Capital SouthEast Connector Project Volume 2 of the Final Program Environmental Impact Report – Revisions to the Draft Program Environmental Imapact Report

Prepared by:

Capital SouthEast Connector Joint Powers Authority

CAPITAL | SOUTHEAST CONNECTOR JPA
Connecting Communities

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CAPITAL SOUTHEAST CONNECTOR PROJECT VOLUME 2 OF THE FINAL PROGRAM ENVIRONMENTAL IMPACT REPORT – REVISIONS TO THE DRAFT PROGRAM ENVIRONMENTAL IMPACT REPORT

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Acronyms and Abbreviations

μg/l	Micrograms per liter
$\mu g/m^3$	Micrograms per cubic meter
AB	Assembly Bill
ACM	Asbestos-containing material
ADA	Americans with Disabilities Act
ADAM	Aerometric Data Analysis and Management System
ADL	Aerially deposited lead
ADT	Average daily traffic
ALUC	Airport land use commission
ALUCP	Airport land use comprehensive plan
amsl	Above mean sea level
ARB	California Air Resources Board
ASTM	American Society of Testing and Materials
AT&T	AT&T, Inc.
AWP	Annual Work Plan
BA	Biological assessment
BAAQMD	Bay Area Air Quality Management District
BMP	Best management practice
BO	Biological opinion
BOD	Biochemical oxygen demand
BTA	Bicycle Transportation Account
BTU	British thermal unit
C/ac/year	Carbon per acre per year
CAA	Clean Air Act
CAAA	Clean Air Act Amendments
CAAQS	California ambient air quality standards
$CaCO_3$	Calcium carbonate
CAFE	Corporate Average Fuel Economy
Cal/EPA	California Environmental Protection Agency
CalARP	California Accidental Release Prevention
California CAA	California Clean Air Act
Caltrans	California Department of Transportation
CBC	California Building Code
CBSC	California Building Standards Code
CCR	California Code of Regulations
CCT	Central California Traction Company
CDFA	California Department of Food and Agriculture
CEC	California Energy Commission
CEQ	President's Council on Environmental Quality
CEQA	California Environmental Quality Act

CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CGC	California Government Code
CGS	California Geological Survey
CH_4	Methane
CIP	Capital Improvement Program
CLUP	Comprehensive land use compatibility plan
cm	Centimeters
CNDDB	California Natural Diversity Database
CNEL	Community noise equivalent level
CNG	Compressed natural gas
CNPS	California Native Plant Society
CO	Carbon monoxide
CO_2	Carbon dioxide
CO_2e	CO_2 equivalent
COD	Chemical oxygen demand
Connector	Capital SouthEast Connector Project
CRHR	California Register of Historical Resources
CTP	Cooperating Technical Partners
CTSA	Consolidated Transportation Service Agency
CUPA	Certified uniform program agency
CWA	Clean Water Act
CWG	Community Working Group
dB	Decibel
dBA	A-weighted decibel
DDT	dichlorodiphenyltrichloroethane
DFG	California Department of Fish and Game
DOC	California Department of Conservation
DOT	U.S. Department of Transportation
DPM	Diesel particulate matter
DPR	California Department of Parks and Recreation
DR	Demand Response
DTSC	California Department of Toxic Substances Control
DWR	California Department of Water Resources
EDCAPCD	El Dorado County Air Pollution Control District
EDR	Environmental Data Resources, Inc.
EIR	Environmental impact report
EMD	Environmental Management Department
EDCTC	El Dorado County Transportation Commission
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act

FEMA	Federal Emergency Management Agency
FGC	California Fish and Game Code
FHWA	Federal Highway Administration
FIRM	Flood insurance rate map
FMMP	Farmland Mapping and Monitoring Program
FR	Federal Register
FTA	Federal Transit Administration
g	Gravity
GHG	Greenhouse gas
GIS	Geographic information system
HAP	Hazardous air pollutant
HCD	California Department of Housing and Community Development
HCP	Habitat conservation plan
HCM	Highway Capacity Manual
HFC	Hydrofluorocarbon
HMTA	Hazardous Materials Transportation Act
HOV	High-occupancy vehicle
HRA	Health Risk Assessment
HSC	California Health and Safety Code
HSG	Hydrologic Soil Group
I-5	Interstate 5
I-80	Interstate 80
I-LAST	Illinois Livable and Sustainable Transportation
IBC	International Building Code
IPCC	Intergovernmental Panel on Climate Change
ISA	Initial site assessment
ITP	Incidental take permit
JPA	Capital SouthEast Connector Joint Powers Authority
LBP	Lead-based paint
LCFS	Low Carbon Fuel Standard
L_{dn}	Day-night sound level
L_{eq}	Equivalent sound level
LID	Low Impact Development
LIM	Land Inventory and Monitoring
L_{max}	Maximum sound level
L_{min}	Minimum sound level
LOMR	Letter of map revision
LOS	Level of service
LRU	Land resource unit
L_{xx}	Percentile-exceeded sound levels
MAC	Mobile air conditioning

MAFB	Mather Air Force Base
MBTA	Migratory Bird Treaty Act
MCAB	Mountain Counties Air Basin
MCL	Maximum contaminant level
mg/L	Milligrams per liter
MLRA	Major land resource area
mpg	Miles per gallon
mph	Miles per hour
MPO	Metropolitan planning organization
MS4 Permit	NPDES General Permit for Municipal Separate Storm Sewer Systems
MSAT	Mobile source air toxic
MSL	Mean sea level
MTP	Metropolitan Transportation Plan
MUN	Water designated for use as domestic or municipal supply
N_2O	Nitrous oxide
NAAQS	National ambient air quality standards
NAHC	Native American Heritage Commission
NAIP	National Agriculture Imagery Program
NCCP	Natural communities conservation plan
NCIC	North Central Information Center
NEPDG	National Energy Policy Development Group
NFIP	National Flood Insurance Program
NHPA	National Historic Preservation Act
NO_2	Nitrogen dioxide
NOA	Naturally occurring asbestos
NOI	Notice of Intent
NOP	Notice of preparation
NO_x	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NTU	Nephelometric Turbidity Unit
NWP	Nationwide permit
OSHA	Occupational Safety and Health Administration
Ozone Plan	Sacramento Metropolitan Area 8-Hour Ozone Attainment Plan
P&R	Park and ride
PCB	Polychlorinated biphenyl
PCE	Perchloroethylene
PCP	Pentachlorophenol
PDT	Project Development Team
PFC	Perfluorocarbon
PG&E	Pacific Gas & Electric Company
PI	Paratransit, Inc.

PM	particulate matter
PM10	PM less than 10 microns in diameter
PM2.5	PM less than 2.5 microns in diameter
PMR	Physical Map Revision
Porter-Cologne	Porter-Cologne Water Quality Act
ppt	Parts per trillion
PRC	California Public Resources Code
Proposed project	Capital SouthEast Connector Project
RAD	Regional analysis district
RAR	Reduced Access Roadway
RCRA	Resource Conservation and Recovery Act
REC	Recognized environmental condition
RESPONSE	State Response Sites
ROG	Reactive organic gas
RT	Regional Transit
RTP	Regional transportation plan
RTPA	Regional Transportation Planning Agency
RWQCB	Regional Water Quality Control Board
SACMET	Sacramento Metropolitan Travel Demand Model
SACOG	Sacramento Area Council of Governments
SAFETEALU	Safe, Accountable, Flexible, Efficient, Transportation Equity Act: A Legacy for Users
SARA Title III	Superfund Amendment and Reauthorization Act Title III
SATS	SouthEast Area Transportation Study
SB	Senate Bill
SCAQMD	South Coast Air Quality Management District
SCS	Sustainable communities strategy
SCT/Link	South County Transit/Link
SCWA	Sacramento County Water Agency
SF_6	sulfur hexafluoride
SHPO	State Historic Preservation Officer
SIP	State implementation plan
SJVAPCD	San Joaquin Valley Air Pollution Control District
SMAQMD	Sacramento Metropolitan Air Quality Management District
SMUD	Sacramento Municipal Utilities District
SO_2	Sulfur dioxide
SOI	Sphere of influence
SPCC	Spill prevention, control and countermeasure
SQIP	Stormwater Quality Improvement Program
SR	State Route
SRCSD	Sacramento Regional County Sanitation District
SSHCP	South Sacramento Habitat Conservation Plan
SVAB	Sacramento Valley Air Basin
SVOC	Semi-volatile organic compound

SVRA	State Vehicular Recreation Area
SWANCC	*Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers*
SWF/LF	State of California Solid Waste Facilities/Landfills
SWIS	Solid Waste Information System
SWPPP	Stormwater pollution prevention plan
SWRCB	State Water Resources Control Board
TAC	Toxic air contaminant
TASA	Traffic analysis study area
TAZ	Traffic analysis zone
TCE	Trichloroethylene
TCIP	Transportation Capital Improvement Program
TCM	Transportation control measure
TCR	Transportation Concept Report
TDA	Transportation Development Act
TDS	Total dissolved solids
TMDL	Total maximum daily load
TMP	Traffic management plan
TNM	Traffic Noise Model
TOC	Total organic carbon
TRB	Transportation Research Board
TSS	Total suspended solids
TTI	Texas Transportation Institute
TVSS	Total volatile suspended solids
UBC	Uniform Building Code
UPRR	Union Pacific Railroad
US 50	U.S. Highway 50
USACE	U.S. Army Corps of Engineers
USC	United States Code
USFWS	U.S. Fish and Wildlife Service
v/c	Volume to capacity
VHT	Vehicle hours traveled
VMT	Vehicle miles traveled
VOC	Volatile organic compound
WDR	Waste discharge requirement

S.1 Introduction

This section presents a summary of the Capital SouthEast Connector Project (project) Draft Program Environmental Impact Report (EIR), including an overview of the project description and a summary of the impacts and mitigation measures for the proposed project and project options (Table S-1), and for the alternatives to the proposed project (Table S-2).

S.2 Project Background and Overview

In December 2006, the Cities of Elk Grove, Rancho Cordova, and Folsom, and Sacramento and El Dorado Counties (member jurisdictions), collaborated to form the Capital SouthEast Connector Joint Powers Authority (JPA) to facilitate the planning, environmental review, engineering design, and development, and construction of the Capital SouthEast Connector Project (also known as the Connector, or proposed project). The proposed project is a 35-mile-long multi-modal transportation facility that will link communities in Sacramento and El Dorado Counties, including Elk Grove, Rancho Cordova, Folsom, and El Dorado Hills. The project limits extend from the Interstate 5 (I-5)/Hood Franklin Road interchange in southwest Sacramento County to approximately 35 miles northeastward, terminating at U.S. Highway 50 (US 50) in the community of El Dorado Hills, near Silva Valley Parkway approximately 3 miles east of the Sacramento County/El Dorado County line.

