:	Sacramento County Planning Division and Sacramento County Community Development Department Building Division.

Implementation of Mitigation Measure 3.16-1 would reduce potentially significant adverse effects associated with increased demand for wastewater treatment plant facilities under the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives to a level where **no effect** would occur because adequate wastewater treatment capacity sufficient to serve the project would be documented before approval of final maps/improvement plans and issuance of building permits. USACE does not have authority to enforce this mitigation measure; Sacramento County would be the enforcement agency. The County is unlikely to issue building permits for development for which no adequate wastewater treatment capacity can be demonstrated, so this mitigation measure is likely to be enforced. No other mitigation measures were identified to further reduce these effects.

EDP, EP, RC

The wastewater flows generated under the Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives would be less than under the Proposed Action because fewer dwelling units and less square feet of commercial development would be generated (see Tables 2-2 and 2-4 in Chapter 2, “Description of the Proposed Action and Alternatives”).

It is expected that sufficient SRWTP capacity to accommodate project flows under the Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives would be available through 2020. However, as described above under the Proposed Action, there would be no assurances that the SRWTP would have adequate capacity for new wastewater flows for project development under the Expanded Drainage Preservation, Expanded Preservation, or Regional Conservation Alternatives that occurs after 2020. The potential lack of treatment capacity past 2020 at full project buildout is considered a **potentially significant, indirect** adverse effect. **No direct** effects would occur. *[Lesser]*

Mitigation Measure: Implement Mitigation Measure 3.16-1.

Implementation of Mitigation Measure 3.16-1 would reduce potentially significant adverse effects associated with increased demand for wastewater treatment plant facilities under the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives to a level where **no effect** would occur because adequate wastewater treatment capacity sufficient to serve the project would be documented before approval of final maps/improvement plans and issuance of building permits. USACE does not have authority to enforce this mitigation measure; Sacramento County would be the enforcement agency. Because the County has already approved the Proposed Action and identified mitigation measures and actions for the project, it is uncertain that this mitigation measure would be implemented. No other mitigation measures were identified to further reduce these effects.

P

The wastewater flows generated under the Pilatus Alternative would be greater than under the Proposed Action because of the increased number of dwelling units and additional square feet of commercial development that would be generated (see Tables 2-2 and 2-4 in Chapter 2, “Description of the Proposed Action and Alternatives”).

It is expected that the SRWTP would have sufficient capacity to accommodate project flows under the Pilatus Alternative through 2020. However, as described above, there would be no assurances that the SRWTP would have adequate capacity for new wastewater flows for project development under the Pilatus Alternative that occurs after 2020. Therefore, the potential lack of treatment capacity past 2020 at full project buildout is considered a **potentially significant, indirect** adverse effect. **No direct** effects would occur. [*Greater*]

Mitigation Measure: Implement Mitigation Measure 3.16-1.

Implementation of Mitigation Measure 3.16-1 would reduce potentially significant adverse effects associated with increased demand for wastewater treatment plant facilities under the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives to a level where **no effect** would occur because adequate wastewater treatment capacity sufficient to serve the project would be documented before approval of final maps/improvement plans and issuance of building permits. USACE does not have authority to enforce this mitigation measure; Sacramento County would be the enforcement agency. The County is unlikely to issue building permits for development for which no adequate wastewater treatment capacity can be demonstrated, so this mitigation measure is likely to be enforced.

EFFECT 3.16-3 **Temporary and Short-Term Generation of Solid Waste during Project Construction.** *Project construction would generate temporary and short-term construction-related debris and waste, thereby increasing the amount of debris that would require disposal at Kiefer Landfill.*

NA

Under the No Action Alternative, no project-related development would occur and there would be no construction activities that would generate temporary or short-term construction-related solid waste. Therefore, **no indirect** or **direct** adverse effects would occur. [*Lesser*]

Mitigation Measure: No mitigation measures are required.

PA

Solid waste generated by construction activities on the Cordova Hills site would be disposed of at Kiefer Landfill. The Sacramento County Department of Waste Management and Recycling estimates that the amount of solid waste generated by construction of the Proposed Action over the 30-year buildout period would be approximately 50,500 tons (Ghirardelli, pers. comm., 2011). Sacramento County requires all contractors to comply with the Construction and Demolition Ordinance (Title 6, Chapter 6.20), which applies to all new commercial, office, industrial, multifamily residential, and public/quasi-public building permits, to reduce all project waste that would require disposal at landfill facilities by 50 percent (by weight) through recycling. Therefore, solid waste generated by the project would be reduced to 25,250 tons (Ghirardelli, pers. comm., 2011).

Kiefer Landfill has a total capacity of 117 million cubic yards and a remaining capacity of 108 million cubic yards, and the landfill is currently operating below permitted capacity. At project buildout, the total amount of construction waste generated by the Proposed Action would not be substantial in relation to the total and remaining capacity (117 and 108 million cubic yards, respectively) of the landfill. Currently, the landfill has a closure date of 2064. Because Kiefer Landfill has sufficient permitted capacity to accommodate construction-related disposal needs for the Proposed Action within the timeframe for project buildout (i.e., 30 years), **no direct or indirect** effects would occur.

Mitigation Measure: No mitigation measures are required.

EDP, EP, RC

The amount of solid waste generated by construction of the Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives would be less than under the Proposed Action because fewer dwelling units and less square feet of commercial development would be generated (see Tables 2-2 and 2-4 in Chapter 2, “Description of the Proposed Action and Alternatives”). Solid waste generated by construction of the Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives would be reduced by 50 percent through compliance with Sacramento County Construction and Demolition Ordinance (Title 6, Chapter 6.20).

Kiefer Landfill has a total capacity of 117 million cubic yards and a remaining capacity of 108 million cubic yards. Currently, the landfill is operating below permitted capacity and it is anticipated that Kiefer Landfill would meet solid waste disposal needs in the Sacramento region through approximately 2064. Because Kiefer Landfill has sufficient permitted capacity to accommodate construction-related disposal needs for the Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives within the timeframe for project buildout (i.e., 30 years), **no direct or indirect** effects would occur. [*Lesser*]

Mitigation Measure: No mitigation measures are required.

P

The amount of solid waste generated by implementation of the Pilatus Alternative would be greater than under the Proposed Action because of the increased number of dwelling units and additional square feet of commercial development (see Tables 2-2 and 2-4 in Chapter 2, “Description of the Proposed Action and Alternatives”). Solid waste generated by construction of the Pilatus Alternative would be reduced by 50 percent through compliance with Sacramento County Construction and Demolition Ordinance (Title 6, Chapter 6.20).

Kiefer Landfill has a total capacity of 117 million cubic yards and a remaining capacity of 108 million cubic yards. Currently, the landfill is operating below permitted capacity and it is anticipated that Kiefer Landfill would meet solid waste disposal needs in the Sacramento region through approximately 2064. Because Kiefer Landfill has sufficient permitted capacity to accommodate construction-related disposal needs for the Pilatus Alternative within the timeframe for project buildout (i.e., 30 years), **no direct or indirect** effects would occur. [*Greater*]

Mitigation Measure: No mitigation measures are required.

EFFECT **Increased Long-Term Generation of Solid Waste.** *Project operation* would increase long-term solid-waste generation, thereby increasing the amount of long-term waste that would require disposal at Kiefer Landfill.
3.16-4

NA

Under the No Action Alternative, no project-related development would occur and there would be no new uses that would increase the long-term solid waste generation. Therefore, **no indirect** or **direct** adverse effects would occur. [*Lesser*]

Mitigation Measure: No mitigation measures are required.

PA

Solid waste collected from the Cordova Hills site would be disposed of at Kiefer Landfill. According to Sacramento County Department of Waste Management and Recycling, the total annual solid waste generated by the Proposed Action would be 61,753 tons per year, or 161 tpd (Ghirardelli, pers. comm., 2011). Much lower generation rates would occur at project initiation, with gradual increases in the rate as development progressed.

Kiefer Landfill is permitted to accept 10,800 maximum tpd of solid waste; however, the average intake is only approximately 6,000 tpd. The total amount of solid waste generated by the Proposed Action would not be substantial in relation to total and remaining capacity (117 and 108 million cubic yards, respectively) of the landfill. Currently, the landfill is operating below permitted capacity and it is anticipated that Kiefer Landfill would meet solid waste disposal needs in the Sacramento region through approximately 2064. In addition, compliance with all Federal, state, and local statutes and regulations related to solid waste reduction and recycling would reduce the volume of solid waste entering Kiefer Landfill. Therefore, this landfill has sufficient permitted capacity to accommodate solid-waste disposal needs from operation of the Proposed Action and **no direct** or **indirect** adverse effects would occur.

Mitigation Measure: No mitigation measures are required.

EDP, EP, RC

The amount of solid waste generated by the Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives would be less than under the Proposed Action because fewer dwelling units and less square feet of commercial development would be generated (see Tables 2-2 and 2-4 in Chapter 2, “Description of the Proposed Action and Alternatives”).

Kiefer Landfill has a total capacity of 117 million cubic yards and a remaining capacity of 108 million cubic yards and is permitted to accept 10,800 maximum tpd of solid waste. Currently, the landfill is operating below permitted capacity and it is anticipated that Kiefer Landfill would meet solid waste disposal needs in the Sacramento region through approximately 2064. In addition, compliance with all Federal, state, and local statutes and regulations related to solid waste reduction and recycling would reduce the volume of solid waste entering Kiefer Landfill. Therefore, this landfill has sufficient permitted capacity to accommodate solid waste disposal

needs from operation of the Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives and **no direct** or **indirect** adverse effects would occur. *[Lesser]*

Mitigation Measure: No mitigation measures are required.

P

The amount of solid waste generated by the Pilatus Alternative would be greater than under the Proposed Action because of the increased number of dwelling units and additional square feet of commercial development (see Tables 2-2 and 2-4 in Chapter 2, “Description of the Proposed Action and Alternatives”).

Kiefer Landfill has a total capacity of 117 million cubic yards and a remaining capacity of 108 million cubic yards and is permitted to accept 10,800 maximum tpd of solid waste. Currently, the landfill is operating below permitted capacity and it is anticipated that Kiefer Landfill would meet solid waste disposal needs in the Sacramento region through approximately 2064. In addition, compliance with all Federal, state, and local statutes and regulations related to solid waste reduction and recycling would reduce the volume of solid waste entering Kiefer Landfill. Therefore, this landfill has sufficient permitted capacity to accommodate solid waste disposal needs from operation of the Pilatus Alternative and **no direct** or **indirect** adverse effects would occur. *[Greater]*

Mitigation Measure: No mitigation measures are required.

EFFECT **Increased Demand for Electricity and Infrastructure.** *Project implementation would increase the demand*
3.16-5 *for electricity and electrical infrastructure.*

NA

Under the No Action Alternative, no project-related development would occur and there would be no new uses that would increase the demand for electricity and infrastructure. Therefore, **no indirect** or **direct** adverse effects would occur. *[Lesser]*

Mitigation Measure: No mitigation measures are required.

PA

Implementation of the Proposed Action would increase electrical demand. Electrical service for the Proposed Action would be provided by SMUD through approximately 473 miles of its existing transmission lines (110 kV or more) and approximately 9,784 miles of its existing distribution lines (typically 12 kV). It is estimated that the annual residential and commercial electricity demand for the project would be 122.9 GWh/yr. In 2011, SMUD generated approximately 10,421 GWh of electricity within its service area and SMUD anticipates electrical demand will increase to 12,131 GWh by 2020 (Table 3.16-2). SMUD receives power through varied sources, including hydropower from the CCP and Upper American River Project, natural-gas-fired generators, renewable energy from solar and wind power, and power purchased on the wholesale market on a short-term basis to meet load requirements.

All residences on the Cordova Hills site must provide 20 percent of their electricity through renewable energy, thus reducing the project’s demands for electricity in the SMUD service area (Capitol Utility Specialists 2010:8). In addition, electrical demand could be further reduced if development of solar facilities and/or development of a

SMUD energy plant occurs in the future. Therefore, the increase in demand for electricity would not be substantial in relation to existing or future electrical consumption in SMUD's service area.

SMUD does not currently have electrical infrastructure on the Cordova Hills site. Existing electrical transmission lines in the vicinity of the Cordova Hills site consist of a SMUD 12-kV overhead transmission line that extends south along Grant Line Road from Douglas Road to Kiefer Boulevard, and a 12-kV overhead transmission line that extends east along Glory Lane. SMUD intends to replace both 12-kV overhead transmission lines with 69-kV underground transmission lines (Capitol Utility Specialists 2010:6). SMUD would conduct a separate CEQA or NEPA analysis, if necessary, to analyze specific effects and identify any required mitigation measures for construction and operation of its new electrical facilities.

Two on-site neighborhood electric substations are proposed to serve the Cordova Hills site, with the possibility of a third substation dedicated to serving the University/College Campus Center. Each substation would have two 25 mega volt ampere (MVA) banks (50 MVA total) and eight underground 12-kV mainline circuits (Capitol Utility Specialists 2010:6). The on-site service lines would extend from these substations and would be sized to meet the project demands, and public utility easements would be dedicated for all underground facilities. Electrical facilities would be designed and constructed in accordance with SMUD's Standards and Rules and Regulations to serve the Cordova Hills site concurrently with development phases, and the location of this infrastructure would be identified in the final project design. As part of the project approval process, the project applicant would coordinate with and meet the requirements of SMUD regarding the extension and locations of on-site infrastructure.

The proposed electrical utility improvements would be required to comply with all existing County and SMUD's Standards and Rules and Regulations, and applicable requirements of the California Building Standard Code. Because SMUD would meet the electrical demands of the Proposed Action and provide new electrical infrastructure to the Cordova Hills site, **no indirect** effect would occur. The **direct** physical effects of constructing the on-site facilities are addressed throughout this EIS in connection with discussions of the effects of overall site development.

Mitigation Measure: No mitigation measures are required.

EDP, EP, RC

The electrical demand under the Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives would be less than under the Proposed Action because fewer dwelling units and less square feet of commercial development would be generated (see Tables 2-2 and 2-4 in Chapter 2, "Description of the Proposed Action and Alternatives"). In 2011, SMUD generated approximately 10,421 GWh of electricity within its service area and SMUD anticipates electrical demand will increase to 12,131 GWh by 2020 (Table 3.16-2). SMUD receives power through varied sources, including hydropower from the CCP and Upper American River Project, natural-gas-fired generators, renewable energy from solar and wind power, and power purchased on the wholesale market on a short-term basis to meet load requirements.

It is assumed, as for the Proposed Action, that all residences developed under the Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives must provide 20 percent of their electricity through renewable energy, thus reducing the project's demands for electricity in the SMUD service area (Capitol Utility Specialists 2010:8). In addition, electrical demand could be further reduced if development of

solar facilities and/or development of a SMUD energy plant occurs in the future. Therefore, the increase in demand for electricity would not be substantial in relation to existing or future electrical consumption in SMUD's service area.

SMUD does not currently have electrical infrastructure on the Cordova Hills site. As described above, SMUD would construct new off-site electrical infrastructure within the vicinity of the Cordova Hills site. The on-site service lines would extend from these substations and would be sized to meet the project demand, and public utility easements would be dedicated for all underground facilities. Electrical facilities would be designed and constructed in accordance with SMUD's Standards and Rules and Regulations to serve the Cordova Hills site concurrently with development phases, and the location of this infrastructure would be identified in the final project design. As part of the project approval process, the project applicant of all project phases would coordinate with and meet the requirements of SMUD regarding the extension and locations of on-site infrastructure.

The proposed electrical utility improvements would be required to comply with all existing County and SMUD's Standards and Rules and Regulations, and applicable requirements of the California Building Standard Code. Because SMUD would meet the electrical demands of the Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives and provide new electrical infrastructure to the Cordova Hills site, **no indirect** effect would occur. The **direct** physical effects of constructing the on-site facilities are addressed throughout this EIS in connection with discussions of the effects of overall site development. [*Lesser*]

Mitigation Measure: No mitigation measures are required.

P

The electrical demand under the Pilatus Alternative would be greater than under the Proposed Action because of the increased number of dwelling units and additional square feet of commercial development (see Tables 2-2 and 2-4 in Chapter 2, "Description of the Proposed Action and Alternatives"). In 2011, SMUD generated approximately 10,421 GWh of electricity within its service area and SMUD anticipates electrical demand would increase to 12,131 GWh by 2020 (Table 3.16-2). SMUD receives power through varied sources, including hydropower from the CCP and the Upper American River Project, natural-gas-fired generators, renewable energy from solar and wind power, and power purchased on the wholesale market on a short-term basis to meet load requirements.

It is assumed, as with the Proposed Action, that all residences developed under the Pilatus Alternative must provide 20 percent of their electricity through renewable energy, thus reducing the project's demands for electricity in the SMUD service area (Capitol Utility Specialists 2010:8). In addition, electrical demands could be further reduced if development of solar facilities and/or development of a SMUD energy plant occurs in the future. Therefore, the increase in demand for electricity would not be substantial in relation to existing or future electrical consumption in SMUD's service area.

SMUD does not currently have electrical infrastructure on the Pilatus site. As described above, SMUD would construct new off-site electrical infrastructure within the vicinity of the Pilatus site. The on-site service lines would extend from these substations and would be sized to meet the project demands, and public utility easements would be dedicated for all underground facilities. Electrical facilities would be designed and constructed in accordance with SMUD's Standards and Rules and Regulations to serve the Pilatus site concurrently with development phases, and the location of this infrastructure would be identified in the final project design. As part

of the project approval process, the project applicant of all project phases would coordinate with and meet the requirements of SMUD regarding the extension and locations of on-site infrastructure.

The proposed electrical utility improvements would be required to comply with all existing County and SMUD's Standards and Rules and Regulations, and applicable requirements of the California Building Standard Code. Because SMUD would meet the electrical demands of the Pilatus Alternative and provide new electrical infrastructure to the Pilatus site, **no indirect** effect would occur. The **direct** physical effects of constructing the on-site facilities are addressed throughout this EIS in connection with discussions of the effects of overall site development. *[Greater]*

Mitigation Measure: No mitigation measures are required.

EFFECT 3.16-6 Increased Demand for Natural Gas and Infrastructure. *Project implementation would increase the demand for natural gas and infrastructure and would require the extension of existing natural gas pipelines.*

NA

Under the No Action Alternative, no project-related development would occur and there would be no new uses would increase the demand for natural gas and infrastructure. Therefore, **no indirect** or **direct** adverse effects would occur. *[Lesser]*

Mitigation Measure: No mitigation measures are required.

PA

Implementation of the Proposed Action would increase natural gas demand. Natural gas service in Sacramento County is provided by PG&E through portions of PG&E's approximately 46,000 miles of existing natural gas distribution pipelines. It is estimated that the estimated annual residential and commercial natural gas demand for the project would be 4.2 MM therms. In 2011, PG&E delivered approximately 4,752 MM therms of natural gas throughout its service area (CEC 2011b). Of this total, Sacramento County received 329 MM therms, which accounted for 6.9 percent of the natural gas deliveries within the PG&E service area (CEC 2011c). PG&E anticipates that by 2020, overall natural gas consumption would decrease to 4,388 MM therms with the continued implementation of energy conservation measures (Table 3.16-3). Therefore, the increase in demand for natural gas under the Proposed Action would not be substantial in relation to existing or future natural gas consumption in PG&E's service area.

PG&E does not currently have gas service infrastructure on the Cordova Hills site. However, an 8-inch high-pressure transmission main is located within Douglas Road, approximately 0.75 miles to the northwest. PG&E intends to construct additional natural gas facilities in the vicinity of the Cordova Hills site, including a 12-inch transmission pressure main along Douglas Road between Grant Line Road and Sunrise Boulevard, and a new distribution regulator station at the intersection of Douglas Road and Sunrise Boulevard (Capitol Utility Specialists 2010:9). The timing, size, and exact location of these future facilities has not been determined by PG&E at this time. PG&E has indicated that it may provide service to the Cordova Hills site by extending service from its existing 8-inch transmission main within Grant Line Road (Capitol Utility Specialists 2010:11). PG&E would conduct a separate CEQA or NEPA analysis, if necessary, to analyze specific effects and identify any required mitigation measures for construction and operation of its new off-site natural gas facilities.

It is anticipated that 8-, 6-, and 4-inch transmission mains would be installed in major roadways throughout the Cordova Hills site. A distribution main would extend from the transmission mains and would be sized based on anticipated natural gas loads required to serve on-site parcels (Capitol Utility Specialists 2010:10). The on-site service lines would be sized to meet the project demands, and public utility easements would be dedicated for all underground facilities. PG&E would extend lines and construct facilities to serve the Cordova Hills site concurrently with development phases, and the location of this infrastructure would be identified in the final project design. As part of the project approval process, the project applicant of all project phases would coordinate with and meet the requirements of PG&E regarding the extension and locations of on-site infrastructure.

Because PG&E is able to provide natural gas and associated infrastructure to the Cordova Hills site under the Proposed Action, **no indirect** effect would occur. The **direct** physical effects of constructing the on-site facilities are addressed throughout this EIS in connection with discussions of the effects of overall site development.

Mitigation Measure: No mitigation measures are required.

EDP, EP, RC

The demand for natural gas under the Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives would be less than under the Proposed Action because fewer dwelling units and less square feet of commercial development would be generated (see Tables 2-2 and 2-4 in Chapter 2, “Description of the Proposed Action and Alternatives”). PG&E anticipates that by 2020, overall natural gas consumption within its service area would decrease to 4,388 MM therms with the continued implementation of energy conservation measures (Table 3.16-3). Therefore, the increase in demand for natural gas under the Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives would not be substantial in relation to existing or future natural gas consumption in PG&E’s service area.

PG&E does not currently have gas service infrastructure on the Cordova Hills site. As described above, PG&E would construct new off-site natural gas facilities within the vicinity of the Cordova Hills site. The on-site service lines would be sized to meet the project demands, and public utility easements would be dedicated for all underground facilities. PG&E would extend lines and construct facilities to serve the Cordova Hills site concurrently with development phases, and the location of this infrastructure would be identified in the final project design. As part of the project approval process, the project applicant of all project phases would coordinate with and meet the requirements of PG&E regarding the extension and locations of on-site infrastructure.

Because PG&E is able to provide natural gas and associated infrastructure to the Cordova Hills site under the Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives, **no indirect** effect would occur. The **direct** physical effects of constructing the on-site facilities are addressed throughout this EIS in connection with discussions of the effects of overall site development. *[Lesser]*

Mitigation Measure: No mitigation measures are required.

P

The natural gas demand under the Pilatus Alternative would be greater than under the Proposed Action because an increased number of dwelling units and additional square feet of commercial development would be generated (see Tables 2-2 and 2-4 in Chapter 2, “Description of the Proposed Action and Alternatives”). PG&E anticipates that by 2020, overall natural gas consumption within its service area will decrease to 4,388 MM therms with the

continued implementation of energy conservation measures (Table 3.16-3). Therefore, the increase in demand for natural gas under the Pilatus Alternative would not be substantial in relation to existing or future natural gas consumption in PG&E's service area.

PG&E does not currently have gas service infrastructure on the Pilatus site. As described above, PG&E would construct new off-site natural gas facilities within the vicinity of the Pilatus site. The on-site service lines would be sized to meet the project demands, and public utility easements would be dedicated for all underground facilities. PG&E would extend lines and construct facilities to serve the Cordova Hills site concurrently with development phases, and the location of this infrastructure would be identified in the final project design. As part of the project approval process, the project applicant of all project phases would coordinate with and meet the requirements of PG&E regarding the extension and locations of on-site infrastructure.

Because PG&E is able to provide natural gas and associated infrastructure to the Pilatus site under the Pilatus Alternative, **no indirect effect would occur**. The **direct** physical effects of constructing the on-site facilities are addressed throughout this EIS in connection with discussions of the effects of overall site development. [*Greater*]

Mitigation Measure: No mitigation measures are required.

EFFECT 3.16-7 Increased Demand for Communications Service and Infrastructure. *Project implementation would increase the demand for communications service and infrastructure.*

NA

Under the No Action Alternative, no project-related development would occur and there would be no new uses that would increase demand for communications service and infrastructure. Therefore, **no indirect** or **direct** adverse effects would occur. [*Lesser*]

Mitigation Measure: No mitigation measures are required.

PA, EDP, EP, P, RC

Currently, there are no existing communications infrastructure within the Cordova Hills site. AT&T would provide communications service and associated infrastructure to the Cordova Hills site through augmentation of existing off-site facilities, as necessary, in the project vicinity. AT&T has existing underground lines along the northern boundary of the Cordova Hills site within Glory Lane and underground fiber optic cables within Douglas Road, approximately 0.75 miles to the northwest.

It is anticipated that AT&T would extend existing underground infrastructure within Grant Line Road to the Cordova Hills site (Capitol Utility Specialists 2010:11). On the Cordova Hills and Pilatus sites, new infrastructure would generally be placed within the rights-of-way of on-site streets. Extension of infrastructure to serve the Cordova Hills and Pilatus sites would occur concurrently with development phases, and the location of this infrastructure would be identified in the final project design. As part of the project approval process, the project applicant would coordinate with AT&T regarding the extension and locations of on-site infrastructure. All new on-site infrastructure would be installed in compliance with the standards of AT&T (Capitol Utility Specialists 2010:12).

Because AT&T would provide the necessary communications and associated infrastructure, **no indirect** effect would occur. The **direct** physical effects of constructing the on-site facilities are addressed throughout this EIS in connection with discussions of the effects of overall site development. *[Similar]*

Mitigation Measure: No mitigation measures are required.

EFFECT 3.16-8 Increased Energy Demand. *Project implementation would increase energy consumption during construction and operation, but would not result in the inefficient, wasteful, or unnecessary consumption of energy.*

NA

Under the No Action Alternative, no project-related development would occur and there would be no new uses that would increase in energy consumption. Therefore, **no indirect** or **direct** adverse effects would occur. *[Lesser]*

Mitigation Measure: No mitigation measures are required.

PA, EDP, EP, P, RC

Project implementation would increase the consumption of energy for the duration of the project's construction and operation in the form of electricity, natural gas, and petroleum products under all five action alternatives. The primary energy demands during construction would be associated with construction vehicle fueling over the 30-year construction period. Energy in the form of fuel and electricity would be consumed during this period by construction vehicles and equipment operating on the site, trucks delivering equipment and supplies to the site, and construction workers driving to and from the site. There are no unusual project characteristics that would necessitate the use of construction equipment that would be less energy-efficient than at comparable construction sites in other parts of the Sacramento region. Therefore, it is expected that construction fuel consumption associated with the project would be similar to other construction sites in the region, and would not be inefficient, wasteful, or unnecessary.

Increased demand for energy is a byproduct of all future land uses and development. Energy is consumed for heating, cooling, and electricity in homes and businesses; for public infrastructure and service operations; and for agricultural, industrial, and commercial uses. The Proposed Action, Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives would be required to comply with the current energy performance standards found Title 24 of the California Code of Regulations, resulting in reductions in energy demand, including the 2010 California Green Building Code (Part 11 of Title 24). This code was developed to enhance the design and construction of buildings and sustainable construction practices through planning and design, energy efficiency, water efficiency and conservation, material conservation and resource efficiency, and environmental air quality. It is the intent of this code to encourage green buildings to achieve to achieve more than a 15 percent reduction in energy usage when compared to existing standards.