The Connector is envisioned to link residential areas and employment centers in the project corridor, serving both local and regional travel needs and substantially reducing the excessive traffic volumes that currently overburden existing two-lane roadways, which were never intended to serve as major commuter routes. When completed, the proposed project would be a road of four to six traffic lanes with limited access points that would accommodate a variety of regional transportation needs. The Connector will provide options for a variety of travel modes throughout the project corridor. Additional information on the background of the project is included in Chapter 1.

S.3 Opportunities for Public Input on the Draft EIR

During the 60-day public review of the Draft Program EIR (from March 14 to May 13, 2011), the JPA will conduct informational meetings to present the results of the Draft Program EIR analysis and solicit comments during review of the public Draft Program EIR. The meetings are scheduled for the following locations and times:

- Tuesday, April 12, 2011, from 6 p.m. to 8 p.m. at William Brooks Elementary School, 3610 Park Drive, El Dorado Hills
- Wednesday, April 13, 2011, from 6 p.m. to 8 p.m., at Rancho Cordova City Hall, American River Room, 2729 Prospect Park Drive, Rancho Cordova
- Thursday, April 14, 2011, from 6 p.m. to 8 p.m., at Elk Grove City Hall, Council Chambers, 8400 Laguna Palms Way, Elk Grove

- Tuesday, April 19, 2011, from 6 p.m. to 8 p.m., at the Sacramento County Agricultural Extension Auditorium, 4145 Branch Center Road, Sacramento
- Wednesday, April 20, 2011, from 6 p.m. to 8 p.m., at the Folsom Community Center, 52 Natoma Street, Folsom

Questions about the Draft Program EIR meetings can be directed to the JPA offices at 916/876-9094.

S.3.1 Purpose of Program EIR

This EIR will serve as a program EIR for the proposed project. Section 15168 of the State CEQA Guidelines defines a "program EIR" as an EIR that may be prepared on "a series of related actions which can be characterized as one large project," such as phased projects. Use of a program EIR allows a CEQA lead agency (in this case, the JPA) to characterize the overall program of actions as the "project" being approved at the time (in this case, the selection of a maximum 1,000-foot-wide corridor connecting communities between I-5 in Elk Grove and US 50 in El Dorado County). When subsequent activities are proposed, a determination will be made at that time whether additional CEQA documents are necessary if significant impacts occur that were not examined in the program EIR. This concept, referred to as "tiering," addresses the coverage of general matters in broader EIRs with subsequent negative declarations or site-specific EIRs. These subsequent, project-specific environmental documents will incorporate by reference the general discussions in the previously prepared program EIR, and concentrate solely on the issues specific to the environmental analysis prepared for a project segment. A program EIR can act as the first-tier analysis for subsequent, more detailed project-specific environmental review.

In the case of the proposed project, multiple project-specific sections of the overall Connector corridor will be designed and implemented over time. This Program EIR will provide the CEQA lead and responsible agencies with a base reference of facts and analyses that will avoid unnecessary repetition for future project-specific assessments by member jurisdictions on individual project segments, and will allow for a comprehensive approach to the consideration of regional and cumulative impacts. Additional information on CEQA requirements is provided in Chapter 1.

S.4 Project Objectives

There are numerous regional and local deficiencies in the project corridor's existing roadway facilities, which create a variety of transportation problems, including insufficient transportation options for persons, and goods and freight movement to, from, and within the corridor. The overall objectives of the project are to improve mobility, access, and connections between residential and nonresidential land uses, which have been compromised by increasing congestion, and to assist in preservation of open space and threatened habitats. The project is intended to link employment centers and residential areas in the corridor and contribute to the remedy for current and future deficiencies in transportation capacity, safety, and land use compatibility. The project would serve both regional and local travel needs, and would relieve congestion on heavily used local roadways that currently serve the corridor. The specific objectives of the project are to:

- enhance mobility options within the project corridor and support planned growth;
- aid economic vitality by improving accessibility to existing and planned job centers and commercial areas;

- provide a limited-access, multi-modal facility; and
- preserve open space, wildlife habitat, and productive agricultural uses in the corridor.

These objectives are described in detail in Chapter 2.

S.5 Project Description

S.5.1 Project Components and Locations

The overall design concept for the Connector involves limiting access to the roadway facility—the more limited the access, the more capacity is improved along the segment, and the more unplanned growth is limited. Bicycle and pedestrian facilities also will be included in the design along the alignment; these facilities vary by the type of roadway segment. The proposed project includes improvements to the following segments along the 35-mile-long project corridor:

- 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 one 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 been identified, as discussed in Section S.5.5. below under “Optional Project Components”;
- 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;
- several options for the alignment from Bond Road to Calvine Road through the Sheldon area have been identified, as discussed in Section S.5.5 below under “Optional Project Components”;
- 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 US 50/Silva Valley Parkway interchange; and
- 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.

S.5.2 Transit Services and Facilities

The Connector JPA has adopted transit policies, as part of its Integrated Modes Policy, to provide capital funding for cost-effective transit facilities along the project alignment and provide funding for strategic, cost-effective capital improvements on routes parallel to the project alignment that can demonstrate strong potential for high-use service. As such, the proposed project includes considerations for expanded transit service in the project area. The project design would accommodate intersection signal priority (“queue jumps”), park-and-ride lots, and other transit-related components, which would be defined and implemented in a phased manner, consistent with development and ridership growth trends.

S.5.3 Off-Corridor Multi-Use Path Alternative

As an alternative to constructing an enhanced in-corridor multi-use path included in the proposed project, the JPA could construct a basic multi-use path within the Connector corridor and construct segments of an off-corridor trail in coordination with local park jurisdictions. The Off-Corridor Multi-Use Path would link existing disconnected trail segments in the study area. Segments of a Class I multi-use path off the project corridor would be constructed along Laguna Creek, the Folsom South Canal, and Alder Creek to complete the off-corridor trail. The off-corridor multi-use path alternative is described further in Chapter 2.

S.5.4 Optional Project Components

Several optional project components are under consideration as alternatives to various segments along the proposed corridor. These "options" provide alternative alignments to the proposed project along Kammerer Road south of Elk Grove and along Grant Line Road through the community of Sheldon. The following optional components are evaluated in this Program EIR:

- Kammerer Road Bypass Option,
- Deer Creek Causeway Options,
- Sheldon Reduced Access Roadway (RAR) Option, and
- Sheldon High Access Roadway Option.

These optional project components are described in detail in Chapter 2.

S.6 Impacts of the Proposed Project

S.6.1 Significant and Unavoidable Impacts

As shown in Table S-1, significant and unavoidable impacts (i.e., impacts that cannot be reduced to a less-than-significant level) would occur as a result of implementation of the proposed project or project options:

- construction of the Deer Creek Causeway on concrete piers and bridges would diminish the predominantly rural, agricultural, and natural visual character of the area, specifically at the overcrossing of Deer Creek and its associated riparian/wetland habitat in the Cosumnes River floodplain;
- operation of the project would contribute to an increase of traffic emissions above the Sacramento Metropolitan Air Quality Management District's threshold;
- construction of the project and/or its options could lead to permanent impacts on wetlands and loss or disturbance of special-species wildlife and their habitats;
- construction of the project and/or its options could destroy or damage cultural resources or historic architectural resources;

- the RAR Option would limit access from one side of the Sheldon community to the other side of Grant Line Road;
- construction and operation of the project and/or its options would convert both prime farmland and Williamson Act lands to non-agricultural uses;
- both construction and operation of the project would expose noise-sensitive land uses to noise and vibration;
- the proposed project would result in increased growth and development; and
- the proposed project under any of the Sheldon Options (i.e., the Deer Creek Causeway, RAR, or High Access Road Option) would increase traffic volumes and adversely affect LOS on some non-project roadways and intersections in the traffic analysis study area.

S.7 Benefits of the Project

The State CEQA Guidelines require that the lead agency disclose the adverse environmental impacts of a proposed project, which are summarized in Table S-1 and described in detail in this Program EIR. In addition to causing adverse impacts, the proposed project will also improve conditions ("benefits") in certain issue areas. As described in the project objectives in detail in Chapter 2, the proposed project is intended to address several underlying traffic problems in the region. As such, the proposed project would have the following transportation benefits:

- decreased traffic on several arterial/collector roadway segments in the traffic analysis study area, as well as decreased traffic volumes on portions of US 50, SR 99 and I-5;
- reduced VMT and VHT percentages that would occur on congested roadways in the traffic analysis study area;
- substantially reduced delay and travel times along the project alignment;
- reduced overall delay on the entire roadway system serving the traffic analysis study area;
- reduced travel times between communities along the project alignment, especially along the expressway segment between Grant Line Road at Calvine Road and White Rock Road at the El Dorado County line;
- improved goods movement in the corridor by substantially reducing delay and travel times; and
- increased transit ridership through capital improvements.

These benefits are described in Chapter 16, "Traffic and Transportation."

S.8 Project Alternatives

CEQA requires an EIR to examine a range of reasonable alternatives to the project. The process of selecting the following alternatives is described in Chapter 17 and Volume 3, Appendix H. The alternatives to the project that are evaluated in the Program EIR are described below.

S.8.1 No-Project Alternative

The Connector No-Project Alternative represents existing conditions and what would reasonably be expected to occur in the foreseeable future if the project was not approved, based on current adopted local and regional plans. The roadway network under the No-Project Alternative represents, for the most part, the transportation system in the Sacramento Area Council of Governments' (SACOG's) adopted 2035 MTP, with widening of the existing roadways in the general project area to four or six lanes, with exceptions, as noted below. Access along the roadways within the general project area under the No-Project Alternative would have only minor limitations on new driveways and no reductions in the substantial number of existing driveways. The No-Project Alternative would have numerous at-grade intersections, with their locations based on adopted and proposed general plans and specific plans. These future roadway improvements would be intended to serve the planned growth in the general project area.

The planned improvements to the roadway network identified in the adopted 2035 MTP would include the following:

- White Rock Road would be widened to 1) six lanes from US 50 west to Latrobe Road, 2) four lanes from Manchester Drive west to the Sacramento County/El Dorado County line, and 3) six lanes from the county line west to Grant Line Road.
- Grant Line Road would be widened to 1) four lanes from White Rock Road south to Bradshaw Road, and 2) six lanes from Bradshaw Road to SR 99.
- Kammerer Road would be 1) widened to six lanes from SR 99 to Bruceville Road, and 2) extended as a four-lane road from Bruceville Road to I-5.