All new residences that are developed on the Cordova Hills and Pilatus sites must provide 20 percent of their electricity through renewable energy, thus reducing the project's demands for electricity in the SMUD service area (Capitol Utility Specialists 2010:8). In addition, electrical demands could be further reduced if development of solar facilities and/or development of a SMUD energy plant occurs in the future.

Transportation is, by far, the largest energy consuming sector in California, accounting for 40-50 percent of all energy use in the state. The location, density, mix of land uses, and quality of the multi-modal transportation system is directly related to the amount of travel and transportation-related energy demands. There are many feasible and commonly used land use and transportation planning strategies that reduce vehicular travel demand and therefore increase energy efficiency. The project would provide a compact mixed-use development that facilitates walking or cycling to work, stores, restaurants, and parks, and includes both housing and employment opportunities on-site, thus reducing the need to travel outside the Cordova Hills and Pilatus sites.

Given the types of development and the plans for alternative modes of transportation, and assuming compliance with Building Energy Efficiency Standards (Title 24 of the California Code of Regulations) and a 20 percent reduction in energy demands through renewable energy, the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives would not cause the inefficient, wasteful or unnecessary consumption of energy, and this **direct** and **indirect** effect would be **less than significant**. Other **indirect** effects associated with future consumption of energy (e.g., construction of additional regional power generation plants and effects associated therewith such as increased consumption of water at the energy plants, loss of biological habitat or cultural resources as result of power plant construction,) are **uncertain** and are too far removed in place and time from the project to allow for a meaningful evaluation of effects; therefore, it would be too speculative to reach a meaningful conclusion. No mitigation measures were identified to further reduce effects. *[Similar]*.

3.16.6 RESIDUAL SIGNIFICANT EFFECTS

Effects associated with increased demand for increased temporary and short-term and long-term generation of solid waste and increased demands for electrical, natural gas, and communications service would be less than significant. Effects associated with increased demand for on-site and SASD and SRCSD off-site wastewater collection and conveyance facilities would be less than significant with implementation of the EIR mitigation measures, conditions of approval, and development agreement requirements incorporated into the Proposed Action. Therefore, no residual significant effects would occur.

3.16.7 CUMULATIVE EFFECTS

Increased demand for utilities and service systems is a byproduct of all future land uses and development in Sacramento County and the region. In terms of cumulative effects, the appropriate service providers are responsible for ensuring adequate provision of public utilities within their service boundaries. The necessary public utilities would be provided to the project and to other projects in the vicinity by SASD, SRCSD, SMUD, PG&E, and AT&T.

WASTEWATER COLLECTION AND CONVEYANCE FACILITIES

The Cordova Hills and Pilatus sites are presently not served by municipal wastewater collection and treatment systems. Sanitary sewer service for the project would be provided by SASD and SRCSD. Both the 2010 SSCP and SRCSD ISS planned for wastewater flows generated by the project as well as flows generated by the other foreseeable projects within their respective service areas. Project implementation would include incorporation of conditions associated with the project entitlements requiring that adequate wastewater collection and conveyance infrastructure necessary to serve the proposed development be assured before building permits are issued. Although the other foreseeable projects would also require service from SASD and SRCSD, these agencies have

indicated that existing and planned sewer facilities would have adequate capacity to serve the project and the other foreseeable projects in their service areas. Therefore, a cumulatively significant effect would not occur.

WASTEWATER TREATMENT FACILITIES

Collected wastewater flows from the Cordova Hills and Pilatus sites would ultimately be transported to the SRWTP for treatment and disposal. The SRWTP receives and treats an average of 124 mgd (as of 2012) and has a permitted dry-weather flow design capacity of 181 mgd (SRCSD 2012). SRCSD has determined that growth within the SRCSD is less than what was projected in the 2020 Master Plan and the SRWTP can provide capacity to future development beyond what was originally anticipated in the 2020 Master Plan (SRCSD 2012). Over time, additional planning at the SRWTP would occur, and overall capacity would be assessed and additional capacity planned for and added as necessary to meet demand for wastewater treatment (SRCSD 2010). The SRWTP site has sufficient land area to accommodate a substantially higher flow than 218 mgd; however, given the withdrawal of SRCSD's application for SRWTP expansion beyond 181 mgd, future SRCSD plans beyond the next 7 years are too speculative for meaningful consideration. There would be no assurances that the SRWTP would have adequate capacity for new wastewater flows for development of the project or other foreseeable projects occurring after 2020.

Implementation of Mitigation Measure 3.16-1 would ensure that no effect would occur from the project's demand for wastewater treatment plant facilities because adequate wastewater treatment facilities sufficient to serve the project would be documented before approval of final maps/improvement plans and issuance of building permits. The other foreseeable projects would also require wastewater treatment at SRWTP. However, as stated above, SRCSD has determined that growth within the SRCSD is less than what was projected in the 2020 Master Plan and the SRWTP can provide capacity to future development beyond what was originally anticipated in the 2020 Master Plan (SRCSD 2012). Over time, additional planning at the SRWTP would occur, and overall capacity would be assessed and additional capacity planned for and added as necessary to meet demand for wastewater treatment (SRCSD 2010). Therefore, in the short term, a cumulatively significant effect would not occur.

However, because it is unknown if or when the SRWTP would require expansion to meet future wastewater treatment demands, indirect effects from the project and the other foreseeable projects associated with future expansion the SRWTP are too speculative for meaningful consideration. Consequently, it cannot be determined if the project and other foreseeable projects would result in cumulatively significant effects related to future expansion of the SRWTP.

SOLID WASTE

Solid waste generated by the project and other foreseeable projects would be disposed of at Kiefer Landfill. Because Kiefer Landfill has sufficient permitted capacity to accommodate solid waste disposal needs for the project within the timeframe for project buildout (i.e., 30 years), an adverse effect from project implementation would not occur. The other foreseeable projects vary in size and have different amounts of residential and commercial development (which have different solid waste generation rates), but the increase in development associated with the other foreseeable projects also would be expected to increase the generation of solid waste within the Kiefer Landfill service area. Currently, the landfill is operating below permitted capacity and it is anticipated that Kiefer Landfill would meet solid waste disposal needs in the Sacramento region through approximately 2064. In addition, compliance with all Federal, state, and local statutes and regulations, including compliance with the Sacramento County Construction and Demolition Ordinance (related to solid waste reduction

and recycling) would reduce the volume of solid waste generated by the project and the other foreseeable projects entering Kiefer Landfill. Kiefer Landfill has adequate capacity to serve the project and the other foreseeable projects and therefore a cumulatively significant effect would not occur.

ELECTRICITY

The project and the other foreseeable projects would increase the demand for electricity and infrastructure within the SMUD service area. Because the project's increase in demand for electricity would not be substantial in relation to existing or future electrical consumption in SMUD's service area, an adverse effect from project implementation would not occur.

The other foreseeable projects vary in size and have different amounts of residential and commercial development, and therefore also would be expected to increase the demand for electricity and infrastructure within SMUD's service area. In 2011, SMUD generated approximately 10,421 GWh of electricity within its service area and SMUD anticipates electrical demand would increase to 12,131 GWh by 2020 (CEC 2009a, 2011a). SMUD receives power through varied sources, such as hydropower from the CCP and Upper American River Project, natural-gas-fired generators, renewable energy from solar and wind power, and power purchased on the wholesale market on a short-term basis to meet load requirements.

SMUD plans to construct additional electrical infrastructure to serve the project and other foreseeable projects. SMUD would be responsible for upgrading its existing electrical infrastructure or constructing new distribution systems to meet the demands of the other foreseeable projects. Based on the existing and projected electrical demands in the SMUD service area and existing and planned electrical infrastructure for new development, it is anticipated that SMUD would have the capacity to provide service to the project as well as the other foreseeable projects and therefore a cumulatively significant effect would not occur.

NATURAL GAS

Development of the project and the other foreseeable projects would increase the demand for natural gas and associated infrastructure within the PG&E service area. The increase in demand for natural gas from implementation of the project would not be substantial in relation to existing or future natural gas consumption in PG&E's service area.

The other foreseeable projects vary in size and have different amounts of development, and therefore also would be expected to increase the demand for natural gas and infrastructure within PG&E's service area. In 2011, PG&E delivered approximately 4,752 MM therms of natural gas throughout its service area (CEC 2011b). Of this total, Sacramento County received 329 MM therms, which accounted for 6.9 percent of the total natural gas deliveries within the PG&E service area (CEC 2011c). PG&E anticipates that by 2020, overall natural gas consumption will decrease to 4,388 MM therms with the continued implementation of energy conservation measures (Table 3.16-3).

PG&E plans to construct additional natural gas facilities to serve the project and other foreseeable projects. Based on the existing and projected natural gas supply and demand in the PG&E service area and existing and planned natural gas infrastructure, it is anticipated that PG&E would have the capacity to provide service to the project and the other foreseeable projects; therefore, a cumulatively significant effect would not occur.

COMMUNICATIONS

AT&T would provide communications service and associated infrastructure to the Cordova Hills site and other foreseeable projects within its service area. AT&T provides communications service upon request. Because AT&T has the desire and the capacity to install lines that would carry their communication signals, a cumulatively significant effect associated with the increased demand for communications service and infrastructure would not occur.

This page intentionally left blank.

3.17 WATER SUPPLY

3.17.1 INTRODUCTION

Presently, there are no public water supply facilities on the Cordova Hills and Pilatus sites. The Sacramento County Water Agency (SCWA) would provide water supplies to the Cordova Hills and Pilatus sites through its Zone 40 conjunctive-use water supply system. In December 2011, SCWA prepared the *Zone 40 Water Supply Master Plan Amendment for the Cordova Hills Project* (Cordova Hills Water Supply Master Plan [WSMP] Amendment) (SCWA 2011a) to address the need for water supply associated with implementation of the Proposed Action and annexation of the Cordova Hills site into Zone 40's North Service Area (NSA). SCWA adopted the Cordova Hills WSMP Amendment on March 26, 2013.

The following section identifies available SCWA Zone 40 water supply sources; existing and projected water demands for SCWA Zone 40, including the NSA; and describes SCWA's water conveyance and treatment facilities that would serve the Cordova Hills and Pilatus sites. This section includes a discussion of effects related to increased need for water supply and water conveyance and treatment facilities associated with the alternatives under consideration. Feasible mitigation measures are recommended, where appropriate, to reduce adverse effects.

3.17.2 AFFECTED ENVIRONMENT

SACRAMENTO COUNTY WATER AGENCY

SCWA was created in 1952 for the purpose of controlling and conserving storm, flood, and other surface waters for any beneficial use for lands and inhabitants and producing, storing, transmitting, and distributing groundwater (SCWA 2005a:1-2). Zone 40 was created by the SCWA Board of Directors in 1985 as a special benefit zone to supplement available groundwater supplies to support new and projected development within the zone, and to establish the framework for a conjunctive use program that would use both surface water and underlying groundwater (SCWA 2005a:1-2). Zone 40 consists of approximately 86,000 acres of agricultural, residential, and industrial land in central Sacramento County. Zone 41 provides retail water service to Zone 40 as well as to certain other areas in Sacramento County.

Several planning documents describe SCWA's water sources, projected water demands, capital facility requirements, financial requirements, and groundwater management requirements. The three primary planning documents for the Zone 40 service area consist of the *2005 Zone 40 Water Supply Master Plan* (SCWA 2005a), the *2010 Zone 41 Urban Water Management Plan* (Zone 41 UWMP) (SCWA 2011b), and the *Zone 40 Water System Infrastructure Plan* (Zone 40 WSIP) (SCWA 2006). None of these plans contemplated development related to the project (SCWA 2011b:1-1).

As discussed above, SCWA prepared the Cordova Hills WSMP Amendment to address the need for water supply associated with the Proposed Action. The Cordova Hills WSMP Amendment supplements the Zone 40 WSMP in those areas where the Proposed Action would affect the findings of the Zone 40 WSMP. The amendment quantifies and updates SCWA's total projected water supplies and demands for Zone 40 based on land uses associated with the Proposed Action (SCWA 2013a:22). When the Zone 40 WSMP itself is updated in the future, the appropriate elements from the Cordova Hills WSMP Amendment will be incorporated into that document (SCWA 2011a:1-3).

SACRAMENTO COUNTY WATER AGENCY ZONE 40 WATER SUPPLY SOURCES

Zone 40’s goal is the development of a conjunctive-use water supply system. The areas inside Zone 40 are served conjunctively with surface water, groundwater (pumped from the Central Basin), and recycled water. Available surface water supplies would be maximized in wet years; groundwater supplies would be maximized in dry years through increased pumping at SCWA’s groundwater facilities. In all consecutive dry years, water demand management programs would be implemented to a higher degree (e.g., greater conservation, reduced outdoor use) to reduce the potential effects from increased extraction of groundwater. The following discussion summarizes water supply sources identified in the Cordova Hills WSMP Amendment that will be used to meet projected demands within Zone 40 (SCWA 2011a:4-1 to 4-6).

Surface Water Supplies

The components of SCWA’s current and planned surface water supplies in Zone 40 are shown in Table 3.17-1 and described below. In wet years, SCWA’s total estimated water supply of surface water is 98,200 acre-feet per year (afy) while in critically dry years, water supply is reduced to 64,950 afy. The timing and amount of water assumed to be available from each surface water contract source is based on conservative estimates of the reliable yield and historical reductions under each of the hydrologic year categories. Generally, Central Valley Project (CVP) water is the most reliable source because the U.S. Bureau of Reclamation’s storage facilities are located in the Sacramento River watershed. Appropriative water is generally available in each year from January to April (i.e., excess wet month water). In dry and critically dry years, the assumption is that rainfall totals provide no excess water for use as appropriative water.

Component	Wet Year	Above Average Year	Below Average Year	Dry Year	Critically Dry Year
SMUD Assignment	30,000	30,000	28,000	7,000	3,500
“Fazio” Water (PL 101-514)	15,000	15,000	12,000	11,250	9,000
Appropriative Water Supplies (Permit 21209)	35,000	31,500	28,000	7,000	3,500
City of Sacramento Place of Use	9,300	93,00	9,300	9,300	9,300
Remediated Water	8,900	8,900	8,900	8,900	8,900
Other Transfer-Water Supplies	0	0	0	6,000	12,000
Total Surface Water	98,200	98,200	94,700	82,200	64,950

Notes: afy = acre-feet per year; SCWA = Sacramento County Water Agency; SMUD = Sacramento Municipal Utility District.
Source: SCWA 2011a:4-6

Sacramento Municipal Utility District Assignment

Under the terms of a three-party agreement (SCWA, Sacramento Municipal Utility District [SMUD], and the City of Sacramento), the City of Sacramento provides surface water to SMUD for use at two of SMUD’s cogeneration facilities. SMUD, in turn, provides 15,000 afy of its CVP contract water to SCWA for municipal and industrial use.

Based on SMUD’s purveyor-specific agreements under the Water Forum Agreement (WFA), another 15,000 afy of surface water is provided to SCWA for municipal and industrial uses, and to enable SCWA to construct groundwater facilities to provide water needed to meet SMUD’s demand of up to 10,000 afy at its Rancho Seco cogeneration facility during water shortages in dry years. The amount of water required by SMUD is based on hydrologic year type and the amount of cut back SMUD may experience on its remaining CVP contract. Delivery of this water occurs through the Folsom South Canal (SCWA 2006: 3-7).

Central Valley Project Water (Public Law 101-514 [“Fazio Water”])

SCWA executed a CVP water-service contract pursuant to Public Law 101-514 (referred to as “Fazio water”) that provides a permanent water supply of 22,000 afy, with 15,000 afy allocated to SCWA and 7,000 afy allocated to the City of Folsom. SCWA began taking delivery of the Fazio water in 1999 at the City of Sacramento’s Franklin connection through a long-term wheeling agreement with the City of Sacramento. This contract remains in effect until it expires in 2024.

Appropriative Water Supplies

The State Water Resources Control Board appropriates water from the American River to SCWA under Permit 21029. This water is considered “intermittent water” that typically would be available during normal years or wet years (i.e., years when rainfall, and hence water supply, are greater than average). The permit allows for diversions of up to 71,000 afy and estimates that long-term average yield from this supply is 21,700 afy. The Freeport Regional Water Project (FRWP) and Vineyard Surface Water Treatment Plant (WTP) would be used to deliver this surface water.

City of Sacramento’s American River Place of Use Agreement

The City of Sacramento provides wholesale American River water to SCWA for use in a portion of the SCWA 2030 Study Area that lies within the City of Sacramento’s American River Place of Use (POU). The estimated long-term average volume of water that would be used by SCWA within this POU would be approximately 9,300 afy.

Remediated Water

SCWA has entered into an agreement with Aerojet for 8,900 afy of remediated groundwater discharged from Aerojets’ Groundwater Extraction and Treatment facilities located in the Rancho Cordova area. For modeling purposes, the Cordova Hills WSMP Amendment treats this supply as surface water source (remediated water) that is discharged into the American River and diverted at Freeport.

Other Transfer Supplies

SCWA is pursuing purchase and transfer agreements with other entities north of its service area in the Sacramento River basin. SCWA’s estimated long-term average use of these water supplies would be approximately 5,200 afy. This water would be purchased only in dry and critically dry years. None of these water transfer agreements have been executed at this time, as none are needed for the foreseeable future; they are therefore still in the preliminary negotiation stage.

Recycled Water

Approximately 4,400 afy of recycled water is currently provided to SCWA by the Sacramento Regional County Sanitation District as a source of nonpotable water for landscape irrigation at parks, schools, and rights-of-way. Recycled water is not being used in the NSA.

Groundwater Supplies within Sacramento County Water Agency Zone 40

SCWA currently exercises, and will continue to exercise, its rights as a groundwater appropriator and will extract water from the Central Basin for the beneficial use of its customers. A long-term average annual yield of 40,900 afy of groundwater has been identified in both the WFA and WSMP for SCWA in the Central Basin to meet urban water demand within Zone 40 through the year 2030. As a signatory to the WFA, SCWA is committed to adhering to the long-term average sustainable yield of the Central Basin (i.e., 273,000 afy) recommended in the WFA.

EXISTING AND PROJECTED WATER SUPPLY AND DEMAND FOR SACRAMENTO COUNTY WATER AGENCY ZONE 40

As part of the Zone 40 WSMP, water demand was calculated for various land uses within a portion of Zone 40 known as the 2030 Study Area. The 2030 Study Area includes areas where development of industrial, commercial, office, and residential land uses is expected to occur and where demand for water is expected to be concentrated during the planning horizon of the Zone 40 WSMP (i.e., 2030). Land use information for the Zone 40 2030 Study Area included tentative maps, specific plans, community plans, and general plans. Water demands associated with implementation of the Proposed Action were not included in the Zone 40 2030 Study Area water demand projections. Approval of the Cordova Hills WSMP Amendment quantifies and updates SCWA's total projected water demands in the 2030 Study Area based on land uses included in the Proposed Action (SCWA 2013a:22).

Water supplies and demands within SCWA Zone 40 would be the same during normal, single-dry, and multiple-dry years; however, the year-to-year mix of surface and groundwater would be adjusted as necessary to meet the demands as part of its conjunctive use water supply program. Table 3.17-2 identifies surface water and groundwater supply and demand within SCWA Zone 40 from 2010 to buildout of the 2030 Study Area (i.e., 2050) in normal, single dry, and multiple dry years.

North Service Area

The Zone 40 Water Supply Infrastructure Plan (WSIP) was prepared in 2006 to provide the most up-to-date information on Zone 40's water supplies, demands, and infrastructure. The Zone 40 WSIP divides the Zone 40 2030 Study Area into three major subareas for planning purposes. From east to west, these areas are identified as: the NSA, the Central Service Area (CSA), and the South Service Area (SSA), respectively. The Cordova Hills and Pilatus sites are located in the NSA and the discussion that follows summarizes information contained within the WSIP.

**Table 3.17-2
Comparison of Water Supply and Demand in Zone 40 (2010-2050)¹**

Total Water Supplies and Demand	Projected Demands (afy)					
	2010	2015	2020	2025	2030	2050
Normal Year						
Supply						
Groundwater	31,890	7,200	21,580	21,030	22,040	13,930
Surface water	9,400	41,780	37,800	53,760	63,620	91,930
Total Supply	41,290	48,990	59,390	74,790	85,670	105,860
Total Demand	41,290	48,990	59,390	74,790	85,670	105,860
Difference (Supply minus Demand)	0	0	0	0	0	0
Single-Dry Year						
Supply						
Groundwater	29,460	17,420	19,930	30,480	38,760	53,790
Surface water	5,640	24,220	30,550	33,090	34,060	36,190
Total Supply	35,090	41,640	50,480	63,570	72,820	89,980
Total Demand	35,090	41,640	50,480	63,570	72,820	89,980
Difference (Supply minus Demand)	0	0	0	0	0	0
Multiple-Dry Year 1						
Supply						
Groundwater	30,110	14,890	15,860	26,540	34,940	43,270
Surface water	7,050	29,200	37,590	10,770	42,170	52,000
Total Supply	37,160	44,090	53,450	67,310	77,100	95,270
Total Demand	37,160	44,090	53,450	67,310	77,100	95,270
Difference (Supply minus Demand)	0	0	0	0	0	0
Multiple-Dry Year 2						
Supply						
Groundwater	29,460	17,420	19,930	30,480	38,760	53,790
Surface water	5,640	24,000	30,550	33,090	34,060	36,190
Total Supply	35,090	41,640	50,480	63,570	72,820	89,980
Total Demand	35,090	41,640	50,480	63,570	72,820	89,980
Difference (Supply minus Demand)	0	0	0	0	0	0
Multiple-Dry Year 3						
Supply						
Groundwater	29,460	17,420	19,930	30,480	38,760	53,790
Surface water	5,640	24,000	30,550	33,090	34,060	36,190
Total Supply	35,090	41,640	50,480	63,570	72,820	89,980
Total Demand	35,090	41,640	50,480	63,570	72,820	89,980
Difference (Supply minus Demand)	0	0	0	0	0	0

Notes: afy = acre-feet per year; SCWA = Sacramento County Water Agency

¹ Water supplies and demands within SCWA Zone 40 would be the same during normal, single-dry, and multiple-dry years; however, the year-to-year mix of surface and groundwater would be adjusted as necessary to meet the demands as part of its conjunctive-use water supply program.

Source: SCWA 2011a; data compiled by AECOM in 2013

The NSA includes areas identified as the Sunrise Corridor, Sunrise Douglas Community Plan, Mather Field, Rio del Oro within Zone 40, and Rio del Oro within the California American Water Company (Cal-Am) boundaries, where wholesale of Zone 40 water supplies would be delivered (SCWA 2006:2-5). When the Cordova Hills WSMP Amendment was approved, the Cordova Hills and Pilatus sites were included in the NSA.

Groundwater supplies for the NSA are currently provided by the North Vineyard Well Field (NVWF) and Mather Housing groundwater system. The NVWF is located along both sides of Excelsior Road, between Florin Road and Elder Creek Road. This well field would provide for the extraction of up to 10,000 afy of groundwater at buildout to serve existing or proposed development within Zone 40 service area, including the NSA, on a first come, first served basis. The first three NVWF wells are operational and are capable of producing approximately 3,600 afy. SCWA has designated one of the three wells as an emergency backup well to increase water supply availability and reliability.

The Mather Housing groundwater system is located west of Eagles Nest Road and southwest of Douglas Road and currently serves development in and around Mather Field as well as development along the Sunrise Boulevard corridor. The Mather Housing groundwater system consists of two groundwater wells, a 6.0-million gallons per day (mgd) groundwater treatment plant, and one 0.5-mgd storage tank. The Mather Housing groundwater system is capable of producing 6,722 afy (SCWA 2006:4-7).

To meet water demands of the NSA, SCWA intends to construct three groundwater wells, the 4.0-mgd SunCreek WTP, a 1.5-mgd storage tank, and booster pump stations east of Sunrise Boulevard and south of Kiefer Boulevard. The three groundwater wells, one of which would serve as a back-up, could extract up to 4,484 afy of groundwater. The SunCreek groundwater wells and water treatment plant may be used only in the summer months as a peaking and backup facility once sufficient surface water is available to serve the NSA (SCWA 2006:4-9 and 6-11).

As shown in Table 3.17-3, the estimated long-term average annual and maximum annual groundwater supply for the NSA are 10,601 afy (9.5 mgd) and 21,202 afy (19.0 mgd), respectively.

Table 3.17-3 Existing and Proposed Groundwater Supplies for the North Service Area				
Component of Water Supply	Average Annual Supply (afy)	Maximum Annual Supply (afy)	Average-Day Supply (mdg)	Maximum-Day Supply (mgd)
North Vineyard Well Field	5,000	10,000	4.5	9.0
Mather Housing Well Field	3,361	6,722	3.0	6.0
SunCreek Well Field	2,240	4,480	2.0	4.0
Total Supplies	10,601	21,202	9.5	19.0
Notes: afy = acre-feet per year; mgd = million gallons per day; NSA = North Service Area Source: SCWA 2006:7-2				

WATER CONVEYANCE AND TREATMENT FACILITIES

Existing and proposed surface water and groundwater conveyance and treatment facilities would be required to provide water supplies to the Cordova Hills and Pilatus sites. Surface water would be diverted from the Sacramento River via the FRWP facilities and conveyed to the Vineyard Surface WTP for treatment. After the water is treated at the Vineyard Surface WTP, it would be delivered to the Cordova Hills and Pilatus sites through the proposed North Service Area Pipeline (NSAP). In addition, groundwater would be extracted from the NVWF. Groundwater from the NVWF is conveyed to the Anatolia WTP through the existing Anatolia raw water pipeline. Once treated, groundwater is then distributed throughout the existing NSA system. The following discussion provides an overview of these water conveyance and treatment facilities.

Vineyard Surface Water Treatment Plant

The Vineyard Surface WTP (previously referred to as the Central Surface WTP) and associated water supply facilities provide potable water to existing and approved future development within the SCWA Zone 40 area. The current treatment plant capacity is 50 mgd; it will be expanded in the future to treat up to 100 mgd (SCWA 2013b). The Vineyard Surface WTP is located at the northeast corner of Florin and Knox Roads in Sacramento County.

SCWA, in cooperation with East Bay Municipal Utility District (EBMUD), has completed construction of the FRWP. The FRWP will provide SCWA with up to 85 mgd of surface water from the Sacramento River that would be conveyed by FRWP to SCWA's Vineyard Surface WTP.

North Service Area Pipeline Project

The NSAP Project (NSAPP) will enable delivery of surface water from the Vineyard Surface WTP to the Mather Specific Plan area and SCWA's NSA, which includes the Cordova Hills and Pilatus sites. The NSAPP would include construction of a transmission main and booster tank station to serve the Mather Specific Plan area NSA. The NSAP would begin at the Vineyard Surface WTP and convey surface water through one of four alternative alignments to an existing 42-inch transmission main at the intersection of Douglas Road and Sunrise Boulevard (Sacramento County 2010:IS-7 and IS-8) In addition, the NSAPP would include construction of two booster storage tanks at one of two proposed sites. The timing of construction of the NSAP is not currently defined, as it is dependent on demand from growth in the NSA (SCWA 2013a:13).