The No-Project Alternative reflects reasonably foreseeable improvements based on the implementation of existing plans. As described in more detail in Chapter 16, "Traffic and Transportation," general plans of the local jurisdictions within the study area reflect the following future roadway network. The No-Project Alternative assumes that the general plans' provisions will result in road improvements that vary from the 2035 MTP as follows:

- The number of lanes on White Rock Road from the Sacramento County/El Dorado County line to Scott Road was reduced from six to four to be consistent with the maximum number of lanes allowed on that segment in the updated Sacramento County General Plan.
- An extension of Hazel Avenue from the future Easton Valley Parkway south to White Rock Road was not assumed because the Project Development Team (PDT) felt that this extension would not occur by 2035.
- The number of lanes on Scott Road between White Rock Road and future Road B was reduced from six (in the MTP) to four, and the number of lanes on Prairie City Road from US 50 to the future Easton Valley Parkway was increased from four (in the MTP) to six to be consistent with the proposed roadway improvements in the City of Folsom's plans for the Sphere of Influence (SOI) south of US 50.
- The proposed Cordova Hills project along Grant Line Road would have connections to Grant Line Road.

The primary difference between the No-Project Alternative and the proposed project is the amount and type of access along the project alignment. The proposed project would reduce the amount of access, especially on segments designated to have an expressway standard (Grant Line Road from north of Calvine Road to White Rock Road, and White Rock Road from Grant Line Road to the Sacramento County/El Dorado County line). Table 16-12 in Chapter 16, "Traffic and Transportation," provides the list of cross streets along the project alignment and the future no-project traffic control (signal, interchanges, etc.).

S.8.2 Sunrise Boulevard Alternative

This alternative is similar to the proposed project, except that it would utilize existing Sunrise Boulevard for a portion of the alignment. At the Grant Line Road/Sunrise Boulevard intersection, this alternative would follow Sunrise Boulevard north as an expressway to just north of SR 16 (Jackson Highway) and then as a thoroughfare north of SR 16 (Jackson Highway) to Douglas Road. North of Douglas Road, the alignment would be east of and parallel to Sunrise Boulevard, requiring an undefined new thoroughfare segment to provide a connection to White Rock Road. The alignment would continue east as a thoroughfare on White Rock Road through Rancho Cordova. East of Grant Line Road, the alignment is the same as the proposed project.

S.8.3 Bradshaw Road Alternative

This alternative is similar to the proposed project, except that it would utilize existing Bradshaw Road for a portion of the alignment and would avoid a lengthy section of Grant Line Road between its intersections with Bradshaw and Douglas Roads. At the Grant Line Road/Bradshaw Road intersection, this alternative would be a thoroughfare along Bradshaw Road north to SR 16 (Jackson Highway), with access limited and consolidated where feasible. A signalized intersection spacing of 0.5 mile may not be feasible in this area because of existing and approved development, and therefore minimal 0.25-mile spacing may be allowed for this stretch. From SR 16 (Jackson Highway), this alternative would continue as a new expressway in a predominantly easterly direction, along the southern boundary of Mather Airport, to the Sunrise Boulevard/Douglas Road intersection. The alignment would then follow Douglas Road east as a thoroughfare to Grant Line Road, where it then follows Grant Line Road as an expressway. East of Grant Line Road, the alignment is the same as the proposed project.

S.8.4 Environmentally Superior Alternative

CEQA requires that an environmentally superior alternative be identified among the alternatives that are analyzed in an EIR. In general, the environmentally superior alternative is defined as that alternative with the least adverse impacts on a project area and its surrounding environment. Because roadway improvements would generally be less extensive than what are proposed under the project or build alternatives, the No-Project Alternative is the environmentally superior alternative. However, when a No-Project Alternative is the environmentally superior alternative, CEQA requires that an EIR also identify an environmentally superior alternative among the other alternatives (State CEQA Guidelines Section 15126.6[e][2]).

The Sunrise Boulevard Alternative and Bradshaw Road Alternative both assume the same land use projections and population estimates, and would result in similar types of transportation improvements with similar impacts, although the locations and levels of impact could vary. Each of the alternatives will reduce one or more of the significant impacts of the project. Of the alternatives, the Sunrise Boulevard Alternative is the environmentally superior alternative. However, none of the alternatives would avoid all the significant impacts of the proposed project, and each would have greater impacts in some areas, as shown in Table S-2.

Table S-2. Summary of Impacts of the Alternatives Compared to the Proposed Project

Resource Topic	No-Project Alternative	Sunrise Boulevard Alignment Alternative	Bradshaw Road Alignment Alternative
Aesthetics	<	=	>
Air quality	<	=	=
Biological resources	<	<	>
Cultural resources	<	=	>
Energy	=	=	=
Geology, soils, and paleontological resources	<	=	=
Hazards and hazardous materials	<	=	>
Hydrology and water quality	<	>	>
Land use	<	=	=
Noise	=	=	>
Public services and utilities	<	>	>
Population and housing	=	=	=
Recreation	=	>	<
Traffic and transportation	<	=	=

Notes: < – impacts are less.
> – impacts are greater.
= – impacts are approximately the same.

S.8.5 Other Impact Conclusions

S.8.5.1 Cumulative and Growth-Related Impacts

The project would result in the following cumulative impacts (discussed in more detail in Chapter 18, “Cumulative and Growth-Inducing Impacts”):

- degradation in aesthetic character and visual quality;
- increased greenhouse gas emissions;
- conversion of land uses to urban uses and disruption of established communities;
- conversion of agricultural lands;
- increased traffic noise;
- increased loss of vernal pool species and habitat; and
- LOS impacts on non-project roadway segments.

S.8.5.2 Growth-Inducing Impacts

Under certain circumstances, improvements in mobility can result in making land more attractive for development. In such cases, transportation projects can contribute to inducement of growth that fosters "economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment" (State CEQA Guidelines Section 15126.2[d]). This issue is particularly relevant in areas where local plans do not call for urban development, as is the case in several sections of the corridor under consideration.

Although implementation of the proposed project would not involve any changes in land use plans, it could make some areas more attractive for development by improving access to those areas. Recognizing this effect, strategically applied access control and capacity characteristics would preserve the regional functionality of the project and, in part, relieve direct growth pressure on adjacent properties not designated for growth. However, the proposed project would result in a significant unavoidable impact regarding inducement of substantial population growth because it could remove an obstacle to growth.

S.8.5.3 Irreversible Environmental Change

The State CEQA Guidelines require an EIR to include a discussion of significant irreversible environmental change resulting from the project (Section 15126[f]). "Significant and irreversible change" is defined as the use of nonrenewable resources during the initial and continued phases of a project that require a large commitment of such resources that may make unlikely the future removal or nonuse of the resources. As discussed in Chapter 2, the project would result in acquisition of right-of-way for roadway use. Most converted land would be in the form of long, narrow bands adjacent to roadways (lane improvements or modifications), not large, contiguous parcels. The magnitude of this impact cannot be fully known until a project-level design is developed. However, the impact would represent a significant irreversible change to the environment because open space would be permanently converted.

Additionally, construction of the project will require irretrievable quantities of a variety of limited natural resources including aggregates, petrochemicals, metals, and asphalt products, although implementing the various sustainable design elements of the project could help recycle and reduce the waste generated by project construction.

S.8.5.4 Known Areas of Controversy

The State CEQA Guidelines require an EIR to identify areas of controversy known to the lead agency, including issues raised by other agencies and the public (Section 15123[b][2]). Several issues of concern were raised during the NOP comment period and at scoping meetings for the project in February and March, 2010; at public workshops held in the Sheldon and El Dorado Hills areas; and at monthly JPA Board meetings held over the life of the project. These issues include concerns over the Connector causing increased traffic volumes and safety concerns (and air quality and noise) adjacent to existing businesses and residences, the increased width of roadway bisecting existing communities, limiting access and causing right of way takes of homes and businesses fronting the Connector, EDH.

Based on concerns expressed by Elk Grove and Sheldon area residents and business owners about the proposed project's changes to the planned improvements affecting the community character through Sheldon, the JPA undertook a study of the Sheldon area and the potential effects of different potential designs of a limited access roadway through the area in the summer of 2010. The study involved a design consultant to the JPA opening a "store front" in the Sheldon area for residents and business owners to stop by with comments and questions about the project. The effort also involved interactive "charette-style" workshops in summer 2010 and included recommendations on the potential design of the roadway through the community. The JPA then worked with the City of Elk Grove and a community working group representing the Sheldon area to further refine the recommendations in December 2010 and incorporate design and performance criteria into the options in the Sheldon area that would be acceptable to the community and meet the project objectives. The JPA also considered alternate route options that would avoid the community impacts associated with expanding Grant Line Road through Sheldon (the Deer Creek Causeway Option 1 and Option 2) and alternatives that would avoid the Sheldon Community (The Sunrise and Bradshaw Alternatives). The options are described in detail in Chapter 2, and the alternatives are described in Chapter 17 of the Draft Program EIR.

To address concerns raised by the El Dorado Hills groups, the JPA conducted an analysis to provide more information on future travel patterns traveling to and from the easternmost segment of the Connector and to determine how the timing of roadway improvements will impact traffic patterns and volumes in the eastern segment of the project area. The summary of this study is included in Volume 3, Appendix J of this Program EIR. The JPA also met with El Dorado County and representatives from the El Dorado Hills community to review the results of the traffic study, and clarify that the Connector design is consistent with the County's planned improvements for White Rock Road in El Dorado County.

Other issues raised during the NOP comment period, at public workshops, and at monthly JPA Board meetings have been addressed either through modifications of the proposed project (Chapter 2) or in the specific resource chapters addressing the topic raised (i.e., Chapter 3 through 18) in this Program EIR.

Revised Table S-1. Summary of Environmental Effects of the Capital SouthEast Connector Project

	Significance before Mitigation							Significance after Mitigation					
Impact	Proposed Project	Off-Corridor Multi-Use Path	Kammerer Road Bypass	Deer Creek Causeway	Sheldon Reduced Access Roadway*	Sheldon High Access Roadway	Mitigation Measure	Proposed Project	Off-Corridor Multi-Use Path	Kammerer Road Bypass	Deer Creek Causeway	Sheldon Reduced Access Roadway*	Sheldon High Access Roadway
Aesthetics													
AES-1: Adverse Effect on a Scenic Vista	LTS	LTS	LTS	S	LTS	LTS	–	LTS	LTS	LTS	SU	LTS	LTS
AES-2: Damage to Scenic Resources or Degradation of Existing Visual Character or Quality	LTS	LTS	LTS	S	LTS	LTS	AES-1: Prepare a Construction Lighting Plan AES-2: Conform with Lighting Design Standards	LTS	LTS	LTS	SU	LTS	LTS
AES-3: New Source of Light or Glare	S	LTS	S	S	S	LTS	AES-1: Prepare a Construction Lighting Plan AES-2: Conform with Lighting Design Standards	LTS	LTS	LTS	LTS	LTS	LTS
AES-4: Temporary Alteration in the Visual Character	LTS	S	LTS	S	S	S	AES-1: Prepare a Construction Lighting Plan AES-2: Conform with Lighting Design Standards	LTS	LTS	LTS	LTS	LTS	LTS
Air Quality and Climate Change													
AQ-1: Conflict with or Obstruct Implementation of an Applicable Air Quality Management Plan	LTS	NI	LTS	LTS	LTS	NI	–	LTS	NI	LTS	LTS	LTS	NI
AQ-2: Violate any Air Quality Standard or Contribute Substantially to an Existing or Projected Air Quality Violation	Const: S Op: S	Const: NI Op: NI	Const: S Op: S	Const: S Op: S	Const: S Op: S	Const: S Op: S	AQ-1: Implement SMAQMD Basic and Enhanced Construction Emission Control Practices to Reduce Fugitive Dust AQ-2: Limit Maximum Daily Disturbed Area to 15 Acres AQ-3: Implement SMAQMD Basic Construction Emission Control Practices to Reduce NO_X AQ-4: Implement SMAQMD Enhanced Construction Emission Control Practices to Reduce NO_X	Const: LTS Op: SU	Const: NI Op: NI	Const: LTS Op: SU	Const: LTS Op: SU	Const: LTS Op: SU	Const: LTS Op: SU
AQ-3: Expose Sensitive Receptors to Substantial Pollutant Concentrations	S	NI	S	LTS	LTS	LTS	AQ-5: Implement Additional Exposure Reduction Strategies to Further Minimize Potential Health Risks AQ-6: Conduct a Geological Investigation for Naturally Occurring Asbestos and Implement an Asbestos Dust Mitigation Plan if Naturally Occurring Asbestos Is Found in the Project Area	LTS	NI	LTS	LTS	LTS	LTS
AQ-4: Create Objectionable Odors Affecting a Substantial Number of People	LTS	LTS	LTS	LTS	LTS	LTS	–	LTS	LTS	LTS	LTS	LTS	LTS
Cumulative Climate Change Impact	S	S	S	S	S	S	AQ-7: Implement SMAQMD Best Management Practices for Reducing Construction-Related Greenhouse Gas Emissions AQ-8: Conduct a Carbon Sequestration Feasibility Study and Cost-Benefit Analysis for Tree Planting as Greenhouse Gas Mitigation to Mitigate Greenhouse Gas Emissions to Net Zero	SU	SU	SU	SU	SU	Cumulative Climate Change Impact
GHG Emissions	S	S	S	S	S	S	AQ-7: Implement SMAQMD Best Management Practices for Reducing Construction-Related Greenhouse Gas Emissions AQ-8: Conduct a Carbon Sequestration Feasibility Study and Cost-Benefit Analysis for Tree Planting as Greenhouse Gas Mitigation to Mitigate Greenhouse Gas Emissions to Net Zero AQ-9: Encourage Future Project-level Analysis of Impacts on Ability of the Region to Comply with SB 375 AQ-10: Encourage Local Jurisdictions to Develop Climate Action Plans that for Reducing GHG Emissions AQ-11: Encourage Local Jurisdictions to Develop Efficiency Metrics for Reducing GHG Emissions	SU	SU	SU	SU	SU	SU

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	Significance before Mitigation							Significance after Mitigation					
Impact	Proposed Project	Off-Corridor Multi-Use Path	Kammerer Road Bypass	Deer Creek Causeway	Sheldon Reduced Access Roadway*	Sheldon High Access Roadway	Mitigation Measure	Proposed Project	Off-Corridor Multi-Use Path	Kammerer Road Bypass	Deer Creek Causeway	Sheldon Reduced Access Roadway*	Sheldon High Access Roadway
Biological Resources													
BIO-1: Potential Loss of Special-Status Plant Species	S	S	S	S	S	S	BIO-1: Conduct an Environmental Awareness Training Program for Construction Crews BIO-2a: Avoid or Minimize Impacts on Special-Status Plant Populations BIO-2b: Compensate for Impacts on Special-Status Plant Species	LTS	LTS	LTS	LTS	LTS	LTS
BIO-2: Potential Introduction or Spread of Invasive Plant Species	S	S	S	S	S	S	BIO-3: Avoid and Minimize the Introduction and Spread of Invasive Plant Species	LTS	LTS	LTS	LTS	LTS	LTS
BIO-3: Potential Disturbance or Conversion of Riparian Woodlands	S	S	NI	S	S	S	BIO-1: Conduct an Environmental Awareness Training Program for Construction Crews BIO-4a: Avoid and Minimize Potential Impacts on Riparian Woodlands BIO-4b: Compensate for the Loss of Riparian Community	LTS	LTS	NI	LTS	LTS	LTS
BIO-4: Potential Loss or Alteration of Waters of the United States and Waters of the State	S	S	S	S	S	S	BIO-1: Conduct an Environmental Awareness Training Program for Construction Crews BIO-5a: Avoid and Minimize Disturbance of Waters of the United States and Waters of the State BIO-5b: Compensate for the Loss of Wetlands and Waters	SU	SU	SU	SU	SU	SU
BIO-5: Potential Loss or Disturbance of Special-Status Wildlife Species and Their Habitat	S	S	S	S	S	S	BIO-1: Conduct an Environmental Awareness Training Program for Construction Crews BIO-6a: Avoid and Minimize Impacts on Special-Status Wildlife Species BIO-6b: Compensate for Impacts on Special-Status Wildlife Species	SU	SU	SU	SU	SU	SU
BIO-6: Conflict with Local Policies or Ordinances Protecting Biological Resources	S	S	S	S	S	S	BIO-7: Review Local City and County Policies, Ordinances, and Conservation Plans and Comply with Requirements	LTS	LTS	LTS	LTS	LTS	LTS
BIO-7: Removal or Disturbance of Protected Trees	S	S	S	S	S	S	BIO-1: Conduct an Environmental Awareness Training Program for Construction Crews BIO-8a: Avoid and Minimize Impacts on Protected Trees BIO-8b Compensate for Impacts on Protected Trees	LTS	LTS	LTS	LTS	LTS	LTS
Cultural Resources													
CUL-1: Potential for Damage to or Destruction of Cultural Resources during Project Construction	S	S	S	S	S	S	CUL-1: Conduct Site-Specific Cultural Resource Investigations and Implement the Recommendations CUL-2: Stop Work If Archaeological Materials Are Discovered during Construction	SU	LTS	LTS	LTS	LTS	LTS
CUL-2: Potential for Damage to or Destruction of Previously Undiscovered Human Remains	S	S	S	S	S	S	CUL-3: Stop Work If Human Remains Are Discovered during Construction	LTS	LTS	LTS	LTS	LTS	LTS
CUL-3: Damage to Historical Architectural (Built Environment) Resources	S	S	S	S	S	S	CUL-4: Conduct Historic Inventory and Evaluation for Architectural Resources	SU	SU	SU	SU	SU	SU
Energy													
EN-1: Increased Consumption of Direct Energy	LTS	LTS	LTS	LTS	LTS	LTS	–	LTS	LTS	LTS	LTS	LTS	LTS
EN-2: Increased Consumption of Indirect Energy	LTS	LTS	LTS	LTS	LTS	LTS	–	LTS	LTS	LTS	LTS	LTS	LTS

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Impact	Significance before Mitigation: Proposed Project	Off-Corridor Multi-Use Path	Kammerer Road Bypass	Deer Creek Causeway	Sheldon Reduced Access Roadway*	Sheldon High Access Roadway	Mitigation Measure	Significance after Mitigation: Proposed Project	Off-Corridor Multi-Use Path	Kammerer Road Bypass	Deer Creek Causeway	Sheldon Reduced Access Roadway*	Sheldon High Access Roadway
Geology, Soils, and Paleontological Resources													
GEO-1: Potential Structural Damage and Injury Caused by Fault Rupture	LTS	LTS	LTS	LTS	LTS	LTS	–	LTS	LTS	LTS	LTS	LTS	LTS
GEO-2: Potential Structural Damage and Injury from Ground Shaking	LTS	LTS	LTS	LTS	LTS	LTS	–	LTS	LTS	LTS	LTS	LTS	LTS
GEO-3: Potential Structural Damage and Injury from Development on Materials Subject to Liquefaction	S	S	S	S	S	S	GEO-1: Implement Seismic Design Standards into Site-Specific Project Design GEO-2: Conduct Site-Specific Geotechnical Investigations and Implement the Recommendations	LTS	LTS	LTS	LTS	LTS	LTS
GEO-4: Potential Structural Damage as a Result of Development on Expansive Soils	S	S	S	S	S	S	GEO-1: Implement Seismic Design Standards into Site-Specific Project Design GEO-2: Conduct Site-Specific Geotechnical Investigations and Implement the Recommendations	LTS	LTS	LTS	LTS	LTS	LTS
GEO-5: Potential Accelerated Runoff, Erosion, and Sedimentation from Construction Activities	S	S	S	S	S	S	HYD-1: Obtain an NPDES Construction General Permit and Incorporate its Requirements as Well as Those of Other Water Quality Regulations in Site-Specific Project Designs	LTS	LTS	LTS	LTS	LTS	LTS
GEO-6: Potential for Damage to or Destruction of Previously Undiscovered Buried Paleontological Sites	S	S	S	S	S	S	GEO-3: Stop Work if Paleontological Resources are Discovered During Construction and Implement Recommendations of Paleontologist	LTS	LTS	LTS	LTS	LTS	LTS
Hazards and Hazardous Materials													
HAZ-1: Potential to Create a Significant Hazard to the Public or the Environment through the Routine Transport, Use, or Disposal of Hazardous Materials	LTS	LTS	LTS	LTS	LTS	LTS	–	LTS	LTS	LTS	LTS	LTS	LTS
HAZ-2: Potential to 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	LTS	LTS	LTS	LTS	LTS	LTS	–	LTS	LTS	LTS	LTS	LTS	LTS
HAZ-3: Potential to Emit Hazardous Emissions or Involve Handling Hazardous or Acutely Hazardous Materials, Substances, or Waste within 0.25 Mile of an Existing or Proposed School	LTS	LTS	LTS	LTS	LTS	LTS	–	LTS	LTS	LTS	LTS	LTS	LTS
HAZ-4: Potential to Create a Significant Hazard to the Public or the Environment	S	S	NI	S	NI	S	HAZ-1: Perform a Phase I Environmental Site Assessment prior to Demolition and Construction Activities and Remediate If Required	LTS	LTS	NI	LTS	NI	LTS
HAZ-5: Potential for Increased Air or Ground Hazards for People Residing or Working in the Project Area	S	S	S	S	S	S	HAZ-2: Ensure Compliance with Emergency Response and Evacuation Plans	LTS	LTS	LTS	LTS	LTS	LTS
HAZ-6: Impair Implementation of or Physically Interfere with an Adopted Emergency Response Plan or Emergency Evacuation Plan	S	S	S	S	S	S	HAZ-3: Prepare a Traffic Management Plan and Construction Scheduling	LTS	LTS	LTS	LTS	LTS	LTS
HAZ-7: Expose People or Structures to a Significant Risk of Loss, Injury, or Death Involving Wildland Fires	NI	LTS	NI	NI	NI	LTS	–	NI	LTS	NI	NI	NI	LTS