The environmental effects of the construction and operation of the NSAP were analyzed at a project level in an Initial Study/Mitigated Negative Declaration (IS/MND) (State Clearinghouse [SCH] #2010082044), which was circulated for public review in August 2010 (SCWA 2010). The IS/MND was adopted by the County on October 17, 2010. The NSAPP IS/MND is hereby incorporated by reference into this EIS.

North Vineyard Well Field

The NVWF would consist of up to seven wells and would provide for the extraction of up to 10,000 afy of groundwater at buildout. SCWA has constructed the first phase of the NVWF, consisting of three wells (Wells 1-3) and three filters. NVWF Wells 1-3 are operational and are capable of producing approximately 3,600 afy. SCWA has designated one of the three wells as an emergency backup to increase water supply availability and reliability. Wells 4 through 7 will be constructed as new water supplies are required.

IS/MNDs for Well 4 (SCH #2005042042), Well 5 (SCH #2005062109), and Well 6 (SCH #2005072003) analyzed the environmental effects of the construction and operation of these wells (SCWA 2005b, 2005c, and 2005d). The IS/MNDs were circulated for public review and adopted by Sacramento County in 2005. All three of these IS/MNDs are hereby incorporated by referenced into this EIS. Although the CEQA review is complete, there is currently no time frame for construction of Wells 4 through 6. Well 7 has not undergone project-level CEQA review and there is currently no time frame for construction of Well 7.

Anatolia Water Treatment Plant

The Anatolia WTP is located east of Sunrise Boulevard, west of Anatolia Drive, and south of Chrysanthy Boulevard in the Anatolia II subdivision (west of the Cordova Hills and Pilatus sites). The Anatolia WTP became operational in July 2005 and currently treats raw water from the NVWF. The current design capacity of this facility is approximately 6.5 mgd (4,500 gallons per minute) and it uses two, 2-mgd storage tanks. As of 2009, the average day demand was approximately 2.1 mgd and the maximum day demand was 4.3 mgd. Expansion of the Anatolia WTP to its ultimate capacity of 13.0 mgd is required to provide water treatment for build-out of the NSA. SCWA currently has no set timeframe to expand the Anatolia WTP.

The Anatolia WTP uses two, 2-mgd storage tanks, which have adequate capacity to provide operational, emergency, and fire requirements. The Anatolia storage tank capacity varies between 40 percent during peak hours to 100 percent at off-peak hours. This variability could be modified in the future by enabling the tanks to receive some surface water during the off-peak hours.

3.17.3 REGULATORY FRAMEWORK/APPLICABLE LAWS, REGULATIONS, PLANS, AND POLICIES

State laws and regulations are provided for informational purposes and to assist with NEPA review. USACE has considered applicable state, regional, and local plans and ordinances as a part of the environmental review process for this EIS.

Sacramento County certified an EIR and approved the Proposed Action in January 2013. State, regional, and local plans, policies, laws, and ordinances were considered in the EIR and adopted mitigation measures have been incorporated into the Proposed Action.

FEDERAL PLANS, POLICIES, REGULATIONS, AND LAWS

There are no Federal plans, policies, regulations, or laws related to water supply that would be relevant to the alternatives under consideration.

STATE PLANS, POLICIES, REGULATIONS, AND LAWS

Senate Bills 610 and 221

The State of California has enacted legislation that is applicable to the consideration of larger projects under CEQA. Senate Bill (SB) 610 (Chapter 643, Statutes of 2001; Section 21151.9 of the California Public Resources Code and Section 10910 et seq. of the California Water Code) requires the preparation of “water supply assessments” for large developments (i.e., more than 500 dwelling units or nonresidential equivalent), such as the Cordova Hills Specific Plan. These assessments, prepared by “public water systems” responsible for serving

project areas (in this case, SCWA), address whether existing and projected water supplies are adequate to serve the project while also meeting existing urban and agricultural demands and the needs of other anticipated development in the service area in which the project is located. If the most recently adopted Urban Water Management Plan (UWMP) accounted for the projected water demand associated with the project, the public water system may incorporate the requested information from the UWMP. If the UWMP did not account for the project's water demand, or if the public water system has no UWMP, the project's WSA must discuss whether the system's total projected water supplies (available during normal, single-dry, and multiple-dry water years during a 20-year projection) would meet the project's water demand in addition to the system's existing and planned future uses, including agricultural and manufacturing uses.

Where a WSA concludes that insufficient supplies are available, the public water system must provide to the city or county considering the development project (here, Sacramento County) its plans for acquiring and developing additional water supplies. Based on all the information in the record relating to the project, including all applicable WSAs and all other information provided by the relevant public water systems, the city or county must determine whether sufficient water supplies are available to meet the demands of the project, in addition to existing and planned future uses. Where a WSA concludes that insufficient supplies are available, the WSA must lay out the steps that would be required to obtain the necessary supply. The WSA is required to include (but is not limited to) identification of the existing and future water supplies over a 20-year projection period. This information must be provided for average normal, single-dry, and multiple-dry years. The absence of an adequate current water supply does not preclude project approval, but it does require a lead agency to address a water supply shortfall in its project findings.

If the project is approved, additional complementary statutory requirements, created by SB 221 (California Government Code Section 66473.7), would apply to the approval of tentative subdivision maps for more than 500 residential dwelling units. This statute requires cities and counties to include, as a condition of approval of such tentative maps, the preparation of a "water supply verification." The verification, which must be completed by no later than the time of approval of final maps, is intended to demonstrate that there is a sufficient water supply for the newly created residential lots. The statute defines sufficient water supply as follows:

... the total water supplies available during normal, single-dry, and multiple-dry years within a 20-year projection period that would meet the projected demand associated with the proposed subdivision, in addition to existing and planned future uses, including, but not limited to, agricultural and industrial uses.

A number of factors must be considered in determining the sufficiency of projected supplies:

- ▶ the availability of water supplies over a historical record of at least 20 years;
- ▶ the applicability of an urban-water-shortage contingency analysis that includes action to be undertaken by the public water system in response to water supply shortages;
- ▶ the reduction in water supply allocated to a specific water-use sector under 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 statutory provisions giving priority to water needed for domestic use, sanitation, and fire protection; and

- ▶ 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 transfer, including programs identified under Federal, state, and local water initiatives.

California Water Conservation Act

SBx7-7 was enacted in November 2009 and requires each urban water supplier to select one of four water conservation targets contained in California Water Code Section 10608.20, with the statewide goal of achieving a 20 percent reduction in urban per capita water use by 2020. Under SBx7-7, urban retail water suppliers (in this case, SCWA) were required to develop water use targets and submit a water management plan to the California Department of Water Resources by July 2011. The plan must include the baseline daily per capita water use, water use target, interim water use target, and compliance daily per capita water use. In addition, the state will make incremental progress towards this goal by reducing per capita water use by at least 10 percent by December 31, 2015.

3.17.4 ANALYSIS METHODOLOGY

Effects on water supply, conveyance infrastructure, and treatment facilities that would result from implementation of the alternatives under consideration were identified by comparing existing service capacity and facilities against future demand associated with project implementation. Where possible, a quantitative comparison was used to determine effects of the alternatives under consideration on future demands. Evaluation of potential water supply effects was based on a review of the following regional, local, and project-related planning documents and technical studies pertaining to the Cordova Hills and Pilatus sites and surrounding area:

- ▶ *Sacramento County Water Agency 2005 Zone 40 Water Supply Master Plan (SCWA 2005a),*
- ▶ *Sacramento County Water Agency Zone 40 Water System Infrastructure Plan (SCWA 2006),*
- ▶ *Sacramento County Water Agency Zone 40 Water Supply Master Plan Amendment for the Cordova Hills Project (SCWA 2011a),*
- ▶ *Potable Water Master Plan for Cordova Hill (MacKay & Somps 2011), and*
- ▶ *Sacramento County Water Agency Water Supply Assessment for Cordova Hills (SCWA 2013).*

Because the Final EIR has already been certified, all Final EIR Mitigation Measures, the Rezone and Tentative Large Lot Parcel Map Conditions of Approval, and the obligations found in the Development Agreement (collectively referred to as the project entitlements) are considered a part of the Proposed Action. Thus, these measures and requirements are considered when analyzing the significance of effects under the Proposed Action. Because the project entitlements were imposed on the Proposed Action by the County as part of its approval process, it is reasonable to assume that if one of the action alternatives were adopted, the County would impose similar conditions during the entitlement of the alternative.

THRESHOLDS OF SIGNIFICANCE

The determinations of the significance of effects for this analysis are based on professional standards regularly used in environmental review documents in the region. These thresholds encompass the factors taken into account

under NEPA to determine the significance of an action in terms of its context and the intensity of its effects. These are also informed by the environmental checklist in Appendix G of the State CEQA Guidelines. The alternatives under consideration were determined to result in a significant effect related to water supply if they would do any of the following:

- ▶ have insufficient water supplies available to serve the project from existing or permitted entitlements and resources, or require new or expanded entitlements; or
- ▶ require or result in the construction of new water treatment facilities or expansion of existing facilities, the construction or operation of which could cause significant environmental effects.

3.17.5 ENVIRONMENTAL CONSEQUENCES AND MITIGATION MEASURES

EFFECTS ANALYSIS

Effects that would occur under each alternative development scenario are identified as follows: NA (No Action), PA (Proposed Action), EDP (Expanded Drainage Preservation), EP (Expanded Preservation), P (Pilatus), and RC (Regional Conservation). The effects for each alternative are compared relative to the PA at the end of each effect conclusion (i.e., similar, greater, lesser).

EFFECT 3.17-1	Increased Need for Water Supplies. <i>Project implementation would result in increased demand for surface water and groundwater.</i>
------------------	--

NA

Under the No Action Alternative, no project-related development would occur that would increase the need for water supplies. Therefore, **no indirect** or **direct** adverse effects would occur. *[Lesser]*

Mitigation Measure: No mitigation measures are required.

PA

Presently, no public water supply facilities are located on the Cordova Hills site. SCWA would provide water supplies to the Cordova Hills site through its Zone 40 conjunctive-use water supply system. Surface water would be diverted from the Sacramento River via the FRWP facilities and conveyed to the Vineyard Surface WTP for treatment. Treated water would then be conveyed to the NSA through the proposed NSAPP (see Effect 3.17-2, below for a discussion of physical environmental effects of the NSAPP). As described in Section 3.17.2, SCWA has existing CVP contracts (the SMUD and Fazio supplies), appropriative water rights, and a POU water agreement with the City of Sacramento.

Groundwater would be provided to the Cordova Hills site by the NVWF (see Effect 3.17-2, below for a discussion of physical environmental effects of expansion of the NVWF). SCWA intends to continue to extract groundwater to meet its customer demands within the limits of the negotiated sustainable yield of the Central Basin. SCWA has constructed the first phase of the NVWF, consisting of three wells. These first three NVWF wells (Wells 1 through 3) are operational and are capable of producing approximately 3,600 afy. SCWA plans to construct four additional wells (Wells 4 through 7) as new water supplies are required in the NSA. The NVWF

could provide for the extraction of up to 10,000 afy of groundwater at buildout. Capacity at the NVWF would be provided to projects in Zone 40's NSA on a first-come, first-served basis.

Cordova Hills Water Demand

As part of the CEQA process, an SB 610 WSA was prepared to determine whether the projected available water supplies would meet the water demand of the Proposed Action, in addition to the other existing and planned future uses in the Zone 40 2030 Study Area. The WSA relies on the Cordova Hills WSMP Amendment, which addresses those conditions in which the Proposed Action would affect the findings of the Zone 40 WSMP. The SCWA Board of Directors adopted the Cordova Hills WSA on March 26, 2013.

To estimate total future water demands for buildout of the Proposed Action, SCWA's Zone 40 water-demand factors were applied to the gross acreage for each land use designation. The total projected water demand for the Proposed Action is 6,549.9 afy (SCWA 2013a:10). Table 3.17-4 summarizes the water demands under the Proposed Action by 5-year increments over a 20-year planning horizon.

Table 3.17-4 Cordova Hills Water Demands – Proposed Action (2010-2030)	
Year	Projected Demand (afy)
2010	0
2015	1,179.0
2020	3,274.9
2025	5,370.9
2030	6,549.9

Notes: afy = acre-feet per year
Source: SCWA 2013a:10

Sacramento County Water Agency Zone 40 Water Supplies Available to Meet the Demands of the Proposed Action

SCWA has planned for water supplies within its 2030 Study Area through its conjunctive-use water supply system identified in the Zone 40 WSMP. As discussed above, the Cordova Hills WSMP Amendment supplements the Zone 40 WSMP only in those matters in which the Proposed Action would affect the findings of the Zone 40 WSMP. The water demands of the Proposed Action were compared to available Zone 40 2030 Study Area water supplies by 5-year increments over a 20-year planning horizon to determine whether a reliable water supply is available to serve the Proposed Action and existing and future water demands during normal, single dry, and multiple dry years.

Water supplies and demands within SCWA Zone 40's 2030 Study Area would be the same during normal, single-dry, and multiple-dry years; however, the year-to-year mix of surface and groundwater would be adjusted as necessary to meet the demands through its conjunctive use water supply program. As shown in Table 3.17-5, SCWA has adequate water supplies available to meet the water demands of the Proposed Action. Because SCWA would implement a conjunctive use water supply program, water supplies would not exceed projected demands because groundwater would be pumped and surface water would be used to meet, not exceed, water demands.

**Table 3.17-5
Comparison of Water Supply and Demand – Proposed Action (afy)**

Source	2010	2015	2020	2025	2030
Zone 40 Water Supplies¹	41,290	48,990	59,390	74,790	85,670
Demand²					
Zone 40 2030 Study Area (Cordova Hills not included) ³	41,290	47,721	56,115.1	69,419.1	79,120.1
Cordova Hills	0	1,179	3,274.9	5,370.9	6,549.9
Total Demand	41,290	48,900	59,390	74,790	85,670
Difference (Supply minus Demand) ³	0	0	0	0	0

Notes: afy = acre-feet per year

¹ The Zone 40 water supplies include groundwater and surface water supply sources that would be provided to the Zone 40 2030 Study Area as identified in the Cordova Hills WSMP Amendment.

² Water supplies and demands within SCWA Zone 40 would be the same during normal, single-dry, and multiple-dry years; however, the year-to-year mix of surface and groundwater would be adjusted as necessary to meet the demands as part of its conjunctive-use water supply program.

³ Because SCWA would implement a conjunctive-use water supply program, water supplies would never exceed projected demands because groundwater would be pumped and surface water would be used to meet, not exceed water demands.

Source: Data compiled by AECOM in 2011

Effect Conclusion

Consistent with the Zone 40 WSMP, the Cordova Hills WSMP Amendment, and the WSA prepared by SCWA for the Proposed Action, reliable, long-term water supplies would be available to serve projected demand from Zone 40 users through 2030, including demand from the Proposed Action (Table 3.17-5). In the long term, SCWA anticipates the majority of water demands in the NSA (including the Cordova Hills site) would be met with surface water. However, the year-to-year mix of surface and groundwater varies depending on a large number of variables and surface water and groundwater supplies would be adjusted as necessary to meet the demands of the NSA as part of its conjunctive use water supply program (SCWA 2006:4-31). Therefore, there is reasonable likelihood that SCWA’s long-term water supplies would be available to serve the Proposed Action and this effect would be **indirect** and **less than significant**. **No direct** adverse effects would occur.

Although there is a high degree of certainty that SCWA would be able to supply the project in the long term, the water supply for the project cannot be delivered until the proposed NSAPP and proposed NVWF Wells 4 through 6 are constructed and online. The proposed NSAPP and the proposed NVWF Wells 4 through 6 were analyzed in the IS/MNDs prepared for these facilities. Potentially significant environmental effects identified in these CEQA documents for these facilities would be reduced to a less-than-significant level with implementation of the mitigation measures incorporated as part of those projects. Therefore, there are no known significant regulatory and environmental obstacles for construction and operation of these facilities.

Once these facilities are developed, SCWA’s water supply would not be interrupted, consistent with its existing water supply contracts, barring a major shift in climate or policy, or unless the California water law principles described in Section 3.17.2 are applied in a significantly more restrictive manner. Therefore, SCWA would be able to supply the project water in the long term. No mitigation measures were identified to further reduce these effects.

The water demands under the Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives would be less than the demands under the Proposed Action because of the decrease in developed land uses, as described below:

- ▶ The Expanded Drainage Preservation Alternative would construct 3,845 fewer dwelling units and 138,729 less square feet of commercial development than the Proposed Action.
- ▶ The Expanded Preservation Alternatives would construct 3,845 fewer dwelling units and 1,037,609 less square feet of commercial development than the Proposed Action.
- ▶ The Resource Conservation Alternative would construct 260 fewer dwelling units and 88,123 less square feet of commercial development than the Proposed Action.

In addition, under the Expanded Drainage Preservation and Expanded Preservation Alternatives, a substantially larger portion of Cordova Hills site would remain undeveloped as compared to the Proposed Action. Undeveloped land uses would not generate water demands.

The Cordova Hills WSMP Amendment did not contemplated development related to the alternatives under consideration (SCWA 2011a:E-1). Because water demands under the Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives would be less than the Proposed Action, it can be assumed that a reliable, long-term water supplies would be available to serve projected demand from Zone 40 users through 2030 (i.e., approximate buildout of the Cordova Hills site) Therefore, the **indirect** effects associated with the increased demand for water supplies under the Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives would be **less than significant**. **No direct** adverse effects would occur.

[Lesser]

Although there is a high degree of certainty that SCWA would be able to supply the project in the long term, the water supply for the project cannot be delivered until the proposed NSAPP and proposed NVWF Wells 4 through 6 are constructed and online. The proposed NSAPP and the proposed NVWF Wells 4 through 6 were analyzed in the IS/MNDs prepared for these facilities. Potentially significant environmental effects identified in these CEQA documents for these facilities would be reduced to a less-than-significant level with implementation of the mitigation measures incorporated as part of those projects. Therefore, there are no known significant regulatory and environmental obstacles for construction and operation of these facilities.

Once these facilities are developed, SCWA's water supply would not be interrupted, consistent with its existing water supply contracts, barring a major shift in climate or policy, or unless the California water law principles described in Section 3.17.2 are applied in a significantly more restrictive manner. Therefore, SCWA would be able to supply the project water in the long term. No mitigation measures were identified to further reduce these effects.

The water demands under the Pilatus Alternative would be greater than the demands under the Proposed Action because this alternative would include construction of an additional 770 dwelling units and development of an additional 142,339 square feet of commercial uses.

The Cordova Hills WSMP Amendment did not contemplate development related to the alternatives under consideration (SCWA 2011a:E-1). Because water demands under the Pilatus Alternative would be greater than the Proposed Action, it cannot be assumed that reliable, long-term water supplies would be available to serve the Pilatus Alternative and existing and future water demands for Zone 40 users through 2035 (i.e., approximate buildout of the Pilatus site). Therefore, the **indirect** effect associated with the increased need for water supplies under Pilatus Alternative would be **potentially significant**. **No direct** effects would occur. [*Greater*]

Mitigation Measure 3.17-1: Submit Proof of Water Supply Availability.

Prior to submitting the first final subdivision map, the project applicant shall demonstrate the availability of a long-term, reliable water supply for the development proposed in the Pilatus Alternative. This assurance of water supply shall demonstrate possession of SCWA's legal entitlement to the water source and that the water source is available or reasonably foreseeable under normal, dry, and multiple dry years over a 20-year planning horizon for the amount of development proposed by the Pilatus Alternative. Such demonstration shall consist of a written certification from SCWA verifying the availability of a long-term, reliable water supply for the entire Pilatus Alternative before approval of a final map and issuance of a building permit from the Sacramento County Planning and Community Development Department Building Division.

Implementation: Project applicant.

Timing: Before approval of final small-lot subdivision maps and issuance of building permits for any project phases.

Enforcement: Sacramento County Planning Division and Sacramento County Community Development Department Building Division.

Implementation of Mitigation Measure 3.17-1 would reduce the potentially significant effect related to the need for water supplies to serve the Pilatus Alternative to a **less-than-significant** level because written certification would be provided to verify that a long-term, reliable water supply is available to serve the Pilatus Alternative or that needed improvements would be in place before approval of final small-lot maps and issuance of a building permits. No other feasible mitigation measures that would fully reduce these effects are available. USACE does not have authority to enforce this mitigation measure; Sacramento County would be the enforcement agency. Because demonstration of adequate water supply is required by law prior to approval of development, it is likely that this mitigation measure would be implemented. No other mitigation measures were identified to further reduce these effects.

Although there is a high degree of certainty that SCWA would be able to supply the Pilatus Alternative in the long term, the water supply for the Pilatus Alternative cannot be delivered until the proposed NSAPP and proposed NVWF Wells 4 through 6 are constructed and online. The proposed NSAPP and the proposed NVWF

Wells 4 through 6 were analyzed in the IS/MNDs prepared for these facilities. Potentially significant environmental effects identified in these project-level CEQA documents for these facilities would be reduced to a less-than-significant level with implementation of the mitigation measures incorporated as part of those projects. Therefore, there are no known significant regulatory and environmental obstacles for construction and operation of these facilities.

It is assumed that once these facilities are developed, the water supplies would continue to flow to SCWA without interruption, consistent with its existing water supply contracts, barring a major shift in climate or policy, or unless the California water law principles described earlier are applied in a significantly more restrictive manner. Therefore, SCWA would be able to supply water for the Pilatus Alternative in the long term.

EFFECT **Need for Regional Off-Site Water Conveyance, Storage, and Treatment Facilities.** *Project 3.17-2 implementation would result in increased need for water supply. SCWA's regional water conveyance, storage, and treatment facilities would be required to deliver water to customers on the Cordova Hills and Pilatus sites.*

NP

Under the No Action Alternative, there would be no project-related development that would increase the demand for SCWA's regional off-site water conveyance, storage, or treatment facilities. Therefore, **no indirect or direct** effects would occur. [*Lesser*]

Mitigation Measure: No mitigation measures are required.

PA, EDP, EP, P, RC

As described in Effect 3.17-1 above, SCWA would provide water surface water and groundwater supplies to the Cordova Hills site through its Zone 40 conjunctive-use water supply system. SCWA's existing and proposed surface water and groundwater conveyance and treatment facilities would be required to provide water supplies to the Cordova Hills and Pilatus sites under the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives. Surface water would be diverted from the Sacramento River via the FRWP facilities and conveyed to the Vineyard Surface WTP for treatment. After the water is treated at the Vineyard Surface WTP, it would be delivered to the Cordova Hills and Pilatus sites through the proposed NSAP. Groundwater would be extracted from the NVWF, and as demand increases in the NSA, additional wells and treatment capacity would be developed to meet these demands. Groundwater from the NVWF is conveyed to the Anatolia WTP through the existing Anatolia raw water pipeline. Once treated, groundwater is then distributed throughout the existing NSA system.

The water supply for the project cannot be delivered until the proposed NSAPP and proposed NVWF Wells 4 through 6 are online. Because there is a relationship between the project and the need for the proposed NSAPP and proposed NVWF Wells 4 through 6, approval of the project would contribute indirectly to effects identified in the IS/MNDs prepared for these facilities. These IS/MNDs are hereby incorporated by reference and summarized below.

North Service Area Pipeline Project

The NSAPP would be required to convey water treated at the Vineyard Surface WTP to the vicinity of the Cordova Hills site. The NSAP would begin at the Vineyard Surface WTP and convey surface water through one of four alternative alignments to an existing 42-inch transmission main at the intersection of Douglas Road and Sunrise Boulevard. In addition, the NSAPP would construct a booster tank station at one of two proposed sites. There is currently no time frame for construction of NSAP; however, it is expected that the NSAP would be constructed as demand for treated water begins to exceed the available groundwater supply.

The environmental effects of the construction and operation of the NSAP were analyzed at in an IS/MND (SCH #2010082044), which was circulated for public review in August 2010 (SCWA 2010). The IS/MND was adopted by the County on October 17, 2010. Implementation of mitigation measures identified in the IS/MND would reduce potentially significant effects to a less-than-significant level.

North Vineyard Well Field

SCWA has constructed the first phase of the NVWF, consisting of three wells (Wells 1-3) and three filters. Ultimately the well field would consist of up to seven wells, and Wells 4 through 7 will be constructed as new water supplies are required in the NSA. Groundwater from the NVWF is conveyed and treated at the Anatolia WTP. Groundwater demands at full buildout of the NSA cannot be delivered until the NVWF Wells 4 through 6 are constructed and online. Because there is a relationship between the project and the need for the NVWF Wells 4 through 6, approval of the project would contribute indirectly to effects identified in the IS/MNDs prepared for these facilities.

IS/MNDs for Well 4 (SCH #2005042042), Well 5 (SCH #2005062109), and Well 6 (SCH #2005072003) were prepared to analyze the environmental effects of the construction and operation of these wells. The IS/MNDs were circulated for public review and adopted by Sacramento County in 2005. All potentially significant environmental effects identified in these CEQA documents for Wells 4, 5, and 6 were identified as being reduced to a less-than-significant level with implementation of mitigation measures included in the IS/MNDs. Although the CEQA review is complete, there is currently no time frame for construction of Wells 4 through 6. Well 7 has not undergone project-level CEQA review and there is currently no time frame for construction of Well 7.

Anatolia Groundwater Treatment Plant

Groundwater from the NVWF is conveyed to the Anatolia WTP through the Anatolia raw groundwater transmission pipeline. Once treated, groundwater is then distributed throughout the existing NSA system. For Phase 1 of the alternatives under consideration, groundwater would be conveyed through the NSA system to the existing North Douglas storage tanks located north of Douglas Road near Americanos Boulevard and then on to the Cordova Hills site via a high pressure line connecting the tanks with the proposed on-site transmission main (see Effect 3.17-3, below).

An option for delivery of surface water to the NSA, including the Cordova Hills and Pilatus sites, would be conversion of the Anatolia raw groundwater transmission pipeline to a treated surface water transmission pipeline by constructing a surface water transmission pipeline from the Vineyard Surface WTP to the existing Anatolia groundwater transmission pipeline. Before the conversion of the existing Anatolia raw groundwater transmission pipeline to a surface water transmission pipeline could occur, the project would construct a portion of the NSAP

beginning at the Vineyard Surface WTP. A new 66-inch pipeline would travel 4,600 feet east along Florin Road to its intersection with Excelsior Road. From this point, a new section of 30-inch pipeline would extend north along Excelsior Road for approximately 2,500 feet where it would then connect to the existing 30-inch raw groundwater transmission pipeline in Sunrise Boulevard that currently conveys raw groundwater from the NVWF to the Anatolia WTP. Once connected, the NVWF and Anatolia WTP would be temporarily shut down. The existing NVWF wells would be retrofitted for periodic exercising during the interim shutdown period, which could include minor piping changes to allow for the recirculation of pumped groundwater during exercise periods. Minor piping modifications in and around the vicinity of the Anatolia WTP would be required to connect the converted transmission pipeline to the existing treated water transmission pipelines and on-site storage tanks.

Implementation of this option would require approval from the SCWA. In addition, a separate CEQA or NEPA analysis may be necessary to analyze specific effects and identify any required mitigation measures for construction of the surface water transmission pipeline and operation of the Anatolia WTP as a surface water treatment facility.

Effect Conclusion

Because off-site infrastructure required to convey surface water to the Cordova Hills and Pilatus sites has not been constructed, the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives would result in an **indirect, potentially significant** effect. However, the project would not contribute to direct effects associated with the construction and operation of the NSAP and NVWF Wells 4, 5, and 6 that would be needed to serve the NSA at full buildout, because potentially significant environmental effects identified in these CEQA documents for these facilities would be reduced to a less-than-significant level with implementation of the mitigation measures incorporated as part of those projects. *[Similar]*

Mitigation Measure 3.17-2: Submit Proof of On- and Off-site Infrastructure Delivery Systems or Assure that Adequate Financing is Secured.

Before the recordation of the first final map or issuance of building permits, and as required by state and local laws regarding bonding for water supply improvements, the project applicant shall submit proof to the County that an adequate off-site water conveyance system either has been constructed or is ensured through the use of bonds or other sureties to the County's satisfaction. Both project-specific on- and off-site water conveyance infrastructure sufficient to provide adequate service to the project shall be in place before approval of the final map and issuance of building permits, or their financing shall be ensured to the satisfaction of the County.

Implementation: Project applicant.

Timing: Before the approval of final small-lot subdivision maps and issuance of building permits.

Enforcement: Sacramento County Planning Division and Sacramento County Community Development Department Building Division.

Implementation of Mitigation Measure 3.17-2 would reduce the potentially significant effect related to the need for water conveyance and treatment facilities under the Proposed Action, Expanded Drainage Preservation,

Expanded Preservation, Pilatus, and Regional Conservation Alternatives to a **less-than-significant** level because off-site water conveyance facilities sufficient to convey water supplies to the Cordova Hills and Pilatus sites would be documented or adequate financing would be secured to the County’s satisfaction before recordation of final maps and issuance of building permits. USACE does not have authority to enforce this mitigation measure; Sacramento County would be the enforcement agency. Because the County is unlikely to approve subdivision maps and building permits in the absence of proof that critical infrastructure can be provided, it is likely that this mitigation measure would be implemented. No other mitigation measures were identified to further reduce these effects. No other feasible mitigation measures that would fully reduce these effects are available.

EFFECT **Need for Project-Specific On- and Off-site Water Conveyance and Storage Facilities.** *Project*
3.17-3 *implementation would require construction of site-specific on- and off-site water conveyance facilities to*
deliver water from SCWA’s off-site conveyance facilities to the Cordova Hills and Pilatus sites.

NP

Under the No Action Alternative, no project-related development would occur that would increase the demand for project-specific on- and off-site water conveyance, storage, or treatment facilities. Therefore, **no indirect** or **direct** effects would occur. *[Lesser]*

Mitigation Measure: No mitigation measures are required.

PA, EDP, EP, P, RC

There are no public water supply facilities on the Cordova Hills and Pilatus sites, and therefore construction of a new water system would be required. The master water plan prepared for the Proposed Action (MacKay & Soms 2011) addressed the viability of providing water conveyance facilities to the Cordova Hills site, identified on-site and off-site facility needs and design, and evaluated designs for consistency with the Zone 40 WSMP and WSIP. The location of the water distribution facilities to serve the Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives would vary somewhat from the Proposed Action due to the difference in street alignments and the spatial distribution of the developable areas. In spite of these differences, the sizing of on-site water transmission and distribution mains and the location of off-site storage tanks to serve the Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives would be the same as those of the Proposed Action (see Exhibits 2-9, 2-14, 2-18, 2-22, and 2-26 in Chapter 2, “Description of the Proposed Action and Alternatives”).

For Phase 1 of the alternatives under consideration, groundwater would be conveyed through the NSA system to the existing North Douglas storage tanks located north of Douglas Road near Americanos Boulevard and then on to the Cordova Hills site via a high pressure line connecting the tanks with the proposed on-site transmission main (MacKay & Soms 2011:7). The point of connection would occur at the intersection of Americanos Boulevard and Douglas Road by constructing and connecting a new 30-inch water transmission main to the existing line in Douglas Road, which would then extend east along Douglas Road and south along Grant Line Road before finally connecting to a new 24-inch water main on the Cordova Hills site. Once the project’s water demand begins to reach the capacity of the North Douglas storage tanks, the 30-inch transmission main would be disconnected and reconnected to the existing low-head transmission main that enters the storage tanks.

After construction of the Cordova Hills storage tanks, the 24-inch transmission main along Grant Line Road would be disconnected and the 30-inch transmission line that was constructed from the Douglas Road storage tanks would be routed down Glory Lane to the new Cordova Hills storage tanks. The current conceptual location of the Cordova Hills storage tanks is approximately 5,400 feet east of the intersection of Glory Lane and Grant Line Road, on property north of Cordova Hills site that is owned by the project applicant. To connect the Cordova Hills site to the off-site Cordova Hills Water storage tanks, a 42-inch water transmission main would be extended from the storage tanks to a 36-inch on-site water transmission main at a point along the central boundary of the Cordova Hills site (see Exhibit 2-9 in Chapter 2, “Description of the Proposed Action and Alternatives.” The Cordova Hill Storage Tanks would consist of tanks and a booster station with the capacity to provide 5.5 million gallons of storage. Given that this water project would not go through engineering design until the facility is needed, the construction footprint and outline for the tanks are conceptual at this time.

The on-site transmission system would consist of 16- to 36-inch water transmission mains within the rights-of-way of the major roadways. A grid of 8- to 12-inch distribution mains would extend from the transmission system to serve residential streets. The on-site water conveyance facilities would provide adequate flow deliveries to maintain acceptable service pressures to all customers within the Cordova Hills and Pilatus sites. Due to the varying elevation within the Cordova Hills and Pilatus sites, several booster pumps as well as pressure-reducing stations would be required to maintain system pressures. Transmission facilities would meet SCWA’s standards for water system improvements identified in the WSIP and distribution facilities would meet Sacramento County Improvement Standards (MacKay & Soms 2011:15). In addition, fire flow requirements would meet the Sacramento Metropolitan Fire District standards. The internal water transmission system would be developed in phases, and incrementally expanded to meet the demands of the alternatives under consideration.

The description of on-site water infrastructure provided within the water master plan is conceptual and individual development applications would be required to prepare supplemental water facility master plans that identify the size and location of distribution mains that would serve proposed land uses (MacKay & Soms 2011:29). Because the project-related on- and off-site infrastructure and water storage tanks required for water conveyance and storage facilities necessary to serve the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives has not been constructed, nor have final design plans and specifications been submitted, this **indirect** effect would be **potentially significant**. The **direct** physical effects of constructing the on-site water conveyance facilities and off-site storage tanks are addressed throughout this EIS in connection with discussions of the effects of overall site development.

Mitigation Measure: Implement Mitigation Measure 3.17-2.

Implementation of Mitigation Measure 3.17-2 would reduce the potentially significant effect related to project-specific water conveyance and treatment facilities under the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives to a **less-than-significant** level because project-specific on-site and off-site water conveyance would be documented or adequate financing would be secured to the County’s satisfaction before approval final maps and issuance of building permits. USACE does not have authority to enforce this mitigation measure; Sacramento County would be the enforcement agency. Because the County is unlikely to approve subdivision maps and building permits in the absence of proof that critical infrastructure can be provided, it is likely that this mitigation measure would be implemented. No other feasible mitigation measures that would fully reduce these effects are available.

3.17.6 RESIDUAL SIGNIFICANT EFFECTS

Effects associated with increased need for potable water supplies under the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives would be less than significant. Implementation of Mitigation Measure 3.17-1 would reduce effects associated with increased need for potable water supplies under the Pilatus Alternative to a less-than-significant level. Implementation of Mitigation Measure 3.17-2 would reduce effects associated with increased demands for on-site and off-site water conveyance facilities under the Proposed Action, Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives to a less-than-significant level. Therefore, no residual significant effects would occur.

Regarding the construction and operation of the proposed NSAPP and proposed NVWF Wells 4 through 6, all potentially significant environmental effects identified in CEQA documents for these facilities would be reduced to a less-than-significant level with implementation of mitigation measures contained in those CEQA documents; therefore, the project would not contribute to any significant and unavoidable effects associated with that infrastructure. Therefore, there would be no residual significant effects related to increased demands for water supplies and on-site and off-site water conveyance facilities.

3.17.7 CUMULATIVE EFFECTS

The SCWA would provide water supplies to the Cordova Hills and Pilatus sites through its Zone 40 conjunctive-use water supply system. The Cordova Hills and Pilatus sites are part of the NSA, which also includes the Sunrise Corridor, Sunrise Douglas Community Plan, Mather Field, Rio del Oro within Zone 40, and Rio del Oro within Cal-Am, where wholesale of Zone 40 water supplies would be delivered. Future development in Zone 40, and in the NSA in particular, would increase the need for potable water supplies and on-site and off-site conveyance facilities.

SCWA intends to continue to extract groundwater to meet its customer demands within the limits of the negotiated sustainable yield of the Central Basin. In the long term, SCWA anticipates the majority of water demands in the NSA (including the Cordova Hills and Pilatus sites) would be met with surface water. However, the year-to-year mix of surface and groundwater varies depending on a large number of variables and surface water and groundwater supplies would be adjusted as necessary to meet the demands of the NSA as part of its conjunctive-use program.

WATER SUPPLY

The project and the other foreseeable projects would increase the need for potable water supplies to serve projected development within SCWA's service area. Therefore, the project and the other foreseeable projects could result in a cumulatively significant effect related to increased demand for water. However, as described in detail in Section 3.17.2 "Affected Environment" above, SCWA has prepared several planning documents that have determined the supply and demand within its service area, and SCWA's ability to meet the projected demand as part of its conjunctive-use program. SCWA has determined that there is sufficient water to supply the future water demands within its current planning horizon. The Cordova Hills WSMP Amendment and the WSA prepared by SCWA for the Proposed Action concluded that SCWA would have sufficient surface water supplies to serve the Proposed Action while meeting the projected demands of existing customers and other anticipated future water demands within its service area. Because the WSA considers cumulative development and the

cumulative need for water supplies throughout Zone 40's service area (including the 2030 Study Area), and because SCWA has determined that there is adequate water supply to serve this cumulative development (including the project), the Proposed Action would not result in a cumulatively considerable contribution to a significant cumulative effect related to increased demands for water supplies.

The Cordova Hills WSMP Amendment did not contemplate development under the Expanded Drainage Preservation, Expanded Preservation, and Regional Conservation Alternatives (SCWA 2011a:E-1). However, the water demands under these alternatives would be less than the demands under the Proposed Action because of the decrease in developed land uses; therefore, it can be assumed that a reliable, long-term water supplies would be available to serve projected demand for these alternatives from Zone 40 users through 2035 (i.e., approximate buildout of the project). Water demands under the Pilatus Alternative would be greater than the Proposed Action because of the increase in developed land uses. Implementation of Mitigation Measure 3.17-2 would reduce the effect under the Pilatus Alternative to a less-than-significant level because the County would require written certification verifying the availability of a long-term, reliable water supply for the Pilatus Alternative and that needed improvements would be in place prior to occupancy. Therefore, the Expanded Drainage Preservation, Expanded Preservation, Pilatus, and Regional Conservation Alternatives would not result in a cumulatively considerable contribution to a significant cumulative effect related to increased need for water supplies.

WATER CONVEYANCE FACILITIES

SCWA's existing and proposed regional surface water and groundwater conveyance and treatment facilities, including the NSAP and NVWF, would be required to provide water supplies to the project and some of the other foreseeable projects. In addition, there are no public water supply facilities on the Cordova Hills and Pilatus sites, nor are there appropriate facilities on the other foreseeable projects that have not yet been constructed, and therefore the project and the other foreseeable projects would require construction of new on-site and off-site water conveyance facilities. The individual on-site systems are site-specific, and would not combine together to result in cumulative water supply infrastructure effects. However, the need for regional water supply infrastructure from the project and the other foreseeable projects could result in a cumulatively significant effect. The need for regional water supply infrastructure within SCWA's service area was determined and planned for in the *Sacramento County Water Agency Zone 40 Water System Infrastructure Plan* (SCWA 2006), as well as specific projects such as the NVWF, the NSAPP, and the Anatolia WTP. Implementation of Mitigation Measure 3.17-2 would reduce the project's effects to a less-than-significant level because on-site and off-site water conveyance would be documented or adequate financing would be secured to the County's satisfaction before recordation of final maps and issuance of building permits. Therefore, the project would not result in a cumulatively considerable contribution to a significant cumulative effect related to the need for water conveyance and treatment facilities.

The proposed NSAPP and the proposed NVWF Wells 4 through 6 were analyzed at the project level in IS/MNDs prepared for these facilities. There is a relationship between the project and the need for the proposed NSAPP and proposed NVWF Wells 4 through 6. However, all potentially significant environmental effects identified in the CEQA documents for the NSAPP and NVWF Wells 4 through 6 would be reduced to a less-than-significant level with implementation of the mitigation measures incorporated as part of those projects. Therefore, the project would not result in a cumulatively considerable contribution to a significant cumulative effect related to the construction and operation of the NSAPP and NVWF Wells 4 through 6.

4 OTHER STATUTORY REQUIREMENTS

4.1 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

NEPA requires that an environmental analysis include identification of "...any irreversible and irretrievable commitment of resources which would be involved in the proposed action should it be implemented." (Section 102 [42 U.S. Code Section 4332(c)].) Irreversible and irretrievable resource commitments are related to the use of nonrenewable resources and the effects that this use could have on future generations. Irreversible effects result primarily from the use or destruction of a specific resource (e.g., energy and minerals) that cannot be replaced within a reasonable time frame. Irretrievable resource commitments involve the loss in value of an affected resource that cannot be restored as a result of the action (e.g., extinction of a threatened or endangered species or the disturbance of a cultural resource).

There are several resources, both natural and built, that would be expended in the construction and operation of the project. These resources consist of the building materials used in construction of the project and energy in the form of natural gas, petroleum products, and electricity consumed during construction and operation of housing and commercial land uses. Loss of these resources is considered irreversible because their reuse for some other purpose than the project would be impossible or highly unlikely. The project constitutes an irreversible and irretrievable commitment of the site as a land resource, thereby rendering land use for other purposes infeasible. Thus, except to the extent minimized by the designation of the on-site wetland preserve, the land would also be permanently lost as a habitat area for special-status plants, animals, and wetlands.

4.2 RELATIONSHIP BETWEEN SHORT-TERM USE OF THE ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

Effects on resources are often characterized as being temporary and short term or long term in duration. Many of the effects that occur during construction are considered temporary and short term. Effects that occur over a period of 3 years or less result from short-term uses of the resources in an area most often associated with construction and up to 3 years after construction ceases. Construction can create temporary water quality effects and increases in noise, air quality and greenhouse gas emissions, traffic, and human population that can disturb resources in an area but subside when the work is complete. Long-term effects relate to the maintenance and enhancement of long-term productivity—in particular, the consistency of the project with long-term economic, social, regional, and local planning objectives. These effects may lead to permanent loss or degradation of resources. The short- and long-term effects of the project under consideration are summarized below.

4.2.1 SHORT-TERM USES

Implementation of the Proposed Action, Expanded Drainage Protection, Expanded Protection, Pilatus, or Regional Conservation Alternatives would result in various temporary and short-term effects. As discussed elsewhere in this EIS, the temporary and short-term effects would be associated predominantly with construction traffic, air quality and greenhouse gas emissions generated during construction, construction noise, and hydrology and water quality during construction. The project applicant would implement mitigation measures identified in each topical section to reduce these adverse effects wherever feasible and available. At the same time, however,

construction of the project would create economic benefits during construction, in the form of jobs and the subsequent direct and indirect demand for goods and services.

4.2.2 LONG-TERM USES

Implementation of the Proposed Action, Expanded Drainage Protection, Expanded Protection, Pilatus, or Regional Conservation Alternatives would result in long-term effects related to the loss of biological resources, habitat, and open space; a change in the visual character and quality of the Cordova Hills or the Pilatus sites; air quality emissions; greenhouse gas emissions; noise; increased traffic; and increased demand for public services and utilities, including water supply, wastewater service, natural gas, electricity, communications service, fire protection, police service, and public schools. Long-term benefits and increases in productivity from implementation of the project are described below.

- ▶ A well-integrated, mixed-use master-planned community would be developed.
- ▶ The project would provide a diversity of housing types. This would help alleviate the existing and future jobs/housing imbalance in Rancho Cordova and the surrounding region.
- ▶ A pedestrian-friendly, human-scale community environment would be developed, with a safe and pleasant place for people to live, work, and recreate.
- ▶ The project would facilitate the expansion and use of alternative modes of transportation. Street, pedestrian, and bicycle access would be created throughout the project and Pilatus Alternative sites so that people could complete trips without depending exclusively on major roads, secondary roads, or the automobile.
- ▶ The Proposed Action, Expanded Drainage Protection, Expanded Protection, Pilatus, or Regional Conservation Alternatives would preserve a substantial amount of the highest quality biological resources on the Cordova Hills or Pilatus sites, including wetlands and vernal pools.
- ▶ The Proposed Action, Expanded Drainage Protection, Expanded Protection, Pilatus, or Regional Conservation Alternatives would accommodate the Sacramento region's needs for an approved site ready for development of a new university or college campus.

5 CONSULTATION AND COORDINATION

This chapter summarizes public and agency involvement activities undertaken by USACE that have been conducted to date for this project, and which satisfy NEPA requirements for public scoping and agency consultation and coordination. The next steps in the NEPA process are also detailed.

5.1 PUBLIC INVOLVEMENT UNDER THE NATIONAL ENVIRONMENTAL POLICY ACT AND CALIFORNIA ENVIRONMENTAL QUALITY ACT

5.1.1 NOTICE OF INTENT, NOTICE OF PREPARATION, AND SCOPING MEETING

On September 1, 2011, USACE issued a notice of intent (NOI) (Appendix A) to inform agencies and the general public that an EIS was being prepared and to invite comments on the scope and content of the document. At that time USACE announced that it had developed a public involvement program allowing opportunities for public participation and involvement in the NEPA process. The NOI also provided information on the date and time of the public scoping meeting. The NOI was published in the Federal Register, Vol. 76, No. 170, on September 1, 2011. The NOI is also posted on USACE's web site at <http://www.spk.usace.army.mil/Missions/Regulatory>.

USACE held one public scoping meeting to solicit input from the community and public agencies to be considered in project design, alternatives selection, and on the scope and content of the EIS. The meeting was held on September 13, 2011 at the City of Rancho Cordova City Hall in Rancho Cordova, California.

Appendix B of this EIS contains copies of the comments that were received on the NOI and were considered in this EIS.

5.1.2 MAJOR AREAS OF CONTROVERSY

Based on the comments received during the scoping period and the history of the CEQA process undertaken by Sacramento County, the major areas of public controversy associated with the project include air quality, biological resources, greenhouse gases, water quality, and water supply. These issues were considered in the preparation of this EIS and, where appropriate, are addressed in the environmental effect analyses presented in Chapters 3 and 4.

5.1.3 ADDITIONAL STEPS IN THE ENVIRONMENTAL REVIEW PROCESS

In accordance with NEPA review requirements, this EIS is being distributed for public and agency review and comment for a 45-day period. This distribution ensures that interested parties have an opportunity to express their views regarding the potentially significant and significant environmental effects and other aspects of the project, and to ensure that information pertinent to permits and approvals is provided to the decision makers of USACE and NEPA cooperating agencies. This document will be available for public review during the public review period during normal business hours at the USACE Sacramento District office at 1325 J Street, Sacramento, California.

The EIS can also be viewed at USACE's web site at

<http://www.spk.usace.army.mil/Missions/Regulatory/Permitting/EnvironmentalImpactStatements.aspx> .

USACE will hold one or more public meetings during the comment period to receive input from agencies and the public on the EIS. In addition, written comments from the public, reviewing agencies, and stakeholders will be accepted throughout the public comment period.

Following consideration of these comments, USACE will prepare written responses to comments and prepare and circulate a final EIS (FEIS) that will describe the disposition of any significant environmental issues raised in the comments on the DEIS, but not on the merits of the project.

USACE will circulate the FEIS for 30 days prior to taking action on the project and issuing its Record of Decision (ROD). The ROD will identify USACE's decision regarding the alternatives considered, address substantive comments received on the FEIS, and determine whether the Proposed Action complies with Section 404 of the Clean Water Act.

5.2 COORDINATION WITH OTHER FEDERAL, STATE, REGIONAL, AND LOCAL AGENCIES

The "Regulatory Setting" discussions in each of the individual topic sections in Chapter 3, "Affected Environment," describe the project's compliance with applicable Federal, state, regional, and local laws and regulations, including consultation to date with various agencies. The following briefly summarizes these consultation and coordination efforts.

Over the course of project planning and environmental review for the Cordova Hills Project, USACE has coordinated informally with the U.S. Fish and Wildlife Service (USFWS), the U.S. Environmental Protection Agency (EPA), Sacramento County, and the Sacramento Metropolitan Air Quality Management District.

Informal interagency meetings and communications regarding project effects on habitats and measures to offset project effects were held in coordination with USFWS and EPA. Formal consultation with USFWS under Section 7 of the Endangered Species Act will proceed concurrent with public review of the EIS.

6 REFERENCES

1.0 Introduction

County of Sacramento. 2008 (May 19). County of Sacramento Inter-office Correspondence. Appeal – Ron Alvarado – Appeal of the Planning Director's Denial of Acceptance of an Application to Amend the General Plan and Associated Entitlements to Develop a 3,126-acre community, known as Cordova Hills, in Eastern Sacramento County. (Nottoli).

ECORP. *See* ECORP Consulting, Inc.

ECORP Consulting, Inc. 2013. 2013 Assessment Level Wet Season 90-Day Report of Findings Regarding Federally-listed Branchiopods for Cordova Hills. Sacramento County, CA. Prepared for Cordova Hills, LLC.

2.0 Description of the Proposed Action and Alternatives

County of Sacramento. 2012a (April). *Cordova Hills Master Plan*. Revised Public Review Draft. Prepared by Conwy, LLC. Sacramento County, CA.

———. 2012b (November). Division of Environmental Review and Assessment. *Cordova Hills Final Environmental Impact Report*. Control Number: 2008-GPB-SDP-ZOB-AHP-00142. State Clearinghouse Number: 2010062069. Sacramento, CA.

———. 2013 (March 12). Board of Supervisors. Public Meeting Board Addendum B.

3.1 Aesthetics

California Department of Transportation. 2013. Scenic Highway Routes: Caltrans Landscape Architecture Program. Available: <http://www.dot.ca.gov/hq/LandArch/scenic/cahisys.htm>. Last updated: February 5, 2013. Accessed April 26, 2013.

Caltrans. *See* California Department of Transportation.

United States Department of Agriculture, Forest Service. 1974. National Forest Landscape Management Volume 2, Chapter 1: The Visual Management System. Agriculture Handbook Number 462.

USFS. *See* U.S. Forest Service.

3.2 Agricultural Resources

California Department of Conservation. 2010. 2010 Williamson Act Status Report. Available: https://projects.atlas.ca.gov/frs/download.php/15108/2010_Williamson_Act_Status_Report.pdf. Accessed July 14, 2014.

———. 2012. FMMP – Important Farmland Map Categories. Available: http://www.conservation.ca.gov/dlrp/fmmp/mccu/Pages/map_categories.aspx. Accessed September 10, 2012.

- . 2013a. Williamson Act Program - Open Space Subvention Payments. Available: http://www.conservation.ca.gov/dlrp/lca/ossP/Pages/questions_answers.aspx. Accessed April 2, 2013.
- . 2013b (October). *The California Land Conservation Act 2012 Status Report—The Williamson Act*. Sacramento, CA. Available: http://www.conservation.ca.gov/dlrp/lca/stats_reports/Pages/Index.aspx. Accessed June 5, 2014.
- County of Sacramento. 2011 (November 9). *Sacramento County General Plan of 2005-2030 – Agricultural Element*. Adopted December 15, 1993; revisions adopted November 9, 2011. Sacramento, CA.
- County of Sacramento, Department of Environmental Review and Assessment. 2008 (August). *Draft EIR for the Teichert Quarry General Plan Amendment, Rezone, Use Permit, Reclamation Plan and Development Agreement*. Sacramento, CA.
- DOC. *See* California Department of Conservation.
- Sacramento Area Council of Governments and Valley Vision 2004 Blueprint Principles. Available: http://www.sacregionblueprint.org/sacregionblueprint/the_project/principles.pdf. Accessed July 14, 2014.
- SACOG and Valley Vision. *See* Sacramento Area Council of Governments and Valley Vision.
- ### 3.3 Air Quality
- ARB. *See* California Air Resources Board.
- California Air Resources Board. 2005 (March). *Air Quality and Land Use Handbook: A Community Health Perspective*. Sacramento, CA. Available: www.arb.ca.gov/ch/landuse.htm. Last updated April 2005.
- . 2008a. *The California Almanac of Emissions and Air Quality*. Sacramento, CA. Available: <http://www.arb.ca.gov/aqd/almanac/almanac08/almanac08.htm>. Accessed August 12, 2009.
- . 2008b. *State Implementation Plan*. Available: <http://www.arb.ca.gov/planning/sip/2007sip/2007sip.htm>. Accessed September 2008.
- . 2009a. *California Ambient Air Quality Standards*. Available: <http://www.arb.ca.gov/research/aaqs/caaqs/caaqs.htm>. Last updated: November 24, 2009. Accessed December 22, 2009.
- . 2009b. *Air Resources Board Emissions Inventory*. Available: <http://www.arb.ca.gov/ei/maps/statemap/cntymap.htm>. Last updated April 14, 2009. Accessed August 19, 2009.
- . 2009c. *The California Almanac of Emissions and Air Quality 2009 Edition*. Sacramento, CA. Available: <http://www.arb.ca.gov/aqd/almanac/almanac09/almanac09.htm>. Accessed August 12, 2009. Pg. 5-83.
- . 2011a. *2008 Estimated Annual Average Emissions: Sacramento County*. Available: http://www.arb.ca.gov/app/emsinv/emssumcat_query.php?F_DIV=-4&F_DD=Y&F_YR=2008&F_SEASON=A&SP=2009&F_AREA=CO&F_CO=34. Accessed March 2, 2012.