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Hydrology and Water Quality													
HYD-1: Surface Water Quality Degradation Caused by Construction Activities	S	S	S	S	S	S	HYD-1: Obtain an NPDES Construction General Permit and Incorporate its Requirements as Well as Those of Other Water Quality Regulations in Site-Specific Project Designs	LTS	LTS	LTS	LTS	LTS	LTS
HYD-2: Water Quality Degradation Caused by Construction Activities below the Water Table	S	LTS	S	S	S	S	HYD-2: Comply with Provisions for Dewatering	LTS	LTS	LTS	LTS	LTS	LTS
HYD-3: Water Quality Degradation from Urban Runoff Caused by Increased Impervious Surfaces	S	S	S	S	S	S	HYD-3: Implement Measures to Maintain Water Quality After Construction HYD-4: Conduct Project-Level Drainage Studies for Project Design HYD-5: Design and Install Infiltration Systems	LTS	LTS	LTS	LTS	LTS	LTS
HYD-4: Substantial Increased Runoff Resulting in Flooding	S	S	LTS	S	LTS	S	HYD-4: Conduct Project-Level Drainage Studies for Project Design	LTS	LTS	LTS	LTS	LTS	LTS
HYD-5: Reduction in Groundwater Recharge Caused by Increased Impervious Surfaces	S	LTS	S	S	S	S	HYD-5: Design and Install Infiltration Systems	LTS	LTS	LTS	LTS	LTS	LTS
HYD-6: Discharges of Contaminants to 303(d) Listed Water Bodies	S	S	S	S	S	S	HYD-1: Obtain an NPDES Construction General Permit and Incorporate its Requirements as Well as Those of Other Water Quality Regulations in Site-Specific Project Designs HYD-3: Implement Measures to Maintain Water Quality After Construction	LTS	LTS	LTS	LTS	LTS	LTS
HYD-7: Changes to Floodplain from Construction Activities	S	NI	S	S	NI	LTS	HYD-6: Avoid Restriction of Flood Flows and Obtain Agency Approval of Construction with 100-Year Floodplains	LTS	NI	LTS	LTS	NI	LTS
HYD-8: Potential for Inundation by Dam or Levee Failure	S	S	S	S	S	S	HYD-7: Design Projects to Pass Flows in the Event of Levee or Dam Failure	LTS	LTS	LTS	LTS	LTS	LTS
Land Use													
LU-1: Physically Divide an Established Community	S	NI	NI	NI	S	LTS	HAZ-3: Prepare a Traffic Management Plan and Construction Scheduling	LTS	NI	NI	NI	SU	LTS
LU-2: Conflict with Applicable Land Use Plans and Policies	NI	NI	NI	NI	NI	NI	–	NI	NI	NI	NI	NI	NI
LU-3: Conflict with Habitat Conservation Plan or Natural Community Conservation Plan	NI	NI	NI	NI	NI	NI	–	NI	NI	NI	NI	NI	NI
LU-4: Convert Farmland to Nonagricultural Uses	S	S	S	S	S	S	LU-1: The Proponent Agency Will Implement All of the Following Measures Prior to Construction to Reduce Impacts on Significant Farmland	SU	SU	SU	SU	SU	SU
LU-5: Conflict with Existing Zoning for Agricultural Use or a Williamson Act Contract	S	S	S	S	S	S	LU-1: The Proponent Agency Will Implement All of the Following Measures Prior to Construction to Reduce Impacts on Significant Farmland	SU	SU	SU	SU	LTS	SU
LU-6: Involve Other Changes That Could Result in Conversion of Farmland	LTS	LTS	LTS	LTS	NI	LTS	LU-1: The Proponent Agency Will Implement All of the Following Measures Prior to Construction to Reduce Impacts on Significant Farmland	LTS	LTS	LTS	LTS	NI	LTS
Noise													
NOI-1: Exposure of Noise-Sensitive Land Uses to Noise and Vibration from Project Construction	S	S	S	S	S	S	NOI-1: Employ Noise- and Vibration-Reducing Construction Practices	SU	SU	SU	SU	SU	SU
NOI-2: Exposure of Noise-Sensitive Land Uses to Increased Noise from Project Operation	S	LTS	S	S	S	S	NOI-2: Develop and Employ Site-Specific Measures to Reduce Traffic Noise	SU	LTS	SU	SU	SU	SU

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Impact	Significance before Mitigation: Proposed Project	Off-Corridor Multi-Use Path	Kammerer Road Bypass	Deer Creek Causeway	Sheldon Reduced Access Roadway*	Sheldon High Access Roadway	Mitigation Measure	Significance after Mitigation: Proposed Project	Off-Corridor Multi-Use Path	Kammerer Road Bypass	Deer Creek Causeway	Sheldon Reduced Access Roadway*	Sheldon High Access Roadway
Population and Housing													
POP-1: Inducement of Substantial Population Growth	S	S	S	S	S	S	<u>POP-1: Require Consistency with the JPA's Planning Principles</u> <u>POP-2: Require Consistency with the JPA's Functional Guidelines</u>	SU	SU	SU	SU	SU	SU
POP-2: Displacement of Substantial Numbers of Existing Housing or People, Necessitating the Construction of Replacement Housing Elsewhere	S	S	S	S	S	S	POP-3: Develop and Implement a Relocation and Compensation Plan	LTS	LTS	LTS	LTS	LTS	LTS
Public Services and Utilities													
PS-1: Require or Result in the Construction of New Stormwater Drainage Facilities or Expansion of Existing Facilities, the Construction of Which Could Cause Significant Environmental Effects	S	S	S	S	S	S	PS-1: Implement Low-Impact Development Techniques for Control of Surface Drainage PS-2: Use Drought-Resistant Plants and Irrigation in Project Landscaping PS-3: Construction and Demolition Debris Produced by Implementation of the Proposed Project Will be Recycled and Properly Disposed	LTS	LTS	LTS	LTS	LTS	LTS
PS-2: Not Have Sufficient Water Supplies Available to Serve the Project From Existing Entitlements and Resources, or Require New or Expanded Entitlements	LTS	NI	LTS	NI	LTS	LTS	PS-2: Use Drought-Resistant Plants and Irrigation in Project Landscaping	LTS	NI	LTS	NI	LTS	LTS
PS-3: Be Served by a Landfill Without Sufficient Permitted Capacity to Accommodate the Project's Solid Waste Disposal Needs	S	S	S	S	S	S	PS-3: Construction and Demolition Debris Produced by Implementation of the Proposed Project Will be Recycled and Properly Disposed	LTS	LTS	LTS	LTS	LTS	LTS
Recreation													
REC-1: Increased Use of Existing Neighborhood and Regional Parks or Other Recreational Facilities	LTS	LTS	LTS	LTS	LTS	LTS	–	LTS	LTS	LTS	LTS	LTS	LTS
REC-2: Inclusion of Recreational Facilities or Construction or Expansion of Recreational Facilities	LTS	LTS	NI	NI	NI	NI	REC-1: Conduct Project-Level Assessment of Impacts on Recreational Resources	LTS	LTS	NI	NI	NI	NI
Traffic and Transportation													
The proposed project would increase traffic volumes but not adversely affect levels of service along the proposed project alignment. (TRF-1, TRF-8, TRF-15, TRF-22)	Not analyzed indepen-dently	–	–	LTS	LTS	S	TRF-4: Widen roadway segments and intersections	Not analyzed indepen-dently	–	–	LTS	LTS	LTS
The proposed project would increase traffic volumes and adversely affect levels of service on non-project roadway segments and intersections in the TASA (TRF-2, TRF-9, TRF-16, TRF-23)	Not analyzed indepen-dently	–	–	S	S	S	Widen roadway segments and intersections (TRF-1, TRF-2, TRF-3, TRF-5)	Not analyzed indepen-dently	–	–	SU	SU	SU
The proposed project would not adversely affect traffic levels of service on freeways in the TASA (TFR-3, TRF-10, TRF-17, TRF-24)	Not analyzed indepen-dently	–	–	LTS	LTS	LTS	–	Not analyzed indepen-dently	–	–	LTS	LTS	LTS
The proposed project would not adversely affect existing or planned bikeway or pedestrian facilities (TRF-4, TRF-11, TRF-18, TRF-25)	Not analyzed indepen-dently	–	–	LTS	LTS	LTS	–	Not analyzed indepen-dently	–	–	LTS	LTS	LTS

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The proposed project would not adversely affect existing or planned transit facilities, routes or services (TRF-5, TRF-12, TRF-19, TRF-26)	Not analyzed indepen-dently	–	–	LTS	LTS	LTS	–	Not analyzed indepen-dently	–	–	LTS	LTS	LTS
The proposed project would not conflict with General Plan principles for transit-supportive development (TRF-6, TRF-13, TRF-20, TRF-27)	Not analyzed indepen-dently	–	–	LTS	LTS	LTS	–	Not analyzed indepen-dently	–	–	LTS	LTS	LTS
The proposed project would not increase hazards due to design features (TRF-7, TRF-14, TRF-21, TRF-28)	Not analyzed indepen-dently	–	–	LTS	LTS	LTS	–	Not analyzed indepen-dently	–	–	LTS	LTS	LTS

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Chapter 1
Introduction

1.1 Project Background and Overview

In December 2006, the Cities of Elk Grove, Rancho Cordova, and Folsom, and Sacramento and El Dorado Counties (member jurisdictions), collaborated to form the Capital SouthEast Connector Joint Powers Authority (JPA) to facilitate the planning, environmental review, engineering design, and development, and construction of the Capital SouthEast Connector Project (Connector/proposed project). The proposed project is a 35-mile multi-modal transportation facility that will link communities in Sacramento and El Dorado Counties, including Elk Grove, Rancho Cordova, Folsom, and El Dorado Hills. The project limits extend from the Interstate 5 (I-5)/Hood Franklin Road interchange in southwest Sacramento County to approximately 35 miles northeastward, terminating at U.S. Highway 50 (US 50) in the community of El Dorado Hills, near Silva Valley Parkway approximately 3 miles east of the Sacramento County/El Dorado County line.