- . 2011b (July). 2007 State Strategy for California's State Implementation Plan (SIP) for Federal PM_{2.5} and 8-Hour Ozone Standards. Available: <http://www.arb.ca.gov/planning/sip/2007sip/2007sip.htm>. Accessed March 8, 2012.
- . 2012a. Ozone Trend Summary: Sacramento County. Available: <http://www.arb.ca.gov/adam/trends/trends2.php>. Accessed March 10, 2012.
- . 2012b. Highest 4 Daily Maximum Hourly Nitrogen Dioxide Measurements. Available: <http://www.arb.ca.gov/adam/topfour/topfourdisplay.php>. Accessed March 10, 2012.
- . 2012c. Highest 4 Daily Maximum 8-Hour Carbon Monoxide Averages. Available: <http://www.arb.ca.gov/adam/topfour/topfourdisplay.php>. Accessed March 10, 2012.
- . 2012d. PM₁₀ Trends Summary: Sacramento Valley Air Basin. Available: <http://www.arb.ca.gov/adam/trends/trends2.php>. Accessed March 10, 2012.
- . 2013. Top 4 Summary. Available: <http://www.arb.ca.gov/adam/topfour/topfour1.php>. Accessed March 5, 2012.
- EPA. *See* U.S. Environmental Protection Agency.
- Godish, T. 2004. Air Quality. Lewis Publishers. Boca Raton, FL.
- OEHHA. *See* Office of Environmental Health Hazard Assessment.
- Office of Environmental Health Hazard Assessment. 2003 (August). Air Toxics Hot Spots Program Risk Assessment Guidelines. Available: http://oehha.ca.gov/air/hot_spots/pdf/HRAguidefinal.pdf. Accessed March 21, 2012.
- Sacramento Metropolitan Air Quality Management District. 2009a (December). CEQA Guide to Air Quality Assessment. Sacramento, CA. Available: <http://www.airquality.org/ceqa/ceqaguideupdate.shtml>. Accessed March 2, 2012.
- . 2009b. Mitigation Fee Calculator. Sacramento, CA. Available: <http://www.airquality.org/ceqa/mitigation.shtml>. Accessed August 12, 2009.
- . 2013a. Air Quality Standards Attainment Status. Available: <http://www.airquality.org/aqdata/attainmentstat.shtml>. Accessed August 7, 2013.
- . 2013b. PM_{2.5} Implementation/Maintenance Plan and Redesignation Request for Sacramento PM_{2.5} Nonattainment Area. Available: http://airquality.org/plans/federal/pm/PM2.5/2013-10-24_PM25_PLAN.pdf. Accessed October 6, 2014.
- SMAQMD. *See* Sacramento Metropolitan Air Quality Management District.

- U.S. Environmental Protection Agency. 2006. Interim Policy for General Conformity Applicability in PM_{2.5} Nonattainment Areas. Available: http://www.epa.gov/oar/genconform/documents/Mar06/04-03-06_Harnett_Reg_Air_Div.pdf. Accessed March 16, 2011.
- . 2009a. Criteria Air Pollutant Information. Available: <http://www.epa.gov/air/urbanair/>. Last updated March 26, 2010. Accessed August 19, 2009.
- . 2013a. Monitor Values Report. Available: http://www.epa.gov/airdata/ad_rep_mon.html. Accessed March 5, 2012.
- . 2013b. De Minimis Levels. Available: <http://www.epa.gov/airquality/genconform/deminimis.html>. Accessed August 9, 2013.
- Western Regional Climate Center. 2009. Climate Summary: Sacramento Executive Airport (KSAC), CA. Available: <http://www.wrcc.dri.edu/summary/sac.ca.html>. Accessed August 9, 2013.
- WRCC. *See* Western Regional Climate Center.
- Zhu, Y., W. C. Hinds, S. Kim, and S. Shen. 2002. Study of Ultrafine Particles Near a Major Highway with Heavy-duty Diesel Traffic. *Atmospheric Environment*. 36:4323–4335.
- 3.4 Biological Resources**
- Baldwin, B., D. Goldman, D. Keil, R. Patterson, T. Rosatti, and D. Wilken (Editors). 2012. *The Jepson Manual Vascular Plants of California, Second Edition*. University of California Press. Berkeley, CA.
- BLM. *See* United States Department of the Interior, Bureau of Land Management.
- Bolster, B. 2010. Report to the Fish and Game Commission: A Status Review of the California Tiger Salamander. Nongame Wildlife Program Report 2010-4.
- California Department of Fish and Wildlife, Biogeographic Data Branch. 2013. California Natural Diversity Data Base Global Information System data. Accessed on April 18, 2013.
- California Department of Fish and Wildlife. 2011. Special Animals. Available: <http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/SPAnimals.pdf>. Accessed April 21, 2013.
- . 2013. California Wildlife Habitat Relationships System Life History Accounts and Range Maps. Available: <http://www.dfg.ca.gov/biogeodata/cwhr/cawildlife.aspx>. Accessed April 21, 2013.
- California Native Plant Society. 2014. Inventory of Rare and Endangered Plants (online edition, v8-02). California Native Plant Society. Sacramento, CA. Available: <http://www.rareplants.cnps.org>. Accessed June 11, 2014.
- CDFW. *See* California Department of Fish and Wildlife.
- City of Rancho Cordova and USACE. 2012. SunCreek Specific Plan Project DEIR/DEIS. Available: <http://www.cityofranhocordova.org/Index.aspx?page=679>. Accessed April and May 2013.

- County of Sacramento, Division of Environmental Review and Assessment. 2012 (November). *Cordova Hills Final Environmental Impact Report*. Control Number: 2008-GPB-SDP-ZOB-AHP-00142. State Clearinghouse Number: 2010062069. Sacramento, CA.
- County of Sacramento, Planning Division. 2013. South Sacramento Habitat Conservation Plan. Available: <http://www.msa2.saccounty.net/planning/Pages/SSHCPPlan.aspx>. Accessed May 1, 2013.
- Dunk, J. R. 1995. White-tailed kite (*Elanus leucurus*). In *The Birds of North America*, No. 178 (A. Poole and F. Gill, eds.). The Academy of Natural Sciences, Philadelphia, and The American Ornithologists' Union, Washington, D.C.
- ECORP. See ECORP Consulting, Inc.
- ECORP Consulting, Inc. 2009. Special-Status Plant Survey for Cordova Hills.
- . 2010. Special-Status Plant Survey for Grantline, LLC.
- . 2011. Late Season Special-Status Plant Survey for Grantline, LLC.
- . 2011. USFWS Biological Assessment to Support Section 7 Consultation for Cordova Hills.
- . 2011. Updated Watershed Analysis of the Existing Wetlands for Cordova Hills. Sacramento, CA. Prepared for Conwy, LLC.
- . 2013. 2013 Assessment Level Wet Season 90-Day Report of Findings Regarding Federally-listed Branchiopods for Cordova Hills. Sacramento County, CA. Prepared for Cordova Hills, LLC.
- Jennings, M. and M. Hayes. 1994. Amphibian and Reptile Species of Special Concern in California. Available: http://www.dfg.ca.gov/habcon/info/herp_ssc.pdf. Accessed April 21, 2013.
- MacWhirter, R. B., and Bildstein, K. L. 1996. Northern Harrier (*Circus cyaneus*), in *The Birds of North America* (A. Poole and F. Gill, eds.), no. 210. Acad. Nat. Sci., Philadelphia.
- Merz, J.E., S. Hamilton, P.S. Bergman, and B. Cavallo. 2011. Spatial perspective for delta smelt: a summary of contemporary survey data. *California Fish and Game* 97 (4): 164-189.
- National Marine Fisheries Service. 2009.
- NMFS. See National Marine Fisheries Service.
- Shuford, W. D. and T. Gardali (Editors). 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 No. 1. Western Field Ornithologists, Camarillo, CA and California Department of Fish and Game, Sacramento, CA.
- United States Department of the Interior, Bureau of Land Management. 2011 (September). Rare Plants of the Pine Hill Preserve. Mother Lode Office. Available: http://www.blm.gov/ca/st/en/fo/folsom/pinehillpreserve/php_rareplants.html. Accessed April 23, 2013.

USFWS. *See* U.S. Fish and Wildlife Service.

U.S. Fish and Wildlife Service. 1996. Programmatic Formal Endangered Species Act Consultation on Issuance of 404 Permits for Projects with Relatively Small Effects on Listed Vernal Pool Crustaceans Within the Jurisdiction of the Sacramento Field Office, California.

———. 2002. Recovery Plan for the California Red-legged Frog (*Rana aurora draytonii*). USFWS, Portland, Oregon.

———. 2005. Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon. USFWS, Portland, Oregon.

———. 2006. Vernal Pool Final Critical Habitat. Available: <http://criticalhabitat.fws.gov/>. Accessed July 1, 2013. USFWS, Sacramento, California.

———. 2007. Bald Eagle Fact Sheet: Natural History, Ecology, and History of Recovery. Available: <http://www.fws.gov/Midwest/eagle/recovery/biologue.html>. Accessed April 21, 2013.

———. 2009. Sacramento Fish & Wildlife Office. Species Account: Valley elderberry longhorn beetle. Available: http://www.fws.gov/sacramento/es_species/Accounts/Invertebrates/es_species-accounts_invertebrates.htm. Accessed April 24, 2013.

———. 2011. Golden Eagles Status Fact Sheet. Available: [http://www.fws.gov/migratorybirds/NewReports/Publications/FactSheets/Golden_Eagle_Status_Fact_Sheet\[1\].pdf](http://www.fws.gov/migratorybirds/NewReports/Publications/FactSheets/Golden_Eagle_Status_Fact_Sheet[1].pdf). Accessed April 21, 2013.

———. 2012a. The Bald and Golden Eagle Protection Act. Available: <http://www.fws.gov/midwest/MidwestBird/EaglePermits/bagepa.html>. Accessed April 21, 2013.

———. 2012b. Giant Garter Snake 5-Year Review: Summary and Evaluation.

———. 2014. U.S. Fish and Wildlife Service Sacramento Fish and Wildlife Office Species Account: Conservancy Fairy Shrimp (*Branchinecta conservatio*). Available: http://www.fws.gov/sacramento/es/animal_spp_acct/conserv_shrimp.pdf. Last updated October 15, 2007. Accessed May 9, 2014.

Witham, C.W. 2006. Field Guide to the Vernal Pools of Mather Field, Sacramento County. California Native Plant Society Sacramento Valley Chapter. Sacramento, CA.

Zeiner, D. C., W. F. Laudenslayer, and K. E. Mayer (eds.). 1990, with online updates through 2008. California's Wildlife. Volume I: Amphibians and Reptiles; Volume II: Birds; and Volume III: Mammals. California Statewide Wildlife Habitat Relationships System. California Department of Fish and Game. Sacramento, CA. Available: <http://www.dfg.ca.gov/biogeodata/cwhr/cawildlife.asp>.

3.5 Climate Change

Ahrens, D. C. 2003. *Meteorology Today: An Introduction to Weather, Climate, and the Environment*. Brooks Cole, Inc.: Pacific Grove, California.

ARB. *See* California Air Resources Board.

- California Air Resources Board. 2009 (May). AB 32 Climate Change Scoping Plan Document. Available: http://www.arb.ca.gov/cc/scopingplan/document/adopted_scoping_plan.pdf. Accessed March 10, 2012.
- . 2010 (May). California Greenhouse Gas Inventory for 2000-2008 – by Category as Defined in the Scoping Plan. Available: http://www.arb.ca.gov/cc/inventory/data/tables/ghg_inventory_scopingplan_00-08_2010-05-12.pdf. Accessed March 10, 2010.
- . 2011 (October). California Greenhouse Gas Inventory for 2000-2009. Available: http://www.arb.ca.gov/cc/inventory/data/tables/ghg_inventory_scopingplan_00-09_2011-10-26.pdf. Accessed February 25, 2013.
- . 2012. Technical Evaluation of the Greenhouse Gas Emission Reduction Quantification for the Sacramento Area Council of Governments' SB 375 Sustainable Communities Strategy. Available: http://www.arb.ca.gov/cc/sb375/sacog_scs_tech_eval0512.pdf. Accessed October 3, 2014.
- California Energy Commission. 2006. Inventory of California Greenhouse Gas Emissions and Sinks: 1990 to 2004. Staff Final Report. Publication CEC-600-2006-013-SF. Sacramento, California. December 2006. p. i.
- CEC. *See* California Energy Commission.
- County of Sacramento. 2011. Climate Action Plan. Available: http://www.green.saccounty.net/Documents/sac_030843.pdf. Accessed September 18, 2013.
- EPA. *See* U.S. Environmental Protection Agency.
- Intergovernmental Panel on Climate Change. 2007 (February). Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. Geneva, Switzerland. p. 665.
- IPCC. *See* Intergovernmental Panel on Climate Change.
- McKeever, Mike. Chief Executive Officer. Sacramento Area Council of Governments. January 22, 2012—Memorandum: Response to Cordova Hills Questions.
- Seinfeld, J. H., and S. N. Pandis. 1998. Atmospheric Chemistry and Physics. John Wiley & Sons, Inc., New York, New York. p. 1091.
- Sacramento County. 2011. Climate Action Plan. Available: http://www.green.saccounty.net/Documents/sac_030843.pdf. Accessed October 3, 2014.
- Sacramento Metropolitan Air Quality Management District. 2013. The CEQA Guide Chapter 6. Available: <http://airquality.org/ceqa/ceqaguideupdate.shtml>. Accessed October 3, 2014.
- SMAQMD. *See* Sacramento Metropolitan Air Quality Management District.

U.S. Environmental Protection Agency. 2011. Basic Information. Available:
<http://www.epa.gov/climatechange/basicinfo.html>. Accessed March 10, 2012.

3.6 Cultural Resources

Avina, Rose H. 1976. *Spanish and Mexican Land Grants in California*. Arno Press, NY.

Bidwell, John. 1971. Sutter's Fort. In *California Heritage: An Anthology of History and Literature*, edited by John and Laree Caughey, pp. 134-138. F. E. Peacock Publishers, Itasca, Illinois. Revised Edition.

Dorman, Bernie. 1995. *Aerojet: The Creative Company*. Sacramento: Aerojet History Group. Available:
California State University, Sacramento Library.

ECORP. *See* ECORP Consulting, Inc.

ECORP Consulting, Inc. 2007a. *Cultural Resources Survey Report Cordova Hills, Sacramento County, CA*. Prepared for: Conwy, LLC. ECORP Project 2005-217. Rocklin, CA.

———. 2007b. *Cultural Resources Survey Report Solitu Property, Sacramento County, CA*. Prepared for: Solitu, LLC. ECORP Project 2007-057. Rocklin, CA.

———. 2008a. *Cultural Resources Survey Report Grant Line Mesa, Sacramento, CA*. Prepared for: SBM Site Services. ECORP Project 2006-305. Rocklin, CA.

———. 2008b. *Test Program Results and Evaluation for Cultural Resources in the Conwy and Solitu Projects, Sacramento County, CA*. Prepared for: SBM Site Services. ECORP Project 2005-217. Rocklin, CA.

———. 2011 (October). *Evaluation of Significance of PG&E Transmission Lines within the Cordova Hills Project Area, Sacramento County, California*. Prepared for: SBM Site Services. ECORP Project 2005-217. Rocklin, CA.

FEDSHRA. *See* Folsom, El Dorado & Sacramento Historical Railroad Association.

Folsom, El Dorado & Sacramento Historical Railroad Association. Sacramento Valley Railroad. 2007. Available:
<http://www.fedshra.org/reqdpost.htm>.

Gudde, Erwin G. 1969. *California Place Names: The Origin and Etymology of Current Geographical Names*. University of California Press, Berkeley.

Hoover, Mildred Brooke, Hero Eugene Rensch, Ethel Grace Rensch, and William N. Abeloe. 1990. *Historic Spots in California*. 4th ed. Stanford University Press, Stanford, CA.

Kroeber, A. L. 1976. *Handbook of the Indians of California*. Dover Publications, Inc., New York.

Lawson, J. D. 2002. Sacramento County History. Available: <http://www.cagenweb.com/~sacramen/sachstry.htm>
Accessed 11-25-2002.

- Lindstrom, Susan and John Wells. 1989. *A Cultural Resource Evaluation of Aerojet General Corporation, Sacramento Plant, Sacramento County*. On file at the North Central Information Center, California State University, Sacramento.
- Littlejon, H. W. 1928. *Nisenan Geography*. MS in Bancroft Library, University of California, Berkeley.
- Marshall, J. W. 1971. The Discovery. In *California Heritage: An Anthology of History and Literature*, edited by John and Laree Caughey, pp. 191-193. F. E. Peacock Publishers, Itasca. Revised Edition.
- McGowan, Dana and Melinda Peak. 1994. *Natomas Ditch System, Blue Ravine Segment*. Historic American Engineering Record No. CA-144-A.
- Old Sacramento Foundation, Inc. 2001. *History of Old Sacramento*. Available: <http://oldsacramento.com/history.php>. Accessed July 12, 2011.
- Peak & Associates. 1992. *Cultural Resource Assessment and Testing of Three Sites of the Ridgeview East Project, El Dorado Hills, California*. Prepared by Peak & Associates, Inc., Sacramento. Report on file at the North Central Information Center, California State University, Sacramento.
- Placer County. 1992. *Placer County Cultural Resources Inventory: Historical, Architectural, and Archaeological Resources in Placer County, California*. Placer County Department of Museums, Auburn, CA.
- Roots Web. 2007a. *Sloughhouse – Landmark 574*. Roots Web. Available: <http://www.rootsweb.com/~casags/slm575.htm>.
- . 2007b. *Sheldon Grist Mill – Landmark 439*. Roots Web. Available: <http://www.rootsweb.com/~casags/slm439.htm>.
- Shipley, W.F. 1978. Native Languages of California, in R.F. Heizer, ed., *Handbook of North American Indians, Volume 8: California*, pp.80-90. Smithsonian Institution, Washington, DC.
- The Los Angeles Times. 2001. “PG&E History,” April 7, 2001. Available: <http://articles.latimes.com/2001/apr/07/news/mn-48189>, Accessed February 15, 2013.
- The New York Times. 1905. “California Gas Merger.” Dec. 9, 1905, p. 15.
- The San Francisco Chronicle. 1905. “New Gas Company Files its Papers.” Oct. 11, 1905, p. 7.
- . 1906. “The Passing of San Francisco’s Oldest Corporation.” Jan. 21, 1906, p. 2.
- Thompson, T.H. & A.A. West. 1880. *History of Sacramento County*. Reproduced by Howell-North, 1960, Berkeley, CA.
- Wilson, N.L., and A.H. Towne. 1978. Nisenan, in R.F. Heizer, ed., *Handbook of North American Indians, Volume 8: California*, pp. 387-397. Smithsonian Institution, Washington, DC.

3.7 Environmental Justice

CalEPA. *See* California Environmental Protection Agency.

California Environmental Protection Agency. 2004 (August). Inter-Agency Environmental Justice Strategy. Available: <http://www.calepa.ca.gov/EnvJustice/Documents/2004/Strategy/Final.pdf>. Accessed April 1, 2013.

California Resources Agency. 2013. Environmental Justice Policy. Available: http://resources.ca.gov/environmental_justice_policy_20031030.pdf. Accessed April 1, 2013.

CEQ. *See* Council on Environmental Quality.

Council on Environmental Quality. 1997. *Environmental Justice: Guidance under the National Environmental Policy Act*. Executive Office of the President, Washington, DC.

County of Sacramento, Department of Environmental Review and Assessment. 2009 (May). *Sacramento County General Plan Draft Environmental Impact Report*. Available: <http://www.dera.saccounty.net/PublicNotices/SQLView/ProjectDetails/tabid/71/Default.aspx?ProjectID=31418>. Accessed May 15, 2013.

EPA. *See* U.S. Environmental Protection Agency.

NEPANet. 2008 (September). Regulations for Implementing NEPA from CEQ. Available: <http://ceq.hss.doe.gov/nepa/nepanet.htm>. Accessed May 21, 2013.

U.S. Census Bureau 2010. DP-1: 2010 Profile of General Population and Housing Characteristics. Available: http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?_afpt=table. Accessed April 1, 2013.

———. 2011a. Poverty Thresholds for 2011 by Size of Family and Number of Related Children under 18 Years. Available: <https://www.census.gov/hhes/www/poverty/data/threshld/index.html>. Accessed April 1, 2013.

———. 2011b. DP-03. 2007-2011 Community Survey Selected Economic Characteristics, 5-Year Survey. Available: http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?_afpt=table. Accessed April 1, 2013.

U.S. Environmental Protection Agency. 1998. *Final Guidance for Incorporating Environmental Justice Concerns in EPA's NEPA Compliance Analysis*.

3.8 Geology, Soils, Minerals, and Paleontological Resources

California Geological Survey. 2010. Alquist-Priolo Earthquake Fault Zone Maps. Available: http://www.quake.ca.gov/gmaps/ap/ap_maps.htm. Accessed October 2, 2012.

———. 2012. Probabilistic Seismic Hazards Mapping Ground Motion Page. Available: <http://redirect.conservation.ca.gov/cgs/rghm/pshamap/pshamain.html>. Last updated April 12, 2012. Accessed October 2, 2012.

- Cao, T., W.A. Bryant, B. Rowshandel, D. Branum, and C.J. Wills. 2003. The Revised 2002 California Probabilistic Seismic Hazard Maps. B Faults. Available: <http://www.conservation.ca.gov/cgs/rghm/psha/Pages/Index.aspx>. Accessed March 2013.
- CGS. *See* California Geological Survey.
- County of Sacramento, Community Planning and Development Department. 2011. *Sacramento County General Plan of 2005-2030. Conservation Element*. Available: <http://www.msa2.saccounty.net/planning/Pages/GeneralPlan.aspx>. Accessed October 12, 2012.
- County of Sacramento, Department of Environmental Review and Assessment. 2010. Final Environmental Impact Report, Section 3.6, "Geology and Soils." Available: <http://www.dera.saccounty.net/PublicNotices/SQLView/ProjectDetails/tabid/71/Default.aspx?ProjectID=31691>. Accessed October 12, 2012.
- Day, H. W. 1992. Tectonic Setting and Metamorphism of the Sierra Nevada, California. In *Field Guide to the Geology and Metamorphism of the Franciscan Complex and Western Metamorphic Belt of Northern California*, eds. P. Schiffman and D. Wagner, 12-28. California Division of Mines and Geology Special Publication 114. Sacramento, CA.
- Dupras, D. 1999. *Mineral Land Classification: Portland Cement Concrete-Grade Aggregate and Kaolin Clay Resources in Sacramento County, California*. Plate 3. California Division of Mines and Geology. Open-File Report 99-09.
- Galloway, D., D. R. Jones, and S. E. Ingebritsen. 1999. *Land Subsidence in the United States*. USGS Circular 1182. Reston, VA.
- Higgins, C.T. and J.P. Clinkenbeard. 2006. *Relative Likelihood for the Presence of Naturally Occurring Asbestos in Eastern Sacramento County, California*. California Division of Mines and Geology, Special Report 192.
- Ichinose, G. A., Kenji, S., Anderson, J. G., Schweickert, R. A., and Lahren, M. M. 2000. The Potential Hazard from Tsunami and Seiche Waves Generated by Future Large Earthquakes within the Lake Tahoe Basin, California-Nevada. *Geophysical Research Letters*, Vol. 27, pgs. 1203–1206 April 15, 2000.
- Jennings, C.W. 1994. Fault Activity Map of California and Adjacent Areas. California Division of Mines and Geology, Geologic Data Map No. 6. Sacramento, CA.
- Loyd, R.C. 1984. Generalized Geologic Map of the Folsom 15-Minutes Quadrangle. In *Mineral Land Classification of the Folsom 15-Minute Quadrangle, Sacramento, El Dorado, Placer, and Amador Counties, California*. California Division of Mines and Geology Open-File Report 84-50. Sacramento, CA.
- MacKay & Soms. *See* MacKay & Soms Civil Engineers Inc.
- MacKay & Soms Civil Engineers Inc. 2011 (May). Cordova Hills Special Planning Area. Exhibit M, Grading Concept & Basin Location Plan. County of Sacramento, CA.

- Natural Resources Conservation Service. 2012. Web Soil Survey. Available:
<http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>. Accessed October 2, 2012.
- NRCS. *See* U.S. Natural Resource Conservation Service.
- Piper, A.M., H.S. Gale, H.E. Thomas, and T.W. Robinson. 1939. Geology and Ground-Water Hydrology of the Mokelumne Area, California. U.S. Geological Survey Water-Supply Paper 780. Washington, DC.
- Sawyer, T.L. 1999. Fault Number 1650, Incline Village Fault. In *Quaternary Fault and Fold Database of the United States*. U.S. Geological Survey, Earthquake Hazards Program. Available:
http://geohazards.usgs.gov/cfusion/qfault/qf_web_disp.cfm?qfault_or=657&ims_cf_cd=cf&disp_cd=C. Accessed April 2013.
- Sawyer, T.L. and K.M. Haller, compilers. 2000. Fault Number 1649, North Tahoe Fault. In *Quaternary Fault and Fold Database of the United States*. U.S. Geological Survey, Earthquake Hazards Program. Available:
http://geohazards.usgs.gov/cfusion/qfault/qf_web_disp.cfm?qfault_or=656&ims_cf_cd=cf&disp_cd=C. Last updated July 18, 2012. Accessed October 5, 2012.
- Sierra College Natural History Museum. 2011. Sierra College. Sierra Nevada Virtual Museum. Available:
<http://www.sierranavadavirtualmuseum.com/docs/galleries/nathist/paleontology/fossils.htm>. Accessed February 2011.
- Society of Vertebrate Paleontology. 1995. Assessment and mitigation of adverse impacts to nonrenewable paleontologic resources-standard guidelines. *Society of Vertebrate Paleontology News Bulletin* 163:22–27.
- . 1996. Conditions of receivership for paleontologic salvage collections (final draft). *Society of Vertebrate Paleontology News Bulletin* 166:31–32.
- UCMP. *See* University of California Museum of Paleontology.
- University of California Museum of Paleontology. 2012. Paleontology Collections Database. Accessed October 2012.
- . 2013. Paleontology Collections Database. Accessed March 2013.
- Wagner, D.L., C.W. Jennings, T.L. Bedrossian, and E.J. Bortugno. 1987. *Geologic Map of the Sacramento Quadrangle*. Regional Geologic Map Series, Map No. 1A. California Division of Mines and Geology. Sacramento, CA.
- Wahl, R.E., M.E. Hynes, D.E. Yule, and D.J. Elton. 1989. Seismic Stability Evaluation of Folsom Dam and Reservoir Project. Report Number 6, Right and Left Wing Dams. Department of the Army Corps of Engineers, Technical Report GL-87-14. Vicksburg, MS.
- Wallace Kuhl. *See* Wallace Kuhl & Associates, Inc.

Wallace Kuhl & Associates, Inc. 2007a (March). Preliminary Geotechnical Engineering Report Cordova Hills. Sacramento County, CA. Prepared for SBM Real Estate.

———. 2007b (October). Preliminary Geotechnical Engineering Report Solitu LLC Property. Sacramento County, CA. Prepared for SBM Real Estate.

Wills, C.J., R.J. Weldon, and W.A. Bryant. 2007. Appendix A: California Fault Parameters for the National Seismic Hazard Maps and Working Group on California Earthquake Probabilities 2007. USGS Open File Report 2007-1437A and CGS Special Report 203A.

3.9 Hazardous Waste and Materials

CalEMA. *See* California Emergency Management Agency.

CALFIRE. *See* California Department of Forestry and Fire Protection.

California Department of Forestry and Fire Protection. 2007. *Fire Hazard Severity Zones in SRA–Sacramento County*. Sacramento, CA.

California Department of Toxic Substances Control. 2012. EnviroStor Database. Available: <http://www.envirostor.dtsc.ca.gov/public/>. Accessed October 31, 2012.

CDC and NIOSH. *See* Centers for Disease Control and Prevention and National Institute for Occupational Safety and Health.

Centers for Disease Control and Prevention and National Institute for Occupational Safety and Health. 2005. *What is flyrock?* Pittsburgh, PA.

California Emergency Management Agency. 2009. *State of California Emergency Plan*.

———. 2010. *State of California Multi-Hazard Mitigation Plan*.

County of Sacramento. 2004 (December). *Sacramento County, California Multi-Hazard Mitigation Plan*. Developed with assistance from AMEC Earth and Environment Inc. and The Hazard Mitigation Technical Assistance Partnership, Inc. Folsom and Santa Barbara, CA.