The Connector is envisioned to link residential areas and employment centers in the project corridor, serving both local and regional travel needs and substantially reducing the excessive traffic volumes that currently overburden existing two-lane roadways, which were never intended to serve as major commuter routes.

When completed, the proposed project would be a road of four to six traffic lanes with limited access points that would accommodate a variety of regional transportation needs. The Connector will provide options for a variety of travel modes throughout the project corridor, supporting several of the seven principles of the Sacramento Area Council of Governments' (SACOG's) Blueprint, which is an in-depth analysis of land use and transportation development patterns that addresses vehicle miles traveled (VMT) and air quality emissions in SACOG's six-county, 22-city region (Sacramento Area Council of Governments 2004).

1.2 Project History

Planning for a regional transportation facility, such as the Connector, to serve the project corridor has proceeded for more than two decades. Sacramento County conducted the East Area Transportation Study in 1984, which identified a need for a circumferential "beltway" to accommodate increasing development, population, and transportation demands (Sacramento County 1984). This became the focus of a feasibility study conducted by SACOG in 1985. In 1986, the California Department of Transportation (Caltrans) prepared a route concept report for two proposed highways in southern Placer County and eastern Sacramento County: State Route (SR) 65 and SR 148. The beltway and the proposed alignments of the highways were located within the corridor between Elk Grove in the south and southern Placer County in the north (Caltrans 1986).

During the late 1980s, SACOG conducted the Metro Study, a study of transportation system improvements for 2010 (Sacramento Area Council of Governments 1989). The study identified the need for a multi-modal corridor starting at I-80 near Roseville in Placer County and connecting to US 50 in eastern Sacramento County and SR 99 and I-5 near Elk Grove in southern Sacramento County.

This study specifically analyzed an SR 65/SR 148 freeway. The recommended alternative included this new roadway, along with other transit and bicycle improvements in the corridor.

In 1988, the voters of Sacramento County passed Measure A, a countywide 0.5% sales tax to be levied over a 20-year period (1989–2009). The proceeds of the tax were specified to be used to fund a comprehensive program of roadway and transit improvements. In 2004, the voters extended the tax an additional 30 years. The ballot text of the Measure A extension, as approved by the voters, identifies the proposed project as the "I-5/SR99/US50 Connector" and specifies that receipt of funding for construction is contingent on the establishment, approval, and adoption of a habitat conservation approach by the local recipient of funds.

In the early 1990s, Caltrans undertook the SouthEast Area Transportation Study (SATS) to identify transportation alternatives for meeting future travel demand in the same general corridor that had been identified in SACOG's Metro Study. The SATS was intended to be a feasibility study for a broader area that included the corridor, but with a greater emphasis on multi-modal transportation options (Caltrans 1993).

During preparation of the Metropolitan Transportation Plan (MTP) 2025 by SACOG in 2002, a project in the corridor area was designated as the "Elk Grove–Rancho Cordova–El Dorado Connector" (Sacramento Area Council of Governments 2002). Immediately following adoption of MTP 2025, SACOG undertook a project planning process—the Elk Grove–Rancho Cordova–El Dorado Connector Study—to generate input from a wide range of stakeholders on project purpose and need for the Connector corridor, and to define a set of conceptually defined project alternatives to be considered in a future environmental review process. As a result of this process, four conceptual alternatives along with a no-project alternative were developed, which generally follow Hood Franklin, Kammerer, Grant Line, and White Rock Roads, and include segments using either Bradshaw Road or Sunrise Boulevard.

As part of the project planning process, SACOG facilitated extensive participation by local government agencies, community residents, and other stakeholders affected by the project. A stakeholder advisory committee and a technical advisory committee met regularly to develop the elements of the project's objectives and purpose and need, which were presented to a policy advisory committee that included representatives from each of the five member jurisdictions. During this pre–environmental studies phase, these committees continued to meet regularly. Community residents and other members of the public attended these meetings and the six public information sessions. Oral and written comments were received from committee members, local residents, community representatives, and other interested parties. In May 2005, the SACOG Board of Directors approved a final concept plan report (Sacramento Area Council of Governments 2005). Detailed descriptions of the conceptual alternatives developed during the Connector study were outlined in the report, along with initial elements of purpose and need. The project was also included in MTP 2035 (Sacramento Area Council of Governments 2008), and is part of the current planning efforts to update MTP 2035 to include sustainable communities requirements and be in compliance with Senate Bill (SB) 375.

1.3 Purpose of EIR

This environmental impact report (EIR) has been prepared pursuant to the California Environmental Quality Act (CEQA) and the State CEQA Guidelines (14 California Code of Regulations [CCR] 15000 et seq.). CEQA requires that state and local government agencies consider the environmental consequences of projects over which they have discretionary authority before taking action on those projects (California Public Resources Code [PRC] 21000 et seq.).

The purpose of this EIR is to analyze the environmental impacts of the proposed project, to indicate ways to reduce or avoid potential environmental damage of the proposed project, and to identify alternatives to the proposed project. CEQA requires that each public agency mitigate or avoid the significant environmental effects of projects it approves or implements, whenever feasible.

An EIR is an informational document used in state, regional, and local planning and decision-making processes to meet the requirements of CEQA. It is not the purpose of the EIR to recommend either approval or denial of a project. The draft EIR must disclose environmental effects, including those that cannot be avoided; growth-inducing effects; effects found not to be significant; and significant cumulative impacts of all past, present, and reasonably anticipated future projects.

1.3.1 Program EIR

This EIR will serve as a program EIR for the proposed project (i.e., the Capital SouthEast Connector project). Section 15168 of the State CEQA Guidelines defines a "program EIR" as an EIR that may be prepared on "a series of related actions which can be characterized as one large project," such as phased projects. Use of a program EIR allows a CEQA lead agency (in this case, the JPA) to characterize the overall program of actions as the "project" being approved at the time (in this case, the selection of a maximum 1,000-foot-wide corridor connecting communities between I-5 in Elk Grove and US 50 in El Dorado County). When subsequent activities are proposed, a determination will be made at that time whether additional CEQA documents are necessary if significant impacts occur that were not examined in the program EIR. This concept, referred to as "tiering," addresses the coverage of general matters in broader EIRs with subsequent negative declarations or site-specific EIRs. These subsequent, project-specific environmental documents will incorporate by reference the general discussions in the previously prepared program EIR, and concentrate solely on the issues specific to the environmental analysis prepared for a project segment. A program EIR can act as the first-tier analysis for subsequent, more detailed project-specific environmental review.

In the case of the proposed project, multiple project-specific sections of the overall Connector corridor will be designed and implemented over time. This Program EIR will provide the CEQA lead and responsible agencies with a base reference of facts and analyses that will avoid unnecessary repetition for future project-specific assessments by member jurisdictions on individual project segments, and will allow for a comprehensive approach to the consideration of regional and cumulative impacts.

1.4 Scoping and Public Involvement Plan for Program EIR

1.4.1 Purpose of Scoping

CEQA outlines a scoping process as part of the environmental review of a proposed project. Section 15083 of the State CEQA Guidelines defines early consultation, also called *scoping*, as the opportunity for reviewing agencies and the public to identify the range of actions, alternatives, mitigation measures, and significant impacts to be analyzed in depth in an EIR. The opportunity to provide input on the issues and alternatives to be evaluated during the environmental process is provided to potentially affected federal, state, and local agencies; Indian tribes; and other interested persons or organizations that may be concerned with the environmental effects of the project.

As described below, the scoping process for this EIR involved the distribution of a notice of preparation (NOP) of a draft EIR, holding scoping meetings (for projects of state- or region-wide significance), and requesting comments and input from agencies and individuals on the NOP. As described in Section 1.2, the planning process included participation by a range of stakeholders, including local agencies and the public. In preparation for beginning the environmental phase, the JPA also held additional public workshops in communities in the project area to solicit comments.

1.4.1.1 Notice of Preparation and Scoping Meeting Announcements

The JPA circulated an NOP for the Program EIR to agencies for a 45-day period between February 1, 2010, and March 17, 2010 (Capital SouthEast Connector Joint Powers Authority 2010a). The notice was posted on the project website (http://connectorjpa.net) and was made available at the following locations in the project area:

- JPA office, located at 10640 Mather Blvd, Suite 120, Mather, CA95655
- Elk Grove Planning Counter, located at City Hall, 8401 Laguna Palms Way, Elk Grove, CA 95758
- Rancho Cordova Planning Department, located at City Hall, 2729 Prospect Park Drive, Rancho Cordova, CA 95670
- Folsom Planning Counter, located at City Hall, 50 Natoma Street, 2nd Floor, Folsom, CA 95630
- Sacramento County Public Information Counter, located at 827 7th Street, Room 101, Sacramento, CA 95814
- El Dorado County Planning Department, located at 2850 Fairlane Court, Building "C", Placerville, CA 95667

The JPA developed a mailing list to distribute the scoping meeting announcements and the NOP. Interested agencies, individuals, and organizations were included in the list. A copy of the NOP is provided in Appendix A.

1.4.1.2 NOP Scoping Meetings

Combined public information and agency scoping meetings were held during this period to solicit comments and identify issues of concern:

- Tuesday, February 23, 2010, from 6 p.m. to 8 p.m., at the El Dorado Hills Library, 7455 Silva Valley Parkway, El Dorado Hills
- Wednesday, February 24, 2010, from 6 p.m. to 8 p.m., at Rancho Cordova City Hall, American River Room, 2729 Prospect Park Drive, Rancho Cordova
- Monday, March 1, 2010, from 6 p.m. to 8 p.m., at the Sacramento County Agricultural Extension Auditorium, 4145 Branch Center Road, Sacramento
- Wednesday, March 3, 2010, from 6 p.m. to 8 p.m., at Elk Grove City Hall, Council Chambers, 8400 Laguna Palms Way, Elk Grove
- Monday, March 8, 2010, from 6 p.m. to 8 p.m., at the Folsom Community Center, 52 Natoma Street, Folsom

The scoping meetings were held to solicit input from agencies and interested parties on critical issues to be addressed in the Program EIR. Announcements of the scoping meetings were distributed with the NOP on February 1, 2010, and published in local newspapers. Additionally, the JPA mailed postcards to more than 2,000 area residents, inviting them to attend the scoping meetings and learn more about the Connector.

The meeting formats were identical at each meeting and included exhibits focused on:

- travel demand and transportation,
- environmental issues and review process,
- public outreach, and
- engineering/design.

At each scoping meeting, the JPA and member jurisdictions staffed each exhibit area to provide overviews and answer questions on various topic areas covered. A separate station was set up for public comments. Comment cards were available for meeting attendees to fill out at the meeting or take home and send by mail, email, or fax to the JPA office by the end of the NOP comment period (March 17, 2010).