County of Sacramento, Department of Environmental Review and Assessment. 2011. *Sacramento County General Plan of 2005-2030*. Hazardous Materials and Safety Elements. Available: <http://www.msa2.saccounty.net/planning/Pages/GeneralPlan.aspx>. Accessed October 29, 2012.

DTSC. *See* California Department of Toxic Substances Control.

EDAW (now AECOM). 2006 (December). *Draft Environmental Impact Report/Environmental Impact Statement, Rio del Oro Specific Plan Project*. State Clearinghouse No. 2003122057. Available: <http://www.cityofranchocordova.org/Index.aspx?page=128>. Sacramento, CA.

———. 2010 (June). *Final Environmental Impact Report/Environmental Impact Statement, Rio del Oro Specific Plan Project*. State Clearinghouse No. 2003122057. Available: <http://www.cityofranchocordova.org/Index.aspx?page=128>. Sacramento, CA.

EPA. *See* U.S. Environmental Protection Agency.

State Water Resources Control Board. 2012a. Geotracker Database. Available: <http://geotracker.waterboards.ca.gov/>. Accessed October 31, 2012.

———. 2012b. Geotracker Report for Sites in Area 39. Available: http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T10000002299. Accessed October 31, 2012.

SWRCB. *See* State Water Resources Control Board.

U.S. Environmental Protection Agency. 2012a. Search Superfund Site Information. Available: <http://cfpub.epa.gov/supercpad/cursites/srbsites.cfm>. Last updated October 31, 2012. Accessed October 31, 2012.

———. 2012b. Envirofacts Database. Available: <http://iaspub.epa.gov/enviro/find.html?zipcode=ranchocordova%2C+ca>. Last updated October 31, 2012. Accessed October 31, 2012.

Wallace Kuhl. *See* Wallace Kuhl & Associates, Inc.

Wallace Kuhl & Associates, Inc. 2005 (April). *Environmental Site Assessment Cordova Hills 2323-Acre Property*. Rocklin, CA.

———. 2007 (March). *All Appropriate Inquiries Report Conwy South Property Sacramento County, California*. Rocklin, CA.

———. 2010 (October). *Phase I Environmental Site Assessment Update Conwy property, Rancho Cordova, Sacramento County, California*. West Sacramento, CA.

3.10 Hydrology and Water Quality

cbec inc. 2010 (April). Memorandum regarding Hydromodification Assessment Planning for Cordova Hills. Prepared for MacKay & Soms Civil Engineers, Inc.

California Department of Water Resources. 2004. California's Groundwater Bulletin 118. Sacramento Valley Groundwater Basin, South American Subbasin. Last updated February 27, 2004. Available: http://www.water.ca.gov/pubs/groundwater/bulletin_118/basindescriptions/5-21.65.pdf. Accessed April 30, 2013.

California Stormwater Quality Association. 2009. California Stormwater Best Management Practice Handbook: New Development and Redevelopment. Available: <http://www.cabmphandbooks.com/Development.asp>. Accessed May 1, 2013.

Central Valley Regional Water Quality Control Board. The 2010 Integrated Report (Clean Water Act Section 303(d) List /305(b) Report). Category 5 - 303(d) list requiring the development of a TMDL. Available:

http://www.waterboards.ca.gov/water_issues/programs/tmdl/2010state_ir_reports/category5_report.shtml. Accessed April 29, 2013.

———. 2011a. *The Water Quality Control Plan (Basin Plan) for the California Regional Water Quality Control Board Central Valley Region. Fourth Edition*. Revised October 2011 (with Approved Amendments). Available: http://www.swrcb.ca.gov/rwqcb5/water_issues/basin_plans/sacsjr.pdf. Accessed April 24, 2013.

———. 2011b. *Amendments to the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins for the Control of Methylmercury and Total Mercury in the Sacramento-San Joaquin River Delta Estuary* (Attachment 1 to Resolution No. R5-2010-0043). Available: http://www.waterboards.ca.gov/centralvalley/water_issues/tmdl/central_valley_projects/delta_hg/2011oct20/bpa_20oct2011_final.pdf. Accessed April 29, 2013.

City of Rancho Cordova. 2006. *Rancho Cordova General Plan, Draft Environmental Impact Report*. Section 4.9, Hydrology. Available: <http://www.cityofranhocordova.org/index.aspx?page=298>. Accessed May 2, 2013.

County of Sacramento. *See* County of Sacramento, Department of Community Planning and Development.

County of Sacramento, Department of Community Planning and Development. 2011a. *Sacramento County General Plan of 2005-2030*. Available: <http://www.msa2.saccounty.net/planning/Pages/GeneralPlan.aspx#gpelements>. Accessed April 24, 2013.

———. 2011b. Safety Element Background, Dam Failure Inundation Map. Available: http://www.msa2.saccounty.net/planning/Documents/General-Plan-Update/EntireBackgroundSection_04.09.pdf. Accessed April 25, 2013.

County of Sacramento, Emergency Operations Office. 2008. Emergency Operations Plan. Available: http://www.sacramentoready.org/Documents/sac_018609.pdf. Accessed May 2, 2013.

DWR. *See* California Department of Water Resources.

Geosyntec Consultants. 2007. *A Technical Study of Hydrology, Geomorphology, and Water Quality in the Laguna Creek Watershed*. Final Report. Prepared in Support of the Laguna Creek Watershed Management Action Plan and the Upper Laguna Creek Corridor Master Plan. Available: http://www.dera.saccounty.net/portals/0/docs/EnvDocs_Notices/200703972620081030091626.pdf. Accessed May 1, 2013.

James Lee Witt Associates. 2008. Sacramento County Evacuation Plan. Available: http://www.sacramentoready.org/Documents/sac_018621.pdf. Accessed May 2, 2013.

Laguna Creek Watershed Council. 2009. *Laguna Creek Watershed Action Plan*. Available: http://lagunacreek.org/resource-library/?cat_id=32. Accessed April 30, 2013.

MacKay & Soms. *See* MacKay & Soms Civil Engineers Inc.

MacKay & Soms Civil Engineers Inc. 2011. *Drainage Master Plan For Cordova Hills*. Prepared for Sacramento County Water Agency. Roseville, CA.

- National Climatic Data Center. 2002. Average Wind Speed for Sacramento, CA. Available: <http://lwf.ncdc.noaa.gov/oa/climate/online/ccd/avgwind.html>. Last updated August 20, 2008. Accessed April 26, 2013.
- NRCS. *See* U.S. Department of Agriculture, National Resources Conservation Service.
- Sacramento County Department of Water Resources. 2006. *Sacramento City/County Drainage Manual Volume 2: Hydrology Standards*. Available: <http://www.msa2.saccounty.net/dwr/Pages/DrainageManualVolume2.aspx>. Last updated: 2010. Accessed April 24, 2013.
- Sacramento County Water Agency, the Central Sacramento County Groundwater Basin Stakeholders, and the Water Forum Successor Effort. 2006 (February). *Central Sacramento County Groundwater Management Plan*. Prepared with Montgomery Watson Harza. Available: http://www.scgah2o.org/files/CSCGMP_final.pdf. Accessed April 30, 2013.
- Sacramento Stormwater Quality Partnership. 2007. *Stormwater Quality Design Manual for the Sacramento and South Placer Regions*. Available: <http://www.beriverfriendly.net/newdevelopment/stormwaterqualitydesignmanual>. Last updated 2012. Accessed April 24, 2013.
- . 2009. *Stormwater Quality Improvement Plan*. Available: [http://www.beriverfriendly.net/docs/files/File/2009_SQIP/SQIP-\(Nov09\)-MainDocument.pdf](http://www.beriverfriendly.net/docs/files/File/2009_SQIP/SQIP-(Nov09)-MainDocument.pdf). Accessed April 24, 2013.
- . 2011. *Hydromodification Management Plan*. Available: <http://www.beriverfriendly.net/Newdevelopment>. Last updated 2012. Accessed April 24, 2013.
- . 2012. *2011-2012 Annual Report*. Available: http://www.msa.saccounty.net/sactostormwater/beriverfriendly/1112-AR_Apx-2_JointProgram.pdf. Accessed April 29, 2013.
- Santa Clara Valley Urban Runoff Pollution Prevention Program. 2005. *Hydromodification Management Plan Final Report*. Available: http://www.eoainc.com/hmp_final_draft/. Accessed May 1, 2013.
- SCWA. *See* Sacramento County Water Agency.
- SSQP. *See* Sacramento Stormwater Quality Partnership.
- U.S. Bureau of Reclamation. 2013. Water Facts – Folsom Dam, Lake, and Powerplant. Available: http://www.usbr.gov/mp/arwec/news/water_facts_folsom.html. Last updated April 26, 2013. Accessed April 26, 2013.
- U.S. Department of Agriculture, Natural Resources Conservation Service. 2012. Web Soil Survey. Available: <http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>. Last updated February 17, 2012. Accessed April 26, 2013.
- U.S. Environmental Protection Agency. 1999. *Preliminary Data Summary of Urban Storm Water Best Management Practices*. August 1999. Available: <http://water.epa.gov/scitech/wastetech/guide/stormwater/>. Accessed May 1, 2013.

Western Regional Climate Center. 2011. Prevailing Wind Direction for Mather AP Station (1992-2002). Available: <http://www.wrcc.dri.edu/htmlfiles/westwinddir.html#california>. Accessed July 11, 2014.

———. 2013. Monthly Climate Summary (7/11/1877 to 3/31/2013) for Sacramento 5 ESE (047633). Available: <http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca7633>. Accessed April 26, 2013.

WRCC. *See* Western Regional Climate Center.

3.11 Noise

California Department of Transportation. 2004 (June). *Transportation and Construction Induced Vibration Guidance Manual*. Sacramento, CA.

———. 2009. *Technical Noise Supplement To The Traffic Noise Analysis Protocol*. Available: <http://www.dot.ca.gov/hq/env/noise/>. Accessed 2013.

Caltrans. *See* California Department of Transportation.

County of Sacramento. 2011. Sacramento County General Plan Noise Element. Sacramento, CA. Available: <http://www.per.saccounty.net/PlansandProjectsIn-Progress/Documents/General%20Plan%202030/GP%20Elements/Noise%20Element.pdf>.

County of Sacramento, Division of Environmental Review and Assessment. 2012 (January). *Cordova Hills Draft Environmental Impact Report*. Control Number: 2008-GPB-SDP-ZOB-AHP-00142. State Clearinghouse Number: 2010062069. Available: http://www.derasearch.saccounty.net/portals/0/docs/EnvDocs_Notices/200800142020130807090006.pdf. Accessed September 20, 2013. Sacramento, CA.

EPA. *See* U.S. Environmental Protection Agency.

Federal Highway Administration. 2006. *Roadway Construction Model User's Guide*. Available: http://www.fhwa.dot.gov/environment/noise/construction_noise/rcnm/. Accessed September 2013.

Federal Interagency Committee on Noise. 1992 (August). *Federal Agency Review of Selected Airport Noise Analysis Issues*.

Federal Transit Administration. 2006 (May). *Transit Noise and Vibration Impact Assessment*. Washington, DC. Prepared by: Harris Miller Miller & Hanson Inc., Burlington, MA.

FHWA. *See* Federal Highway Administration.

FICON. *See* Federal Interagency Committee on Noise.

FTA. *See* Federal Transit Administration.

Governor's Office of Planning and Research. 2003. *General Plan Guidelines*. Available: http://www.opr.ca.gov/s_generalplanguidelines.php. Accessed September 2013.

SACOG. *See* Sacramento Area Council of Governments.

Sacramento Area Council of Governments. 1997. *Mather Airport Comprehensive Land Use Plan*. Available: <http://www.sacog.org/airport/clups.cfm>. Accessed September 2013.

U.S. Environmental Protection Agency. 1974 (March). *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety*. Washington, DC.

3.12 Parks and Recreation

California Department of Water Resources. 1995. Sacramento–San Joaquin Delta Atlas. Available: <http://baydeltaoffice.water.ca.gov/DeltaAtlas/>. Last updated August 8, 1995. Accessed May 13, 2013.

California Department of Parks and Recreation. 2013. Prairie City State Vehicular Recreation Area. Available: http://ohv.parks.ca.gov/?page_id=1221. Accessed May 13, 2013.

California State Parks. *See* California Department of Parks and Recreation.

Delta Protection Commission. 2007. Recreation Atlas. Available: http://www.delta.ca.gov/recreation_atlas.htm. Accessed May 13, 2013.

DPC. *See* Delta Protection Commission.

DWR. *See* California Department of Water Resources.

National Park Service. 2013. Wild and Scenic Rivers by State – American River (Lower), California. Available: <http://www.rivers.gov/rivers/rivers/american-lower.php>. Accessed May 13, 2013.

NPS. *See* National Park Service.

3.13 Socioeconomics

California Department of Finance. 2010 (April). E-5 City/County Population and Housing Estimates, 4/1/2000 DRU Benchmark. Available: <http://www.dof.ca.gov/research/demographic/reports/view.php#objCollapsiblePanelEstimatesAnchor>. Accessed April 11, 2013.

———. 2012a (May). Interim Population Projections for California and Its Counties 2010–2050. Available: <http://www.dof.ca.gov/research/demographic/reports/projections/interim/view.php>. Accessed February 17, 2013.

———. 2012b (May). E-5 Population and Housing Estimates for Cities, Counties, and the State, January 2011 and 2012, with 2010 Benchmark. Available: <http://www.dof.ca.gov/research/demographic/reports/estimates/e-5/2011-20/view.php>. Accessed February 17, 2013.

California Employment Development Department. 2012a (July). California Industry Employment Projections 2010-2020 Narrative. EDD Labor Market Information Division. Available: [http://www.calmis.ca.gov/file/indproj/cal\\$indnarr.pdf](http://www.calmis.ca.gov/file/indproj/cal$indnarr.pdf). Accessed February 1, 2013.

- . 2012b (January). California Labor Market Trends. Profile of California's Long-Term Unemployed. Available: <http://www.calmis.ca.gov/SpecialReports/CA-LMI-trends-Jan-2012-report.pdf>. Accessed February 1, 2013.
 - . 2012c (December 4). 2010-2020 Industry Employment Projections Sacramento—Arden-Arcade—Roseville Metropolitan Statistical Area. Available: <http://www.labormarketinfo.edd.ca.gov/Content.asp?pageid=145>. Accessed April 26, 2013.
 - . 2012d (May). California Industry Employment Projections 2010-2020. EDD Labor Market Information Division. Available: <http://www.labormarketinfo.edd.ca.gov/Content.asp?pageid=145>. Accessed February 17, 2013.
 - . 2013a. Labor Force and Employment Rates for Counties. Sacramento County. EDD Labor Market Information Division. Available: <http://www.labormarketinfo.edd.ca.gov/?pageid=133>. Accessed April 29, 2013.
 - . 2013b. Labor Force and Employment Rates for California. EDD Labor market Information Division. Available: <http://www.labormarketinfo.edd.ca.gov/?pageid=133>. Accessed April 26, 2013.
 - . 2013c. Labor Force Data for Cities and Census Designated Places (CDP) – Annual Average 2009, Revised. EDD Labor Market Information Division. Available: <http://www.labormarketinfo.edd.ca.gov/?pageid=133>. Accessed April 26, 2013.
 - . 2013d. Labor Force Data for Cities and Census Designated places (CDP) – Annual Average 2010, Revised. EDD Labor Market Information Division. Available: <http://www.labormarketinfo.edd.ca.gov/?pageid=133>. Accessed April 26, 2013.
 - . 2013e. Labor Force Data for Cities and Census Designated places (CDP) – Annual Average 2011, Revised. EDD Labor Market Information Division. Available: <http://www.labormarketinfo.edd.ca.gov/?pageid=133>. Accessed April 26, 2013.
 - . 2013f. Labor Force Data for Cities and Census Designated places (CDP) – Annual Average 2012, Revised. EDD Labor Market Information Division. Available: <http://www.labormarketinfo.edd.ca.gov/?pageid=133>. Accessed April 26, 2013.
 - . 2013g. Major Employers Sacramento County. Available: <http://www.labormarketinfo.edd.ca.gov/majorer/countymajorer.asp?CountyCode=000067>. Accessed April 29, 2013.
- California State Controller's Office. 2009 (August). Counties Annual Report. Fiscal Year 2007-08. Available: http://www.sco.ca.gov/Files-ARD-Local/LocRep/counties_reports_0708counties.pdf. Accessed April 26, 2013.
- . 2011 (March). County's Annual Report. Fiscal Year 2008-09. Available: http://www.sco.ca.gov/Files-ARD-Local/LocRep/counties_reports_0809counties.pdf. Accessed April 26, 2013.
 - . 2012 (January). County's Annual Report. Fiscal Year 2009-10. Available: http://www.sco.ca.gov/Files-ARD-Local/LocRep/counties_reports_0910counties.pdf. Accessed April 26, 2013.

County of Sacramento. 2008. *2008-2013 Housing Element Update, County of Sacramento*. Sacramento, CA. Adopted December 17, 2008.

DOF. *See* California Department of Finance.

EDD. *See* California Employment Development Department.

U.S. Census Bureau. 2010. *Profile of General Population and Housing Characteristics: 2010*. Available: <http://quickfacts.census.gov/qfd/states/06/06067.html>. Accessed April 1, 2013.

3.14 Public Services

California Highway Patrol. 2011. Valley Division Quick Facts. Available: http://www.chp.ca.gov/depts_divs_offs/valley.html. Accessed October 24, 2012.

CHP. *See* California Highway Patrol.

Economic and Planning Systems, Inc. 2012 (February). Cordova Hills Special Planning Area Urban Services and Governance Plan. Sacramento, CA. Prepared for Conway, LLC.

EGUSD. *See* Elk Grove Unified School District.

Elk Grove Unified School District. 2010a. EGUSD Snapshot 2010/11. Available: http://www.egusd.net/students_parents/faqs/District_Snapshot.pdf. Accessed March 15, 2011.

———. 2011a. 2012-2013 Grove Unified School District Elementary School Boundaries Attendance Areas. Adopted February 2011. Available: http://www.egusd.net/new_to_egusd/boundaries.cfm. Accessed October 24, 2012.

———. 2011b. 2012-2013 Elk Grove Unified School District Secondary Attendance Areas. Adopted February 2011. Available: http://www.egusd.net/new_to_egusd/boundaries.cfm. Accessed October 24, 2012.

———. 2011c. School Accountability Report Cards. Available: <http://www.egusd.net/schools/sarcs/index.cfm>. Accessed March 15, 2011.

Grambusch, Marsha. Planner. Elk Grove Unified School District. Email correspondence with Jenifer King of AECOM regarding school facilities and services within the EGUSD. November 11, 2010.

Perkins, Tom. Sacramento Metropolitan Fire Department. Email correspondence with Corinne Resha of AECOM regarding fire protection services. November 17, 2010.

County of Sacramento. 2009 (May). Sacramento County General Plan Draft Environmental Impact Report. Available: <http://www.dera.saccounty.net/PublicNotices/SQLView/ProjectDetails/tabid/71/Default.aspx?ProjectID=31418>. Accessed October 22, 2012.

Sacramento LAFCo. *See* Sacramento Local Agency Formation Commission.

Sacramento Local Agency Formation Commission. 2004 (June). Sacramento Metropolitan Fire District Municipal Service Review and Sphere of Influence Update. Available: <http://www.saclafco.org/MunicipalServiceReviews/default.htm#Answer1>. Accessed October 23, 2012.

Sacramento Metropolitan Fire District. Sacramento Metropolitan Fire District. 2003 (September). Fire Prevention Standards. Fire Apparatus Access Roads. Available: http://www.sacmetrofire.ca.gov/index.php?option=com_content&view=article&id=267&Itemid=41. Accessed January 17, 2011.

———. 2009. Fire and Rescue Operations. Available: http://www.sbfd.ca.gov/fire_%26_rescue.htm. Accessed February 2009.

———. 2011. Community Services Media Releases. Metro Fire to Bolster Fire Prevention Efforts with FM Global Grant. Media release dated April 27, 2011. Available: http://www.sacmetrofire.ca.gov/index.php?option=com_content&view=article&id=373&Itemid=173. Accessed April 7, 2011.

———. 2010. Fire Station 68. Available: http://www.sacmetrofire.ca.gov/index.php?option=com_content&view=article&id=249&Itemid=81. Accessed March 12, 2011.

———. 2013 (February). Board of Directors Action Plan. Available: <http://metrofire.ca.gov/phocadownloadpap/BoardMeetings/2013/as-02-28-13.pdf>. Accessed May 5, 2013.

SMFD. *See* Sacramento Metropolitan Fire District.

Williams, Kim. Planner. Elk Grove Unified School District. April 21, 2008—email correspondence with Suzanne Enslow of AECOM regarding school capacity.

3.15 Traffic and Transportation

California Department of Transportation. 2002 (December). Guide for the Preparation of Traffic Impact Studies. Available: http://www.dot.ca.gov/hq/tpp/offices/ocp/igr_ceqa_files/tisguide.pdf. Accessed February 18, 2013.

———. 2009a (June). 2008 California Motor Vehicle Stock, Travel and Fuel Forecast. Sacramento, CA: Division of Transportation System Information.

———. 2009b (May). Highway 50 Corridor System Management Plan.

———. 2010 (January). California Manual on Uniform Traffic Control Devices for Streets and Highways. Division of Traffic Operations.

———. 2012. Transportation Corridor Concept Report State Route 16.

Capital South East Connector Joint Powers Authority. 2012 (February). Capital SouthEast Connector Project Final Program Environmental Impact Report. State Clearinghouse No. 2010012066. Sacramento, CA. Prepared by ICF International.

- City of Elk Grove. 2009. The City of Elk Grove General Plan, Circulation Element. Adopted November 19, 2003 and Reflects Amendments through July 22, 2009. Available:
http://www.egplanning.org/gp_zoning/general_plan/index.asp. Accessed February 18, 2013.
- City of Folsom. 1993. City of Folsom General Plan, Transportation and Circulation Element. Adopted October 31, 1988 and Updated January 1993, Resolution Number 2522.
- City of Rancho Cordova. 2006a (June). Rancho Cordova General Plan, Circulation Element. Adopted June 26, 2006, Resolution Number 116-2006 and 117-2006. Available:
<http://www.cityofranhocordova.org/Index.aspx?page=104>. Accessed February 18, 2013.
- . 2006b (August). Transit Master Plan. Prepared by HDR.
- . 2013. Five Year Capital Improvement Plan 2014-2018.
- County of Sacramento. 2004 (June). Traffic Impact Analysis Guidelines. Sacramento, CA: Department of Transportation.
- . 2011a. Sacramento County General Plan of 2005-2030, Transportation and Circulation Element. Adopted by Sacramento County Board of Supervisors November 9, 2011. Available:
<http://www.per.saccounty.net/PlansandProjectsIn-Progress/Pages/GeneralPlan.aspx>. Accessed February 18, 2013.
- . 2011b (April). Sacramento County Bicycle Master Plan. Prepared by Fehr and Peers, Mark Thomas, and Alta Planning + Design.
- . 2012 (November). Division of Environmental Review and Assessment. *Cordova Hills Final Environmental Impact Report*. Control Number: 2008-GPB-SDP-ZOB-AHP-00142. State Clearinghouse No. 2010062069. Sacramento, CA.
- County of Sacramento and Fehr & Peers. 2004 (September). Mobility Strategies for County Corridors Final Report. Sacramento and Roseville, CA.
- DKS Associates. 2011 (October). Cordova Hills Traffic Analysis: Technical Report. Sacramento, CA.
- Federal Highway Administration. 2000. Roundabouts: An Informational Guide. U.S. Department of Transportation. FHWA-RD-00-067.
- Fehr & Peers. 2007 (January). Final Roadway Improvement Assumptions for ongoing EIR analyses of projects in Eastern Sacramento County Memorandum.
- Fehr & Peers and Wood Rodgers. 2012. State Route 16 (Jackson Road) Corridor Study. Roseville, CA.
- Sacramento Area Council of Governments. 2012. Metropolitan Transportation Plan/Sustainable Communities Strategy 2035. Adopted by the SACOG Board April 19, 2012.
- Transportation Research Board. 1980. Circular 212 (Interim Materials on Highway Capacity). Washington, DC.

———. 2000. Highway Capacity Manual 2000. Washington, DC.

3.16 Utilities and Service Systems

California Department of Resources Recycling and Recovery. 2009 (December). Solid Waste Characterization Database. Residential Waste Disposal Rates. Available:
<http://www.calrecycle.ca.gov/WasteChar/ResDisp.htm>. Accessed October 25, 2012.

———. 2011. Jurisdictional Diversion/Disposal Rate Report. Sacramento County - Unincorporated. Available:
<http://www.calrecycle.ca.gov/LGCentral/Reports/DiversionProgram/JurisdictionDiversionDetail.aspx?JurisdictionID=420&Year=2011>. Accessed October 25, 2012.

———. 2012a. Solid Waste Information System. Facility/Site Summary Details: Sacramento County Landfill (Kiefer) (34-AA-0001). Available: <http://www.ciwmb.ca.gov/SWIS/34-AA-0001/Detail>. Accessed October 25, 2012.

———. 2012b (December). Solid Waste Characterization Database. Waste Disposal Rates for Business Types. Available: <http://www.ciwmb.ca.gov/WasteChar/DispRate.htm>. Accessed October 25, 2012.

CalRecycle. *See* California Department of Resources Recycling and Recovery.

California Energy Commission. 2007 (November). Impact Analysis. 2008 Update to the California Building Energy Standards for Residential and Nonresidential Buildings. Available: http://www.energy.ca.gov/title24/2008standards/rulemaking/documents/2007-11-07_IMPACT_ANALYSIS.PDF. Accessed October 25, 2012.

———. 2009a. California Energy Demand 2010-2020, Adopted Forecast. December 2009. Available:
<http://www.energy.ca.gov/2009publications/CEC-200-2009-012/index.html>. Accessed October 29, 2012.

———. 2009b. 2008 California Green Building Standards Code. Available: http://www.documents.dgs.ca.gov/bsc/2009/part11_2008_calgreen_code.pdf. Accessed January 17, 2011.

———. 2010 (January). California Building Energy Standards for Residential and Nonresidential Buildings. Available: <http://www.energy.ca.gov/2008publications/CEC-400-2008-001/CEC-400-2008-001-CMF.PDF>. Accessed October 25, 2012.

———. 2011a. 2011 Electricity Consumption by Planning Area. SMUD. Available:
<http://ecdms.energy.ca.gov/elecbyutil.aspx>. Accessed October 29, 2012.

———. 2011b. 2011 Natural Gas Consumption by Entity. PG&E. Available:
<http://ecdms.energy.ca.gov/gasbyutil.aspx>. Accessed October 29, 2012.

———. 2011c. 2011 Natural Gas Consumption by County. Sacramento. Available:
<http://ecdms.energy.ca.gov/gasbycounty.aspx>. Accessed October 29, 2012.

———. 2013. Rulemaking on 2013 Building Energy Efficiency Standards. Available:
<http://www.energy.ca.gov/title24/2013standards/rulemaking/>. Accessed May 8, 2013.

- Capitol Utility Specialists. 2010 (April). Cordova Hills Dry Utilities Technical Study. El Dorado Hills, CA.
- CEC. *See* California Energy Commission.
- County of Sacramento. 2007 (May). *Sacramento County General Plan Background to the 1993 General Plan and 2007 General Plan Update*. Available: <http://www.planning.saccounty.net/gpupdate/gpu-index.html>. Accessed January 6, 2011.
- . 2012. Sacramento County Construction and Demolition (C&D) Debris Ordinance. Available: <http://www.msa2.saccounty.net/wmr/Pages/ConstructionAndDemolitionDebris.aspx>. Accessed October 25, 2012.
- County of Sacramento, Department of Environmental Review and Assessment. 2009 (May). *Sacramento County General Plan Draft Environmental Impact Report*. Available: <http://www.dera.saccounty.net/PublicNotices/SQLView/ProjectDetails/tabid/71/Default.aspx?ProjectID=31418>. Accessed May 15, 2013.
- Ghirardelli, Dave. Sacramento County Department of Waste Management & Recycling. Email correspondence with Lauren Hocker of Sacramento County Department of Environmental Review and Assessment regarding Cordova Hills waste characterization. March 3, 2011.
- MacKay & Soms. *See* MacKay & Soms Civil Engineers Inc.
- MacKay & Soms Civil Engineers Inc. 2010 (December). *Sewer Master Plan for Cordova Hills*. Roseville, CA.
- . 2011 (March). *Potable Water Master Plan for Cordova Hills*. Roseville, CA.
- Sacramento Area Sewer District. 2011 (November). *Sewer System Capacity Plan 2010 Update*. Available: <http://www.sacsewer.com/devres-standards.html>. Accessed April 24, 2013.
- Sacramento Municipal Utility District. 2011. SMUD 2011 Annual Report. Available: <https://www.smud.org/en/about-smud/company-information/documents/Annual-Report-2011.pdf>. Accessed October 29, 2012.
- . 2012a. About SMUD Company Profile. Available: <https://www.smud.org/en/about-smud/company-information/company-profile.htm>. Accessed October 25, 2012.
- . 2012b. About SMUD. Renewable Energy. Available: <https://www.smud.org/en/about-smud/environment/renewable-energy/wind.htm>. Accessed October 29, 2012.
- . 2012c. Greenergy Residential. Available: <https://www.smud.org/en/residential/environment/greenergy>. Accessed October 25, 2012.
- . 2012d. Greenergy Business. Available: <https://www.smud.org/en/business/environment/greenergy.htm>. Accessed October 25, 2012.
- Sacramento Regional County Sanitation District. 2001 (November). *Sacramento Regional Wastewater Treatment Plant 2020 Master Plan*. Available: <http://www.srcsd.com/ssmp.php>. Accessed January 28, 2011.

- . 2003. *Sacramento Regional County Sanitation District Interceptor Master Plan 2000*. Sacramento, CA. Available: <http://www.srcsd.com/ssmp.php>. Accessed April 29, 2013.
- . 2010 (June). SRCSD Withdraws Treatment Plant Capacity Increase. Sacramento, CA.
- . 2012. SRCSD State of the District Report. Available: <http://www.srcsd.com/pdf/rpt-sod-2012.pdf>. Accessed April 18, 2013.
- . 2013 (February). *Sacramento Regional County Sanitation District Interceptor Sequencing Study*. Available: <http://www.srcsd.com/interceptor-study.php>. Accessed April 29, 2013.

SASD. See Sacramento Area Sewer District.

SMUD. See Sacramento Municipal Utility District.

SRCSO. See Sacramento Regional County Sanitation District.

Yeates, Nevin. Department of Resources Recycling & Recovery (CalRecycle). March 29, 2011—email correspondence with Kevin Messerschmitt of Sacramento County Department of Environmental Review and Assessment regarding Kiefer Landfill capacity.

3.17 Water Supply

MacKay & Soms. See MacKay & Soms Civil Engineers Inc.

MacKay & Soms Civil Engineers Inc. 2011 (March). Potable Water Master Plan for Cordova Hills. Roseville, CA.

Sacramento County Water Agency. 2005a (December). *2005 Zone 40 Water Supply Master Plan*. Prepared by MWH Americas, Inc. Available: <http://www.msa.saccounty.net/waterresources/files/Files.asp?c=master>. Accessed May 7, 2013.

———. 2005b (April). *Excelsior Road Well Field, Well No. 4 Initial Study/Mitigated Negative Declaration*. (State Clearinghouse Number 2005042042). Available: <http://www.dera.saccounty.net/tabid/71/Default.aspx?ProjectID=33374>. Accessed May 13, 2013.

———. 2005c (June). *Anatolia Off-Site Well Field No. 5 Initial Study/Negative Declaration*. (State Clearinghouse Number 2005062109). Available: <http://www.dera.saccounty.net/tabid/71/Default.aspx?ProjectID=33574>. Accessed May 13, 2013.

———. 2005d (July). *Anatolia Off-Site Well Field No. 6 Initial Study/Negative Declaration*. (State Clearinghouse Number 2005072003). Available: <http://www.dera.saccounty.net/tabid/71/Default.aspx?ProjectID=33573>. Accessed May 13, 2013.

———. 2006 (November). *Sacramento County Water Agency Zone 40 Water Supply Infrastructure Plan*. Available: <http://www.msa.saccounty.net/waterresources/files/Files.asp?c=wsip>. April 31, 2013.

- . 2010 (August). *North Service Area Pipeline, Tank, and Booster Pump Project* (SCH #2010082044). Available: <http://www.dera.saccounty.net/PublicNotices/SQLView/ProjectDetails/tabid/71/Default.aspx?ProjectID=35485>. Accessed April 31, 2013.
- . 2011a (December). *Zone 40 Water Supply Master Plan Amendment for the Cordova Hills Project*. Available: <http://www.agendanet.saccounty.net/sirepub/mtgviewer.aspx?meetid=11138&doctype=AGENDA>. Accessed April 24, 2013.
- . 2011b. *2010 Zone 41 Urban Water Management Plan*. Available: http://www.msa2.saccounty.net/dwr/Documents/draft_final_Sac%20County%202010%20Urban%20Water%20Management%20Plan%20060111.pdf. Accessed May 7, 2013.
- . 2013a. (January). *Sacramento County Water Agency Water Supply Assessment for Cordova Hills*. Sacramento, CA
- . 2013b. *Vineyard Surface Water Treatment Plant*. Available: <http://www.msa2.saccounty.net/dwr/scwa/Pages/Vineyard.aspx>. Accessed May 8, 2013.

SCWA. *See* Sacramento County Water Agency.

7 LIST OF PREPARERS

7.1 U.S. ARMY CORPS OF ENGINEERS, SACRAMENTO DISTRICT (LEAD AGENCY)

Lisa M. Gibson USACE EIS Project Manager
B.S.; 12 years of experience

Lisa Clay, J.D. Assistant District Counsel
J.D.; 18 years of experience

7.2 AECOM (EIS PREPARERS)

Francine Dunn Principal-in-Charge, EIS Reviewer
B.A.; 29 years of experience

Drew Sutton, AICP Project Manager; Project Description and Alternatives;
B.A., M.C.R.P.; 14 years of experience Land Use and Planning

Wendy Copeland Geology, Soils, Minerals, and Paleontological Resources;
B.S., M.S.; 14 years of experience Hazards and Hazardous Materials; Hydrology and Water Quality

Jenifer King Aesthetics, Environmental Justice;
B.S.; 15 years of experience Public Services; Utilities and Service Systems; Water Supply; and
Senior Review Agricultural Resources; Parks and Recreation; and Socioeconomics

Matthew Gerken, AICP Senior Review Air Quality; Greenhouse Gas Emissions; Noise
B.A., M.C.R.P.; 14 years of experience

George Lu Air Quality; Greenhouse Gas Emissions
B.S.; 9 years experience

Leo Edson Senior Review Biological Resources
B.S.; 26 years of experience

Tammie Beyerl Botany and Wetland Resources
B.A., M.S.; 11 years of experience

Kristi Bischel Biological Resources
B.S., M.S.; 9 years of experience

Barry Scott, RPA Archaeological Resources
B.A., M.S., 28 years of experience

Patricia Ambacher Historic Resources
B.A., M.A.; 15 years of experience

Issa Mahmodi Noise
 B.S., M.S.; 13 years of experience

Carol Shariat Traffic and Transportation
 B.S.; 15 years of experience

Tim Erney, EIT, PTP, AICP Traffic and Transportation
 B.S., M.C.R.P, M.S.; 18 years of experience

Hadi Sadrsadat Traffic and Transportation
 Ph.D.; 11 years of experience

Anthony Mongonon, EIT Traffic and Transportation
 B.S.; 7 years of experience

Ryan Niblock, EIT Traffic and Transportation
 B.S., M.U.P.; 9 years of experience

Penelope Amuyunzu, EIT Traffic and Transportation
 B.S., B.A.; 2 years of experience

Lisa Clement GIS
 B.S.; 16 years of experience

Phi Ngo GIS
 B.A.; 7 years of experience

Brian Perry Graphics
 27 years of experience

Kristine Olsen Publishing
 A.S.; 13 years of experience

Charisse Case Publishing
 16 years of experience

8 INDEX

Topic	Page Number
Advisory Council on Historic Preservation.....	1-14, 3.6-6, 3.6-7
Aerojet General Corporation	1-3, 3.0-9, 3.6-4, 3.9-41, 3.9-43, 3.9-51, 3.9-53, 3.9-61, 3.13-6, 3.16-3, 3.17-3
Aerojet XE "Aerojet General Corporation" Superfund site.....	3.9-41, 3.9-43, 3.9-51, 3.9-53, 3.9-61
Air Quality Attainment Plan.....	1-14, 3.3-16, 3.3-17
Air Quality Management Plan.....	1-14, 2-35, 3.3-23, 3.3-24, 3.3-27, 3.3-28, 3.3-30, 3.3-31, 3.3-32, 3.3-33, 3.3-35, 3.3-36, 3.3-38, 3.3-39
Air Toxics Hot Spots Information and Assessment Act...	3.3-14
airborne toxics control measure.....	1-14, 3.3-14
Airport Land Use Commission.....	1-14, 3.11-18
Alquist-Priolo Earthquake Fault Zoning Act.....	3.8-2, 3.8-5, 3.8-19
Alternative Planning Strategy.....	1-14, 3.5-8
American badger	3.4-15, 3.4-21
American Society of Testing and Materials	1-14, 3.9-39, 3.9-40
Americans with Disabilities Act.....	1-14, 3.12-3
annual exceedance probability	3.10-12, 3.10-21, 3.10-37, 3.10-39, 3.10-41, 3.10-55
area of potential effect.....	1-14, 3.6-7
asbestos.....	1-14, 1-21, 3.3-7, 3.8-8, 3.9-40, 3.9-41
asbestos-containing material	1-14
Assembly Bill 32.....	3.5-7, 3.5-8, 3.5-9, 3.5-11, 3.5-20
AT&T	11, 3.16-1, 3.16-8, 3.16-26, 3.16-27, 3.16-28, 3.16-31
average daily traffic or average daily trips	1-14, 3.11-10, 3.11-26, 3.11-52, 3.15-8, 3.15-54, 3.15-55
average dry-weather flow	ES-3.16-3, 3.16-4
best available control technology	1-15, 1-24, 3.3-14, 3.3-17
best management practice.....	1-15, 3.4-39, 3.4-40, 3.4-41, 3.4-69, 3.8-19, 3.10-18, 3.10-19, 3.10-22, 3.10-23, 3.10-24, 3.10-25, 3.10-26, 3.10-27, 3.10-33, 3.10-45, 3.10-47, 3.10-49, 3.10-51, 3.10-54, 3.10-55
Branchinecta conservatio.....	3.4-10
burrowing owl	2-37, 2-111, 3.4-14, 3.4-20, 3.4-77, 3.4-79, 3.4-80, 3.4-82, 3.4-83, 3.4-84, 3.4-85, 3.4-86
Bus Rapid Transit.....	1-15, 3.15-15
California Air Resources Board	1-14, 3.3-2, 3.3-4, 3.3-5, 3.3-6, 3.3-7, 3.3-8, 3.3-9, 3.3-10, 3.3-11, 3.3-13, 3.3-14, 3.3-15, 3.3-16, 3.3-17, 3.3-18, 3.3-42, 3.5-3, 3.5-4, 3.5-6, 3.5-7, 3.5-8, 3.5-9, 3.5-10, 3.5-13

California ambient air quality standards.....	1-15, 3.3-2, 3.3-10, 3.3-13, 3.3-19
California Building Standards Code.....	3.8-19, 3.8-20, 3.8-29, 3.8-30, 3.8-31, 3.8-35
California Clean Air Act	1-15, 3.3-13, 3.3-15, 3.3-16, 3.5-4
California Climate Action Team	1-15, 3.5-7
California Code of Regulations	1-15, 3.5-6, 3.6-15, 3.6-16, 3.6-17, 3.8-19, 3.9-46, 3.9-50, 3.9-60, 3.10-12, 3.10-13, 3.10-14, 3.10-15
California Department of Conservation	1-17, 3.2-1, 3.2-2, 3.2-3, 3.2-5, 3.2-8, 3.2-12, 3.2-16, 3.2-25, 3.2-26
California Department of Education	1-15, 3.14-3
California Department of Health Services.....	3.10-13
California Department of Public Health.....	1-16, 3.10-12, 3.10-13, 3.10-15, 3.11-17
California Department of Toxic Substances Control	1-17, 3.9-40, 3.9-45, 3.9-47, 3.9-50, 3.9-52, 3.9-60
California Department of Transportation	1-15, 2-44, 2-50, 2-51, 2-52, 2-53, 2-55, 3.1-10, 3.9-47, 3.9-50, 3.9-60, 3.11-4, 3.11-5, 3.11-7, 3.11-47, 3.11-48, 3.15-2, 3.15-4, 3.15-5, 3.15-7, 3.15-8, 3.15-12, 3.15-13, 3.15-25, 3.15-30, 3.15-48, 3.15-49, 3.15-50, 3.15-51
California Department of Water Resources.....	1-17, 2-61, 3.10-7, 3.10-10, 3.10-51, 3.12-1
California Division of Mines and Geology	1-15, 3.8-13, 3.8-14, 3.8-32
California Education Code	3.14-5
California Endangered Species Act.....	1-16, 3.4-29
California Energy Commission	1-16, 3.5-3, 3.5-7, 3.16-6, 3.16-7, 3.16-8, 3.16-9, 3.16-10, 3.16-24, 3.16-30
California Environmental Protection Agency	1-15, 3.5-6, 3.7-6
California Fish and Game Code	3.4-29, 3.4-81
California Geological Survey	1-16, 3.8-2, 3.8-5, 3.8-8, 3.8-13, 3.8-24
California Governor’s Office of Planning and Research.....	1-21, 3.5-7
California Hazardous Materials Release Response Plans and Inventory Law of 1985.....	1-15, 3.9-46
California Highway Patrol.....	1-16, 3.9-47, 3.9-50, 3.9-60, 3.14-3
California Historical Resources Information System.....	3.6-1, 3.6-12
California Integrated Waste Management Act	3.16-5, 3.16-9
California Integrated Waste Management Board	1-16, 3.16-5
California Native Plant Society	1-16, 2-108, 2-110, 3.4-1, 3.4-17
California Natural Diversity Database	1-16, 2-108, 2-110, 3.4-2, 3.4-3, 3.4-4, 3.4-6, 3.4-8, 3.4-9, 3.4-10, 3.4-11, 3.4-12, 3.4-13, 3.4-14, 3.4-15, 3.4-16, 3.4-17, 3.4-18, 3.4-19, 3.4-20, 3.4-21, 3.4-23
California Occupational Safety and Health Administration.....	1-15, 3.9-46
California Public Resources Code.....	1-22, 3.2-1, 3.2-7, 3.2-13, 3.2-14, 3.6-8, 3.6-9, 3.6-14, 3.7-6, 3.8-19, 3.8-20, 3.9-40, 3.9-48, 3.9-56
California Public Utilities Commission.....	1-16, 3.5-7, 3.16-9

California Rare Plant Rank.....	1-16, 3.4-5, 3.4-6, 3.4-7, 3.4-8, 3.4-9, 3.4-10, 3.4-23
California Register of Historical Resources	1-16, 3.6-5, 3.6-9, 3.6-12, 3.6-15, 3.6-16
California Scenic Highway Program.....	3.1-10
California State Nondegradation Policy	3.10-17
California Surface Mining and Reclamation Act	1-23, 3.8-13, 3.8-20
California Toxics Rule	1-17, 3.10-17
California-American Water Company.....	1-15, 3.17-6, 3.17-21
capital improvement plan	1-16, 3.15-15, 3.15-16, 3.15-19
carbon dioxide	1-16, 3.5-2, 3.5-3, 3.5-4, 3.5-5, 3.5-6
carbon dioxide equivalent.....	1-16, 2-39, 3.5-2, 3.5-3, 3.5-8, 3.5-9, 3.5-11, 3.5-12, 3.5-14, 3.5-18, 3.5-19
carbon monoxide	1-16, 16, 3.2-12, 3.3-2, 3.3-3, 3.3-4, 3.3-6, 3.3-8, 3.3-9, 3.3-10, 3.3-19, 3.3-20, 3.3-23, 3.3-25, 3.3-28, 3.3-30, 3.3-32, 3.3-34, 3.3-35, 3.3-44, 3.3-45, 3.3-47, 3.3-49
Central Sacramento County Groundwater Management Plan	6-16
Central Service Area.....	1-16, 2-57, 2-60, 3.17-4
Central Valley Project	1-17, 3.17-2, 3.17-3, 3.17-11
chlorofluorocarbon	1-16, 3.14-5, 3.14-9, 3.14-10, 3.14-11, 3.14-12
Clean Water Act Section 401 Water Quality Certification.....	ES-4, 1-10, 2-7, 2-36, 3.4-27, 3.4-29, 3.4-38, 3.10-11, 3.10-13
Clean Water Act Section 404 permit.....	ES-1, ES-4, 1-4, 1-5, 1-8, 1-9, 1-10, 1-11, 2-2, 2-7, 2-32, 2-33, 2-36, 2-37, 2-38, 2-39, 2-107, 3.0-1, 3.1-10, 3.4-22, 3.4-27, 3.4-30, 3.4-31, 3.4-38, 3.4-39, 3.4-40, 3.4-66, 3.4-82, 3.10-10, 3.10-11, 3.10-22, 3.10-25, 3.10-26, 3.10-27, 3.10-45, 3.10-47, 3.10-48, 3.10-50, 5-2
Climate Change Scoping Plan	1-22, 3.5-8, 3.5-9, 3.5-11, 3.5-20,
Code of Federal Regulations	ES-1, ES-3, ES-6, 1-1, 1-6, 1-7, 1-8, 1-10, 1-11, 1-12, 1-16, 2-1, 2-2, 3.0-1, 3.0-2, 3.0-3, 3.0-4, 3.0-5, 3.0-6, 3.3-12, 3.4-22, 3.4-28, 3.4-40, 3.6-7, 3.6-10, 3.6-12, 3.6-15, 3.6-16, 3.6-17, 3.7-5, 3.8-19, 3.9-39, 3.9-45, 3.9-46, 3.9-47, 3.9-58
community noise equivalent level	1-16, 3.11-4, 3.11-14, 3.11-19, 3.11-23, 3.11-27, 3.11-42, 3.11-52, 3.11-53
Comprehensive Land Use Plan	1-16, 3.11-18, 3.11-19
Conditional Letters of Map Revision	1-16, 2-61, 3.10-12, 3.10-35, 3.10-37, 3.10-38, 3.10-40
Conservancy Fairy Shrimp.....	3.4-10
cooperating agency.....	ES-6, 1-9, 1-10, 1-11, 1-12, 1-13, 5-1
corporate average fuel economy.....	1-15, 3.5-5
Cosumnes Power Plant.....	1-16, 3.16-6
Council on Environmental Quality.....	1-8, 1-11, 1-12, 1-16, 2-1, 3.0-1, 3.0-6, 3.5-17, 3.7-1, 3.7-2, 3.7-5, 3.7-6, 3.7-7

County of Sacramento General Plan	1-3, 2-24, 2-38, 2-55, 3.0-9, 3.0-10, 3.0-11, 3.0-15, 3.2-2, 3.2-6, 3.2-7, 3.2-12, 3.2-13, 3.2-14, 3.2-15, 3.2-16, 3.4-66, 3.8-32, 3.8-36, 3.8-37, 3.10-41, 3.11-15, 3.11-18, 3.11-22, 3.11-23, 3.11-24, 3.11-29, 3.11-32, 3.11-41, 3.12-4, 3.13-10, 3.14-6, 3.15-27, 3.16-10
Criteria Air Pollutant	1-15, 3.5-9
day-night average noise level	1-19, 2-40, 3.11-4, 3.11-10, 3.11-13, 3.11-14, 3.11-15, 3.11-16, 3.11-17, 3.11-22, 3.11-24, 3.11-26, 3.11-29, 3.11-30, 3.11-31, 3.11-32, 3.11-38, 3.11-39, 3.11-41, 3.11-42, 3.11-43, 3.11-45, 3.11-52, 3.11-53, 3.11-60, 3.11-62, 3.11-63, 3.11-65
Department of Finance	1-17, 3.0-8, 3.0-9, 3.13-1, 3.13-2, 3.13-10
Dwarf downingia.....	3.4-7, 3.4-16
East Bay Municipal Utility District.....	1-17, 3.17-7
Elk Grove Unified School District	1-17, 3.14-1, 3.14-3, 3.14-4, 3.14-6, 3.14-7, 3.14-14, 3.14-15, 3.14-16, 3.14-17, 3.14-18, 3.14-19
employment	2-9, 2-13, 3.0-8, 3.5-18, 3.5-20, 3.7-2, 3.10-31, 3.13-1, 3.13-4, 3.13-5, 3.13-6, 3.13-7, 3.13-10, 3.13-11, 3.13-12, 3.13-13, 3.13-14, 3.14-14, 3.15-19, 3.15-22, 3.16-28
Energy and Independence Security Act of 2007	1-17, 3.5-5
Energy Efficiency Standards	3.16-9
Energy Policy and Conservation Act	1-17, 3.5-5
energy-equivalent noise level.....	1-19, 3.11-4, 3.11-10, 3.11-13, 3.11-15, 3.11-24
entitlement	3.1-11, 3.2-13, 3.3-19, 3.4-30, 3.5-10, 3.6-10, 3.7-8, 3.8-21, 3.9-49, 3.10-19, 3.10-20, 3.11-28, 3.12-5, 3.13-11, 3.14-8, 3.16-11, 3.17-10, 3.17-15
environmental justice.....	1-9, 3.0-1, 10, 3.7-1, 3.7-2, 3.7-5, 3.7-6, 3.7-7, 3.7-9, 3.13-1, 3.13-3, 7-1
Executive Order 12898.....	3.0-1, 3.7-5
Executive Order S-1-07.....	3.5-7
Executive Order S-3-05.....	3.5-6
Farmland Mapping and Monitoring Program.....	1-18, 3.2-1, 3.2-7, 3.2-13
Federal antidegradation policy	3.10-11, 3.10-17
Federal Clean Air Act.....	1-15, 3.3-12, 3.3-13, 3.3-15, 3.3-17, 3.5-4, 3.5-5, 3.5-6, 3.9-41
Federal Clean Air Act Amendments	1-15, 3.3-12, 3.3-13, 3.3-15, 3.3-16
Federal Clean Water Act	1-10, 1-11, 1-17, 2-2, 3.4-22, 3.4-27, 3.4-30, 3.4-31, 3.4-39, 3.10-10, 3.10-11, 3.10-12, 3.10-13, 3.10-17, 3.10-18
Federal Emergency Management Agency.....	1-2, 1-18, 2-61, 3.4-33, 3.9-46, 3.10-5, 3.10-12, 3.10-28, 3.10-35, 3.10-36, 3.10-37, 3.10-38, 3.10-39, 3.10-40, 3.10-41, 3.10-55, 3.14-2