1.4.1.3 Scoping Comments and Scoping Report

The NOP included a request that recipients send a written list of issues to the JPA to help further identify environmental issues for the EIR. A copy of the written correspondence received (letters, emails, comment cards) is available at the JPA office in Mather, California. The JPA also prepared a scoping report that summarized the proposed project, scoping process, and issues raised (written and verbal) during the public scoping (Capital SouthEast Connector Joint Powers Authority 2010b). A copy of the scoping report is provided in Appendix A.

1.4.1.4 Additional Opportunities for Public Input

Additional opportunities for public review and comment were provided before concluding the program-level review and approving the project.

Original Draft Program EIR Public Meetings

The JPA conducted informational meetings to present the results of the original Draft Program EIR analysis and solicit comments during review of the public Draft Program EIR in 2011. The meetings were held at the following locations and times:

- Tuesday, April 12, 2011, from 6p.m. to 8 p.m. at William Brooks Elementary School, 3610 Park Drive, El Dorado Hills
- Wednesday, April 13, 2011, from 6 p.m. to 8 p.m., at Rancho Cordova City Hall, American River Room, 2729 Prospect Park Drive, Rancho Cordova
- Thursday, April 14, 2011, from 6 p.m. to 8 p.m., at Elk Grove City Hall, Council Chambers, 8400 Laguna Palms Way, Elk Grove
- Tuesday, April 19, 2011, from 6 p.m. to 8 p.m., at the Sacramento County Agricultural Extension Auditorium, 4145 Branch Center Road, Sacramento
- Wednesday, April 20, 2011, from 6 p.m. to 8 p.m., at the Folsom Community Center, 52 Natoma Street, Folsom

Revised Draft Program EIR Chapters 16 and 18 Public Meeting

The JPA recirculated two chapters of the Program EIR between December 19, 2011 and February 1, 2012, for a 45-day public review. The JPA held a public hearing on the revised Draft Program EIR Chapters 16 and 18 on January 13, 2012 at the regularly scheduled JPA Board meeting at 8:30 a.m., at Rancho Cordova City Hall Council Chambers, 2729 Prospect Park Drive. Questions about the original Draft or the revised Draft Program EIR meetings can be directed to the JPA offices at 916/876-9094.

Final Program EIR Public Hearing

The Final EIR includes written responses to comments related to relevant environmental issues. The JPA will consider all relevant comments received before making a decision to certify the Final Program EIR and approve the project during the public hearing.

1.5 Regional Planning Efforts and the Connector

The proposed project would support numerous past and ongoing regional planning efforts, which are described below.

1.5.1 Adopted Plans

The following adopted documents, including the recently adopted Sacramento County General Plan and Folsom Plan Area Specific Plan, were used as a basis to help develop the initial population projections and traffic volume forecasts for the project through 2035:

- MTP 2035 (Sacramento Area Council of Governments 2008)
- Folsom General Plan (City of Folsom 1993) and the Folsom Plan Area Specific Plan (2011)
- Rancho Cordova General Plan (City of Rancho Cordova 2006a)

- Elk Grove General Plan (City of Elk Grove 2009)
- El Dorado County General Plan (El Dorado County 2004)
- Sacramento County General Plan (Sacramento County 2011)

1.5.2 Plan Updates

In addition, more current information from the Folsom General Plan update (http://www.folsom.ca.us/depts/community_development/planning/general_plan), and SACOG's draft planning scenarios for MTP 2035 were used to better reflect current conditions in the region since adoption of the general plans and MTP 2035 (http://www.sacog.org/mtp/2035). Because these plans are currently under revision, information is regularly updated and provided on the agencies' websites. In November 2011, Sacramento County adopted the updated 2030 General Plan. The Local Agency Formation Commission (LAFCO) also recently approved the City of Folsom's application for annexation of the SOI area south of Highway 50 (January 2012) based on the City's adopted Folsom Plan Area Specific Plan (2011). The original Draft PEIR circulated for the Connector in March 2011 anticipated the eventual adoption of the County General Plan and the Folsom Area Specific Plan and included the relevant draft general plan and specific plan policies. The updated general plan and specific plan policies and analysis and other relevant information pertaining to the Connector are included in this Final Program EIR and only represent minor clarifications.

1.5.3 South Sacramento Habitat Conservation Plan

The JPA is a partner in the South Sacramento Habitat Conservation Plan (SSHCP) process that is currently underway to help ensure preservation of natural resources in south Sacramento County. The SSHCP provides a regional approach to balancing development against conservation and protection of habitat, open space, and agricultural lands. The SSHCP will protect 30 species of plants and wildlife including 10 that are listed as threatened or endangered under the federal Endangered Species Act (ESA) or the California Endangered Species Act (CESA). The SSHCP also will protect vernal pool, wetland, and stream habitats that are subject to the federal Clean Water Act (CWA), California's Porter-Cologne Water Quality Control Act, and Streambed Alteration Agreement requirements under Fish and Game Code Sections 1600, et seq.

The HCP will be carried out through an Implementation Agreement among Plan Participants and state and federal resource and regulatory agencies. Plan participants include Sacramento County, City of Elk Grove, City of Galt, City of Rancho Cordova, Sacramento County Water Agency, Sacramento Regional Sanitation District, Sacramento Area Sewer District, and the JPA. The resource and regulatory agencies include EPA, USFWS and CDFG as well as the United States Army Corps of Engineers (USACE) and the State Water Resources Control Board (SWRCB).

The Connector is included in the SSHCP as a covered project. The development of the SSHCP allows the JPA to participate in a comprehensive plan to protect wetland and endangered species in a coordinated and predictable manner. As a plan participant, the JPA will optimize its ability to develop region-wide mitigation through the use of local funds allocated for the purpose of open space preservation. The SSHCP is currently under preparation; an administrative draft was prepared in July 2010 (Sacramento County 2010a, <http://www.southsachcp.com/Documents>).

1.5.4 Connector Horizon Year

The JPA is planning for a voter-initiated, major multi-modal facility intended to meet numerous underlying needs and objectives identified in Chapter 2 of this Program EIR. Therefore, the Connector's growth and transportation needs for the project extend beyond the MTP's 2035 horizon year. As a result, the JPA has used a hybrid approach when describing the reasonably foreseeable future conditions for the horizon year. This involves reliance on the adopted general plans of its member jurisdictions (described above), probable future land use projects that are currently in the entitlement process, and the adopted MTP 2035, which includes a 4 to 6 lane roadway along the preferred project alignment currently being studied by the JPA.

As reflected in the cumulative impacts discussion in the Program EIR, the transportation analysis of the proposed project under "cumulative" conditions is based on development assumptions beyond 2035, up to the year 2045, which are outlined in detail in Chapter 16, "Traffic and Transportation" of this Program EIR. Specifically, Table 16-12 reflects build-out of all residential uses and growth in jobs that result in approximately the same number of jobs per household in the Connector's traffic analysis study area as current levels. Therefore, references to a future year planning horizon go beyond the 2035 scenario.

1.6 Lead and Responsible Agencies

Although the specific elements of the Connector will be further developed and implemented by the JPA or individual member jurisdictions, the JPA is responsible for selection of the 35-mile-long corridor; therefore, the JPA is the CEQA lead agency for the purpose of conducting this environmental review. As this is a program-level EIR, the specific design of the project in the Draft Program EIR, such as design speeds, number of interchanges, etc., are not intended to define the project, but are assumptions used to establish the general scope of the project and therefore estimate the potential impacts of the project. As described below under "Lead Agency Actions", the decision before the JPA Board is to adopt a 35-mile-long corridor alignment and proceed with the related preservation of right-of-way, and not to approve the specific aspects of the proposed design of the project. Sacramento County, El Dorado County, and the Cities of Elk Grove, Rancho Cordova, and Folsom may carry out future development of specific projects that would be a part of the Connector and therefore are responsible agencies under CEQA.

1.6.1 Lead Agency Actions

The JPA will serve as the lead agency under CEQA for the Program EIR and will approve a corridor alignment. As part of the decision-making process, the JPA will take the following specific actions:

- certify the Final Program EIR,
- adopt the findings of fact and statement of overriding considerations,
- adopt the mitigation monitoring and reporting plan, and
- adopt the 35-mile-long corridor alignment.

1.6.2 Responsible Agency Actions

The responsible agencies for the Program EIR are the JPA member jurisdictions (Sacramento County, El Dorado County, and the Cities of Elk Grove, Rancho Cordova, and Folsom). After the JPA certifies the Final Program EIR and approves a corridor alignment, each city and county will amend its respective general plan to identify the JPA's selected corridor and adopt policies for its preservation. The cities and counties may establish by ordinance or resolution an *official plan line* that will identify the selected Connector route and preserve it in the face of future land use decisions. The official plan line establishes the city's or county's intent to eventually implement the Corridor and would require the area within the future right-of-way to be reserved for the Connector, limiting the location of new development to the area outside the alignment and requiring the alignment to be shown on new tentative maps.

Because this is a program EIR and project-level approvals are not anticipated at this point, no other permits or approvals (and therefore no other responsible agency actions) are anticipated for the Program EIR. After the Final Program EIR is certified, more-detailed project-level review can proceed along the selected corridor by either the JPA or the member jurisdictions. This Program EIR will serve as a first-tier analyses for later project-level alignment decisions by these agencies.

1.7 Terminology

This report establishes thresholds of significance based on State CEQA Guidelines and standard practice, and identifies the following types of impacts:

- A *less-than-significant impact* is considered to cause no substantial adverse change in the environment and requires no mitigation measures.
- A *significant impact* is considered to cause a substantial adverse effect on the environment but can be reduced to a less-than-significant level by implementing mitigation measures.
- A *significant unavoidable impact* is considered to cause a substantial adverse effect on the environment for which feasible mitigation measures are not available to reduce the impact to a less-than-significant level.
- A *beneficial impact* is considered to cause a positive change in the environment.

CEQA requires that each public agency mitigate or avoid, wherever feasible, the significant impacts of any project it approves or implements. This Program EIR recommends mitigation measures to reduce impacts of the proposed project. State CEQA Guidelines Section 15370 defines mitigation as:

- avoiding the impact altogether by not taking a certain action or part of an action;
- minimizing the impact by limiting the degree or magnitude of the action and its implementation;
- rectifying the impact by repairing, rehabilitating, or restoring the affected environment;
- reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; and
- compensating for the impact by replacing or providing substitute resources or improvements to the environment.

Subsequent environmental documents may incorporate by reference materials from this Program EIR, as appropriate, regarding secondary effects, cumulative impacts, broad alternatives, and other factors. Subsequent environmental documents will need to focus solely on site-specific issues that were not already considered in this Program EIR.