Federal Endangered Species Act.....	1-10, 1-18, 3.4-27, 3.4-54, 3.4-62, 3.4-71, 3.4-73, 3.4-75, 3.4-78, 3.4-87, 3.9-39, 3.9-40, 3.9-48, 3.9-52, 3.9-53, 3.9-54, 3.9-55
Federal Highway Administration	1-18, 3.11-4, 3.11-10, 3.11-26, 3.11-27, 3.11-38, 3.11-42, 3.11-49, 3.15-30
Federal Implementation Plan.....	1-18, 3.3-12
Federal Interagency Committee on Noise	1-18, 3.11-38
Federal Register.....	1-18, 3.7-1
Federal Transit Administration.....	1-18, 3.11-7, 3.11-8, 3.11-16, 3.11-17, 3.11-28, 3.11-46, 3.11-47, 3.11-48
fine particulate matter.....	1-21, 3.3-2, 3.3-3, 3.3-4, 3.3-7, 3.3-8, 3.3-9, 3.3-10, 3.3-14, 3.3-17, 3.3-20, 3.3-22, 3.3-23, 3.3-25, 3.3-28, 3.3-30, 3.3-32, 3.3-34, 3.3-35
Flood Insurance Rate Maps	1-18, 3.10-5
Flood Insurance Study.....	1-18, 3.10-5
flooding	3.8-9, 3.9-46, 3.10-12, 3.10-21, 3.10-28, 3.10-29, 3.10-35, 3.10-36, 3.10-37, 3.10-39, 3.10-40, 3.10-51, 3.10-52, 3.10-54, 3.10-55, 3.10-56
floodplain.....	1-2, 2-5, 2-60, 2-61, 2-67, 3.0-8, 3.2-2, 3.4-26, 3.4-33, 3.4-63, 3.4-81, 3.10-1, 3.10-3, 3.10-5, 3.10-28, 3.10-29, 3.10-34, 3.10-35, 3.10-36, 3.10-37, 3.10-38, 3.10-39, 3.10-40, 3.10-42, 3.10-45, 3.10-47, 3.10-48, 3.10-50, 3.10-55
Freeport Regional Water Project.....	1-18, 3.17-3, 3.17-7, 3.17-11, 3.17-16
GenCorp Realty Investments.....	3.13-6
general conformity.....	3.3-12, 3.3-13, 3.3-20, 3.3-22, 3.3-25, 3.3-27, 3.3-29, 3.3-36, 3.3-38, 3.3-39, 3.3-40, 3.3-41, 3.3-42, 3.5-10
General Obligation bonds.....	3.14-4
general plan amendment.....	1-5, 3.2-12, 3.2-14
Geographic Information System.....	3.4-33, 7-2
global warming potential.....	1-18, 3.5-2
Golden Eagle	1-15, 3.4-14, 3.4-15, 3.4-28
grasshopper sparrow.....	2-36, 3.4-14, 3.4-20, 3.4-77, 3.4-79, 3.4-80, 3.4-81, 3.4-83, 3.4-84, 3.4-85, 3.4-86
greenhouse gas	ES-3, 1-9, 1-12, 1-17, 1-18, 2-39, 2-111, 3.5-1, 3.5-2, 3.5-3, 3.5-4, 3.5-5, 3.5-6, 3.5-7, 3.5-8, 3.5-9, 3.5-10, 3.5-11, 3.5-12, 3.5-13, 3.5-14, 3.5-17, 3.5-18, 3.5-19, 3.5-20, 3.5-21, 5-1, 7-1
habitat conservation plan.....	ES-5, 1-4, 1-23, 2-36, 2-91, 3.4-38, 3.4-50
Hazardous Air Pollutant	1-18, 3.3-10, 3.3-13
hazardous waste.....	3.9-39, 3.9-40, 3.9-46, 3.9-47, 3.9-50, 3.9-55, 3.10-23
heating, ventilation, and air conditioning.....	2-41, 3.11-35
high density residential.....	3.2-12, 3.14-5, 3.14-11

high-occupancy vehicle.....	1-18, 3.15-10, 3.15-34
Highway Capacity Manual.....	1-18, 3.15-6, 3.15-7, 3.15-10, 3.15-29, 3.15-30, 3.15-34
housing demand.....	3.13-5, 3.13-11
hydrochlorofluorocarbon.....	1-18
hydrofluorocarbon.....	1-18
Important Farmland.....	1-19, 3.2-1, 3.2-3, 3.2-12, 3.2-14, 3.2-26
Inactive Rancho Cordova Test Site.....	1-19, 3.9-43, 3.9-44
Insurance Services Office.....	1-19, 3.14-1
Integrated Waste Management Plan.....	3.16-9
Intergovernmental Panel on Climate Change.....	1-19, 3.5-2
joint powers authority.....	2-62, 2-63, 2-64, 2-65, 2-67
Land Inventory and Monitoring.....	1-19, 3.2-1
lead-based paint.....	3.9-40, 3.9-41
legenere.....	3.4-9, 3.4-17, 3.4-23, 3.4-54, 3.4-63, 3.4-66, 3.4-67, 3.4-70, 3.4-75, 3.4-78
Letters of Map Revision.....	1-19, 2-61, 3.10-12, 3.10-35, 3.10-36, 3.10-37, 3.10-38, 3.10-40
Light Detection and Ranging.....	1-19, 3.4-33
light-rail transit.....	1-19, 3.15-10, 3.15-12
loaded vehicle weight.....	1-19, 3.5-6
loggerhead shrike.....	3.4-15, 3.4-21, 3.4-77, 3.4-80, 3.4-81, 3.4-83, 3.4-84, 3.4-85, 3.4-86
Low Carbon Fuel Standard.....	1-19, 3.5-7, 3.5-8
low impact development.....	1-19, 2-28, 3.4-37, 3.5-15, 3.10-19, 3.10-30, 3.10-31, 3.10-33, 3.10-34, 3.10-42, 3.10-56
Mather Airport.....	2-41, 2-66, 3.9-44, 3.9-49, 3.11-9, 3.11-14, 3.11-18, 3.11-19, 3.11-20, 3.11-21, 3.11-27, 3.11-53, 3.11-54, 3.11-55, 3.11-56, 3.11-57, 3.11-58, 3.15-11
Mather Airport Comprehensive Land Use Plan.....	3.11-14, 3.11-18
maximum available control technology.....	1-19, 3.3-13
maximum contaminant level.....	1-19, 3.10-14, 3.10-15
maximum extent practicable.....	1-19, 3.10-18, 3.10-19
maximum noise level.....	1-19, 3.11-4, 3.11-10, 3.11-13, 3.11-22, 3.11-23, 3.11-26, 3.11-36, 3.11-38, 3.11-49
Mello-Roos.....	3.14-4, 3.14-19
Memorandum of Agreement.....	1-20, 3.6-7, 3.6-15
methane.....	1-16, 3.5-2, 3.5-6
methyl tertiary butyl ether.....	3.10-14
Metropolitan Planning Organization.....	1-20, 3.5-8, 3.15-13
mineral resource zone.....	1-20, 3.8-13, 3.8-14, 3.8-32

mining.....	3.0-9, 3.1-8, 3.2-6, 3.6-4, 3.6-5, 3.6-17, 3.8-13, 3.8-14, 3.8-20, 3.8-36, 3.9-40, 3.9-51, 3.9-53, 3.9-60, 3.10-54, 3.13-8
mitigation and monitoring plan	1-20, 3.4-40, 3.4-68
Mitigation Monitoring and Reporting Program.....	3.15-1, 3.15-20
Mitigation Monitoring Plan.....	1-20, 3.4-40, 3.4-68
Most Likely Descendant.....	1-19, 3.6-14
Municipal Separate Storm Sewer Systems.....	3.10-11, 3.10-18
national ambient air quality standards	1-20, 3.3-2, 3.3-4, 3.3-10, 3.3-12, 3.3-19, 3.3-35, 3.3-36, 3.3-37, 3.3-39, 3.3-40, 3.3-52
National Earthquake Hazards Reduction Program.....	1-20, 3.8-18
National Earthquake Hazards Reduction Program Act	1-20, 3.8-18
national emissions standards for hazardous air pollutants	1-20, 3.3-13
National Highway Traffic Safety Administration	3.5-5
National Historic Preservation Act.....	1-20, 3.6-6, 3.6-7, 3.6-8, 3.6-10, 3.6-12
National Marine Fisheries Service	1-20, 3.4-12, 3.4-27
National Park Service	1-21, 3.12-3
National Pollutant Discharge Elimination System	1-21, 3.8-19, 3.8-25, 3.8-35, 3.10-8, 3.10-9, 3.10-11, 3.10-12, 3.10-13, 3.10-17, 3.10-18, 3.10-19, 3.10-20, 3.10-23, 3.10-24, 3.10-25, 3.10-26, 3.10-27, 3.10-28, 3.10-54, 3.10-55, 3.16-3, 3.16-4
National Recreation and Park Association.....	1-21, 3.12-3
National Register of Historic Places.....	1-21, 3.6-5, 3.6-6, 3.6-7, 3.6-8, 3.6-9, 3.6-10, 3.6-11, 3.6-12, 3.6-14, 3.6-15, 3.6-16, 3.6-17
National Toxics Rule.....	1-21, 3.10-17
Native American Heritage Commission.....	1-20, 3.6-1, 3.6-12, 3.6-14, 3.6-15
Natural Resources Conservation Service	1-21, 3.2-1, 3.8-7, 3.8-9, 3.8-11, 3.8-12, 3.8-21, 3.8-30, 3.8-31, 3.10-6
nitric oxide.....	1-20, 2-40, 2-41, 3.3-2, 3.3-3, 3.3-4, 3.3-5, 3.3-6, 3.3-9, 3.3-10, 3.11-22, 3.11-23, 3.11-24, 3.11-25, 3.11-31, 3.11-32, 3.11-33, 3.11-35, 3.11-36, 3.11-57, 3.11-58, 3.11-59
nitrogen dioxide.....	1-20, 3.3-2, 3.3-3, 3.3-4, 3.3-5, 3.3-6, 3.3-9, 3.3-10
nitrous oxide	1-20, 3.5-2, 3.5-6
noise contours.....	2-40, 3.11-10, 3.11-26, 3.11-31, 3.11-33
North Service Area.....	1-21, 3.17-1, 3.17-4, 3.17-6, 3.17-7, 3.17-8, 3.17-11, 3.17-13, 3.17-16, 3.17-17, 3.17-18, 3.17-19, 3.17-21
North Service Area Pipeline.....	1-21, 3.17-7, 3.17-16, 3.17-17, 3.17-18, 3.17-22
North Service Area Pipeline Project.....	1-21, 3.17-7, 3.17-11, 3.17-13, 3.17-14, 3.17-15, 3.17-16, 3.17-17, 3.17-21, 3.17-22

North Vineyard Well Field.....	1-21, 3.17-6, 3.17-7, 3.17-8, 3.17-11, 3.17-13, 3.17-14, 3.17-15, 3.17-16, 3.17-17, 3.17-18, 3.17-21, 3.17-22
northern harrier.....	3.4-14, 3.4-21, 3.4-79, 3.4-80, 3.4-83, 3.4-84, 3.4-85, 3.4-86
Notice of Intent.....	1-8, 1-12, 1-21, 2-1, 13, 3.10-18, 5-1
notice of preparation.....	ES-5, ES-6, 1-5, 1-12, 1-21, 2-91, 13, 3.4-50, 5-1
Numeric Effluent Limitations.....	3.11-4
Office of Emergency Services.....	1-21, 3.10-51, 3.10-52
Office of Environmental Health Hazard Assessment.....	1-21, 3.3-42, 3.10-13
off-site infrastructure.....	1-13, 2-26, 2-28, 3.0-5, 3.16-8, 3.17-18, 3.17-20
oxides of nitrogen.....	3.3-24, 3.3-25, 3.3-27, 3.3-31, 3.3-38, 3.3-39, 3.5-13
ozone.....	1-21, 1-23, 2-35, 10, 3.3-1, 3.3-2, 3.3-3, 3.3-4, 3.3-5, 3.3-6, 3.3-9, 3.3-10, 3.3-13, 3.3-14, 3.3-16, 3.3-17, 3.3-19, 3.3-21, 3.3-22, 3.3-23, 3.3-26, 3.3-27, 3.3-28, 3.3-29, 3.3-30, 3.3-33, 3.3-34, 3.3-35, 3.3-36, 3.3-37, 3.3-38, 3.3-39, 3.3-41, 3.3-43, 3.3-45, 3.3-47, 3.5-2
ozone depleting substances.....	1-21
Pacific Gas and Electric Company.....	1-21, 11, 3.2-2, 3.6-5, 3.16-1, 3.16-7, 3.16-8, 3.16-11, 3.16-24, 3.16-25, 3.16-26, 3.16-28, 3.16-30
parkland.....	2-19, 3.6-1, 3.12-2, 3.12-3, 3.12-4, 3.12-5, 3.12-6, 3.12-7, 3.12-8
particulate matter.....	1-17, 1-21, 3.3-2, 3.3-4, 3.3-11, 3.3-14, 3.3-15, 3.3-21, 3.3-42, 3.3-43, 3.3-45, 3.3-48, 3.3-50
passenger car equivalents.....	3.15-23
peak particle velocity.....	1-22, 3.11-7, 3.11-8, 3.11-17, 3.11-46, 3.11-47
perchloroethylene.....	1-21, 3.3-11, 3.9-42
perfluorocarbons.....	1-21
Pincushion navarretia.....	3.4-9, 3.4-17
Place of Use.....	1-21, 3.17-3, 3.17-11
polychlorinated biphenyls.....	1-21, 3.9-40, 3.9-41, 3.10-8, 3.11-9
population growth.....	3.4-42, 3.4-45, 3.5-9, 3.13-2, 3.13-10, 3.13-14, 3.16-2, 3.16-4
Porter-Cologne Water Quality Control Act.....	3.4-29, 3.10-10, 3.10-13
Proposed Endangerment and Cause or Contribute Findings for Greenhouse Gases under the CAA.....	1-17, 3.5-5
Quimby Act.....	3.12-4
reactive organic gases.....	ES-2, 1-22, 3.3-2, 3.3-5, 3.3-7, 3.3-8, 3.3-17, 3.3-19, 3.3-20, 3.3-21, 3.3-23, 3.3-25, 3.3-26, 3.3-27, 3.3-28, 3.3-29, 3.3-30, 3.3-32, 3.3-34, 3.3-35, 3.3-36, 3.3-37, 3.3-38, 3.3-39, 3.3-40, 3.3-41, 3.3-52
recognized environmental condition.....	1-22, 3.9-39
Record of Decision.....	1-22, 3.0-4, 3.0-6, 5-2

recycled water.....	3.17-2, 3.17-4
Regional Transportation Plan	1-22, 3.5-8, 3.15-13
Regional Water Quality Control Board.....	1-22, 3.4-29, 3.4-39, 3.8-19, 3.16-11
Remedial Action Plan.....	3.9-44
Renewables Portfolio Standard	1-22, 3.16-7
report of waste discharge.....	1-22
Resource Conservation and Recovery Act	1-22, 3.9-45
respirable particulate matter	1-21, 3.3-2, 3.3-3, 3.3-4, 3.3-7, 3.3-8, 3.3-9, 3.3-10, 3.3-11, 3.3-20, 3.3-22, 3.3-23, 3.3-25, 3.3-28, 3.3-30, 3.3-32, 3.3-34, 3.3-35
riparian habitat.....	3.4-10, 3.10-29
root-mean-square.....	1-22, 3.11-7, 3.11-8, 3.11-46
SACOG’s Metropolitan Transportation Plan	1-20, 3.5-20, 3.15-13, 3.15-18, 3.15-19
SACOG’s Sacramento Region Blueprint	1-4, 1-15, 3.0-8, 3.0-9, 3.0-15, 3.0-16, 3.2-9, 3.2-10, 3.2-11, 3.2-12, 3.2-20, 3.2-21, 3.2-22, 3.2-23, 3.2-24
Sacramento Area Council of Governments	1-22, 3.0-8, 3.0-9, 3.0-15, 3.0-16, 3.2-9, 3.2-10, 3.2-12, 3.2-20, 3.2-21, 3.2-22, 3.2-23, 3.2-24, 3.2-25, 3.5-8, 3.5-20, 3.11-14, 3.11-18, 3.15-1, 3.15-13, 3.15-18, 3.15-19, 3.15-21, 3.15-22, 3.15-23, 3.15-37, 3.15-41, 3.15-46, 3.15-48, 3.15-49, 3.15-54, 3.16-3
Sacramento Area Sewer District.....	1-22, 2-28, 2-57, 2-58, 3.16-1, 3.16-2, 3.16-3, 3.16-10, 3.16-11, 3.16-12, 3.16-13, 3.16-14, 3.16-15, 3.16-28
Sacramento County Department of Environmental Review and Assessment	1-17, 3.15-16, 3.16-13
Sacramento County Environmental Management Department	3.9-52, 3.9-53
Sacramento County Sheriff’s Department.....	1-22, 3.14-1, 3.14-2, 3.14-6, 3.14-7, 3.14-12, 3.14-13, 3.14-18, 3.14-19
Sacramento County Water Agency	1-22, 2-26, 2-60, 3.10-9, 3.10-34, 3.10-36, 3.10-38, 3.10-40, 3.10-45, 3.10-47, 3.10-48, 3.10-50, 3.10-52, 3.17-1, 3.17-2, 3.17-3, 3.17-4, 3.17-5, 3.17-6, 3.17-7, 3.17-8, 3.17-9, 3.17-10, 3.17-11, 3.17-12, 3.17-13, 3.17-14, 3.17-15, 3.17-16, 3.17-17, 3.17-18, 3.17-19, 3.17-20, 3.17-21, 3.17-22
Sacramento County Zoning Code.....	3.2-2
Sacramento Federal Nonattainment Area.....	1-23, 3.3-16
Sacramento Hydrological Calculator.....	3.10-29, 3.10-31, 3.10-34
Sacramento Metropolitan Air Quality Management District	ES-1, 1-9, 1-23, 2-1, 2-35, 2-39, 3.3-1, 3.3-4, 3.3-10, 3.3-12, 3.3-15, 3.3-16, 3.3-17, 3.3-18, 3.3-19, 3.3-22, 3.3-23, 3.3-24, 3.3-25, 3.3-27, 3.3-28, 3.3-29, 3.3-30, 3.3-31, 3.3-32, 3.3-33, 3.3-34, 3.3-35, 3.3-36, 3.3-37, 3.3-38, 3.3-39, 3.3-40, 3.3-43, 3.3-45, 3.3-46, 3.3-47, 3.3-48, 3.3-49, 3.3-50, 3.3-51, 3.5-4, 3.5-9, 3.5-10,

	3.5-11, 3.5-12, 3.5-14, 3.5-15, 3.5-16, 3.5-18, 3.5-19, 3.8-8
Sacramento Metropolitan Fire District	1-23, 3.14-1, 3.14-2, 3.14-5, 3.14-6, 3.14-9, 3.14-10, 3.14-11, 3.14-12, 3.14-18
Sacramento Municipal Utility District	1-23, 3.9-40, 3.9-41, 3.9-42, 3.16-1, 3.16-6, 3.16-7, 3.16-8, 3.16-11, 3.16-21, 3.16-22, 3.16-23, 3.16-24, 3.16-27, 3.16-28, 3.16-30, 3.17-2, 3.17-3, 3.17-11
Sacramento Orcutt grass	ES-2, 3.4-6, 3.4-16, 3.4-23, 3.4-54, 3.4-63, 3.4-64, 3.4-66, 3.4-67, 3.4-70, 3.4-71, 3.4-72, 3.4-74, 3.4-75, 3.4-78, 3.4-87
Sacramento Regional County Sanitation District	1-23, 2-28, 2-57, 2-58, 3.16-1, 3.16-2, 3.16-3, 3.16-4, 3.16-10, 3.16-11, 3.16-12, 3.16-13, 3.16-14, 3.16-15, 3.16-16, 3.16-28, 3.16-29
Sacramento Regional Transit	1-22, 3.15-10
Sacramento Regional Wastewater Treatment Plant	1-23, 3.16-1, 3.16-2, 3.16-3, 3.16-4, 3.16-12, 3.16-14, 3.16-16, 3.16-17, 3.16-18, 3.16-29
Sacramento Stormwater Quality Partnership	1-23, 3.10-8, 3.10-9, 3.10-19, 3.10-20, 3.10-24, 3.10-25, 3.10-26, 3.10-27, 3.10-28, 3.10-44, 3.10-45, 3.10-47, 3.10-49, 3.10-51, 3.10-55
Sacramento Valley Air Basin	1-23, 3.3-1, 3.3-2, 3.3-5, 3.3-6, 3.3-7, 3.3-9, 3.3-10, 3.3-11, 3.3-20, 3.3-23, 3.3-25, 3.3-28, 3.5-1
Sacramento–San Joaquin Delta	1-17, 2-3, 3.0-7, 15, 3.3-1, 3.4-11, 3.4-16, 3.4-17, 3.4-20, 3.4-21, 3.5-1, 3.6-1, 3.6-2, 3.8-6, 3.10-4, 3.10-8, 3.10-54, 3.12-1, 3.13-6, 3.16-4
Safe Drinking Water Act	3.10-12, 3.10-13
Section 303(d) Impaired Waters List	3.10-8, 3.10-12, 3.10-18
seismicity	3.8-2, 3.8-19
Senate Bill 375	3.5-8, 3.5-9, 3.5-20
Senate Bill 50	3.14-6
Senate Bill 610	3.17-12
slender Orcutt grass	3.4-4, 3.4-74, 3.4-75
Society of Vertebrate Paleontology	3.8-14, 3.8-21, 3.8-33, 3.8-34
sound exposure level	1-22, 3.11-4, 3.11-53
South Sacramento Habitat Conservation Plan	5, 1-4, 1-23, 2-57, 2-65, 2-91, 3.4-50, 3.4-77
South Service Area	1-23, 3.17-4
Southern Groundwater Study Area	1-23, 3.9-43
State Historic Preservation Office	1-23, 3.6-6, 3.6-7, 3.6-14, 3.6-15
State Implementation Plan	1-23, 3.3-12, 3.3-14, 3.3-21, 3.10-17
State of California General Plan Guidelines 2003	3.11-17
State Responsible Area	1-23, 3.9-45, 3.9-59, 3.9-62, 3.12-1, 3.12-7, 3.12-8
State School Funding	3.14-5
State Vehicular Recreation Area	1-23, 3.11-9, 3.11-14, 3.11-27, 3.11-36, 3.11-38, 3.12-2

State Water Resources Control Board.....	1-23, 3.8-19, 3.9-40, 3.9-43, 3.9-45, 3.10-11, 3.10-13, 3.10-17, 3.10-18, 3.10-23, 3.10-24, 3.10-25, 3.10-26, 3.10-27
storm water pollution prevention plan.....	1-23, 3.4-39, 3.8-19, 3.10-18, 3.10-23, 3.10-24, 3.10-25, 3.10-26, 3.10-27
Stormwater Quality Improvement Plan.....	1-23, 3.10-19
sulfur dioxide.....	1-23, 3.3-2, 3.3-3, 3.3-4, 3.3-6, 3.3-7, 3.3-10, 3.3-20, 3.3-23, 3.3-28, 3.3-30, 3.3-34
sulfur hexafluoride.....	1-23, 3.5-2, 3.5-6
Sustainable Communities Strategy.....	1-22, 3.2-1, 3.5-8, 3.5-20, 3.15-18, 3.15-19
Tanner Air Toxics Act.....	3.3-14
total dissolved solids.....	1-24, 3.10-9
total maximum daily load.....	1-24, 3.10-8, 3.10-12
toxic air contaminants.....	1-23, 2-36, 3.3-1, 3.3-4, 3.3-10, 3.3-11, 3.3-13, 3.3-14, 3.3-15, 3.3-17, 3.3-20, 3.3-24, 3.3-31, 3.3-42, 3.3-43, 3.3-44, 3.3-45, 3.3-46, 3.3-47, 3.3-48, 3.3-49, 3.5-1, 3.5-2
Toxic Best Available Control Technology.....	1-24, 3.3-17
traffic analysis zone.....	1-23, 3.15-19, 3.15-21
Transit Master Plan.....	3.15-14, 3.15-15
trichloroethylene.....	1-24, 3.9-42, 3.9-43, 3.9-44, 3.9-55
tricolored blackbird.....	2-38, 3.4-13, 3.4-83
U.S. Bureau of Reclamation.....	1-22, 1-23, 3.8-13, 3.8-20, 3.10-5, 3.10-51, 3.12-1, 3.17-2
U.S. Department of Labor, Occupational Safety and Health Administration.....	1-21, 3.9-41, 3.9-46, 3.9-58
U.S. Environmental Protection Agency.....	ES-1, 1-9, 1-17, 2-1, 3.0-1, 3.3-1, 3.3-2, 3.3-4, 3.3-5, 3.3-6, 3.3-7, 3.3-8, 3.3-9, 3.3-10, 3.3-12, 3.3-13, 3.3-14, 3.3-17, 3.3-20, 3.4-22, 3.5-2, 3.5-4, 3.5-5, 3.5-6, 3.7-5, 3.7-6, 3.7-7, 3.9-40, 3.9-41, 3.9-45, 3.9-47, 3.9-60, 3.10-10, 3.10-11, 3.10-12, 3.10-14, 3.10-15, 3.10-17, 3.10-47, 3.10-49, 3.10-51, 3.11-15, 5-2
U.S. Fish and Wildlife Service.....	1-9, 1-24, 2-1, 2-57, 2-65, 3.4-4, 3.4-10, 3.4-12, 3.4-13, 3.4-16, 3.4-17, 3.4-18, 3.4-19, 3.4-27, 3.4-28, 3.4-30, 3.4-54, 3.4-61, 3.4-62, 3.4-63, 3.4-64, 3.4-65, 3.4-66, 3.4-68, 3.4-69, 3.4-70, 3.4-71, 3.4-72, 3.4-74, 3.4-77, 3.4-78, 5-2
U.S. Forest Service.....	1-24, 3.1-8
U.S. Geological Survey.....	1-24, 3.8-1, 3.8-18
underground storage tank.....	1-24, 3.9-40, 3.9-43, 3.9-51
United States Code.....	1-7, 1-24, 3.12-3
Urban Policy Area.....	1-3, 1-24, 15, 3.2-12, 3.2-14

Urban Services Boundary.....	1-3, 1-4, 1-6, 1-24, 2-3, 2-5, 2-24, 2-26, 2-107, 2-108, 3.0-8, 3.0-9, 3.0-15, 3.2-13, 3.2-15, 3.2-16
Urban Water Management Plan	1-24, 3.17-1, 3.17-9
valley elderberry longhorn beetle (<i>Desmocerus californicus dimorphus</i>).....	1-24, 2-111, 3.4-10, 3.4-17, 3.4-18, 3.4-53, 3.4-54, 3.4-70, 3.4-74, 3.4-76, 3.4-77, 3.4-88
vegetation	2-33, 2-60, 3.2-1, 3.3-2, 3.4-1, 3.4-12, 3.4-13, 3.4-17, 3.4-18, 3.4-20, 3.4-21, 3.4-22, 3.4-23, 3.4-26, 3.4-37, 3.5-2, 3.5-3, 3.8-16, 3.8-26, 3.10-21, 3.10-24, 3.10-41, 3.11-7
vehicle miles traveled.....	1-24, 3.2-10, 3.3-24, 3.3-31, 3.15-5
vernal pool fairy shrimp (<i>Branchinecta lynchi</i>).....	ES-2, 2-38, 3.4-18, 3.4-28, 3.4-54, 3.4-61, 3.4-63, 3.4-64, 3.4-68, 3.4-69, 3.4-70, 3.4-72, 3.4-74, 3.4-76, 3.4-78, 3.4-87
Vernal Pool Fairy Shrimp (<i>Branchinecta lynchi</i>)	3.4-11, 3.4-18
vernal pool tadpole shrimp (<i>Lepidurus packardii</i>).....	ES-2, 2-38, 3.4-11, 3.4-18, 3.4-54, 3.4-61, 3.4-63, 3.4-64, 3.4-68, 3.4-69, 3.4-70, 3.4-72, 3.4-74, 3.4-76, 3.4-78, 3.4-87
Vineyard Surface Water Treatment Plant.....	3.17-7, 3.17-11, 3.17-16, 3.17-17
volatile organic compound	1-24, 3.3-2, 3.3-16, 3.3-20, 3.9-42, 3.9-43, 3.9-44
volume-to-capacity ratio.....	1-24
waste discharge requirement	1-24, 3.10-15, 3.10-17, 3.10-18, 3.10-19
wastewater treatment plant.....	3.8-36, 3.16-16, 3.16-17, 3.16-18, 3.16-29
Water Forum Agreement.....	1-24, 3.17-3, 3.17-4
water supply assessment.....	3.17-9, 3.17-10, 3.17-12, 3.17-13, 3.17-21
Water Supply Master Plan.....	1-24, 3.17-1, 3.17-2, 3.17-3, 3.17-4, 3.17-6, 3.17-12, 3.17-13, 3.17-14, 3.17-15, 3.17-19, 3.17-21, 3.17-22
Water System Infrastructure Plan.....	1-24, 3.17-1, 3.17-4, 3.17-19, 3.17-20
water treatment plant	1-24, 3.17-3, 3.17-6, 3.17-7, 3.17-8
western pond turtle	3.4-13, 3.4-19, 3.4-77, 3.4-81, 3.4-88
Western Regional Climate Center	1-24, 3.3-1, 3.10-5
western spadefoot	3.4-13, 3.4-19, 3.4-77, 3.4-81, 3.4-84, 3.4-85, 3.4-86, 3.4-88
wetland preserve.....	ES-5, 1-5, 2-91, 12, 3.4-37, 3.4-46, 3.4-73, 3.10-30, 3.10-52, 4-1
white-tailed kite	3.4-15, 3.4-21, 3.4-79, 3.4-80, 3.4-83, 3.4-84, 3.4-85, 3.4-86
Williamson Act.....	2-35, 3.2-2, 3.2-5, 3.2-7, 3.2-8, 3.2-12, 3.2-13, 3.2-15, 3.2-16, 3.2-17, 3.2-18, 3.2-19, 3.2-21, 3.2-25
Worker Safety Requirements	3.9-46
zoning	1-5, 2-13, 2-35, 15, 3.2-2, 3.2-4, 3.2-6, 3.2-9, 3.2-12, 3.2-13, 3.2-15, 3.2-16, 3.2-17, 3.2-18, 3.2-19, 3.2-21, 3.3-12, 3.8-2, 3.8-19, 3.8-22