1.8 Organization of Program EIR

The content and format of this Program EIR are designed to meet the requirements of CEQA and the State CEQA Guidelines. The report is organized in the following chapters to allow the reader to easily obtain information about the project and its specific issues.

- The "Summary" briefly discusses several aspects of the proposed project and Program EIR—the purpose of this Program EIR; project objectives; descriptions of the proposed project, optional project component, and alternative; significant unavoidable impacts; the environmentally superior alternative; and other impact conclusions.
- Chapter 1, "Introduction," provides background information on the proposed project, discusses the purpose of this Program EIR in detail, summarizes the scoping and public involvement process, discusses how the project ties into regional planning efforts, lists the CEQA lead and responsible agencies for the project, defines impact conclusions used throughout this EIR, and discusses the organization of this EIR.
- Chapter 2, "Project Description," discusses the existing roadway system in the project area, project objectives, alternatives screening process, sustainable design elements incorporated into the project, and project construction, costs, and financing.
- Chapters 3–16, are each devoted to the resource or issue areas listed below, respectively. In general, each describes the study area for that resource or issue, the environmental setting before project implementation (existing conditions and regulatory setting), the approach and methods (including significance thresholds) used in the impact analysis, the impacts that would result from the proposed project and optional project components, and mitigation measures that would eliminate or reduce significant impacts.
    - "Aesthetics"
    - "Air Quality"
    - "Biological Resources"
    - "Cultural Resources"
    - "Energy"
    - "Geology, Soils, and Paleontological Resources"
    - "Hazards and Hazardous Materials"
    - "Hydrology and Water Quality"
    - "Land Use"
    - "Noise"
    - "Population and Housing"
    - "Public Services and Utilities"

    - "Recreation"
    - "Traffic and Transportation"
- Chapter 17, "Alternatives and Other CEQA Considerations," describes the alternatives to the proposed project and the impacts associated with those alternatives, identifies the environmentally superior alternative, and discusses significant and irreversible environmental changes.
- Chapter 18, "Cumulative and Growth-Inducing Impacts," summarizes the proposed project's contribution to cumulative impacts, as well as its growth-inducing impacts.
- Chapter 19, "References Cited," identifies the printed references and personal communications used in preparing this Program EIR.
- Chapter 20, "List of Preparers," identifies the individuals involved in preparing this Program EIR and their roles, including the JPA and several consultants.
- Several appendices are included at the end of this report and include the following:
    - Appendix A, "Notice of Preparation, Scoping Report, and Comment Letters"
    - Appendix B, "Technical Information on Operational Emissions Modeling"
    - Appendix C, "Recorded Cultural Resources and Native American Correspondence"
        - Appendix C-1, "Recorded Cultural Resources"
        - Appendix C-2, "Native American Consultation"
    - Appendix D, "Geotechnical Impact Report"
    - Appendix E, "Initial Site Assessment (Draft)"
    - Appendix F, "Floodplain Evaluation Report (Draft)"
    - Appendix G, "Location Hydraulic Study (Draft)"
    - Appendix H, "Alternatives Screening"
    - Appendix I, "Biological Resources in the Project Area"
    - Appendix J, "Analysis of Access Roads between US 50 and the Capital SouthEast Connector Project"

Chapter 2
Project Description

2.1 Existing Roadway System

The proposed Capital SouthEast Connector is an approximately 35-mile-long roadway that would link communities in Sacramento and El Dorado Counties, including Elk Grove, Rancho Cordova, Folsom, and El Dorado Hills. The project limits extend from the I-5/Hood Franklin Road interchange in southwest Sacramento County to US 50 in the vicinity of Silva Valley Parkway, approximately 3 miles east of the Sacramento County/El Dorado County line (Figure 2-1).

The existing roadway network in the project vicinity includes federal and state highways, arterials, collectors, and local roadways (Figure 2-2a). Following the project alignment from southwest to northeast, the major roadways in the project area and vicinity include the following:

- **I-5** is a north–south interstate freeway that runs through the western edge of Sacramento County. It extends from the international border between the United States and Mexico in the south to the international border between the United States and Canada in the north**.**
- **Hood Franklin Road** is a two-lane east–west arterial extending from Franklin Road west to River Road (SR 160) in Hood.
- **Kammerer Road** is an east–west two-lane arterial extending from SR 99 west to Bruceville Road.
- **Bruceville Road** is a north–south arterial extending from Mack Road in Sacramento through Elk Grove.
- **SR 99** is a north–south freeway with an interchange in the project area at Elk Grove Boulevard.
- **Bond Road** is an east–west arterial extending from Grant Line Road to SR 99.
- **Elk Grove Boulevard** is an east–west arterial extending from I-5 to Grant Line Road.
- **Waterman Road** is a north–south two-lane arterial extending from Grant Line Road to beyond Calvine Road into Sacramento County.
- **Grant Line Road** is a southwest–northeast two-lane arterial road extending from SR 99 to White Rock Road.
- **Bond Road** is an east–west arterial extending from SR 99 to Grant Line Road.
- **Wilton Road** is an east–west two-lane arterial extending from Grant Line Road through Wilton to Dillard Road.
- **Sheldon Road** is an east–west arterial extending from west of Bruceville Road to Grant Line Road.
- **Calvine Road** is an east–west arterial extending from Stockton Boulevard to Grant Line Road.
- **Jackson Highway (SR 16)** is a two-lane highway extending from Folsom Boulevard east across Grant Line Road and into Amador County.

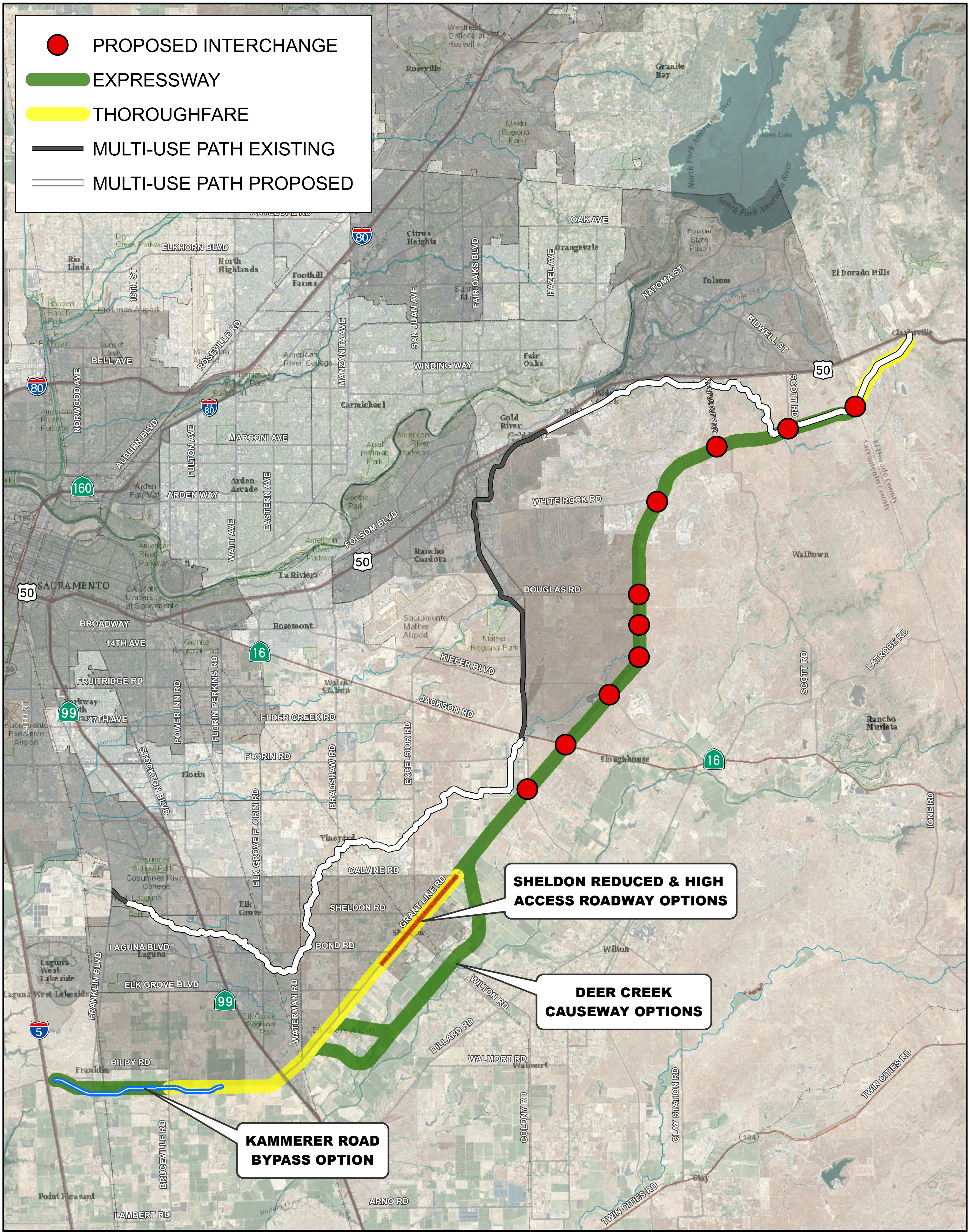
- **Sunrise Boulevard** is a north–south arterial/thoroughfare extending from I-80 in Placer County to Grant Line Road.
- **Douglas Road** is an east–west arterial roadway extending from Mather Boulevard to Grant Line Road.
- **White Rock Road** is an east–west arterial extending from El Dorado County to International Drive in Rancho Cordova.
- **East Bidwell Street** is a northwest–southeast arterial extending from Riley Street to US 50, where it becomes Scott Road.
- **Scott Road** is a north–south two-lane rural road extending from US 50 at East Bidwell Street to White Rock Road.
- **Latrobe Road** is a north–south arterial extending from US 50 as an extension of El Dorado Hills Boulevard southward and providing access to the El Dorado Hills Business Park.
- **US 50** is an east–west freeway extending from I-80 in West Sacramento to Canal Street in Placerville, where it continues as a highway across the Sierra Nevada to South Lake Tahoe and Nevada.

2.2 Deficiencies in Existing Roadway System

There are numerous regional and local deficiencies in the project corridor's existing roadway facilities, which create a variety of transportation problems, including insufficient transportation options for persons, and goods and freight movement to, from, and within the corridor. These deficiencies are described below.

- **The project corridor is principally served by a partial grid system of arterial roadways**. This grid system has gaps on its northern end because of Mather Field and the Aerojet facility, has substantial levels of congestion in some areas that are projected to grow, and does not provide adequate mobility for longer-distance trips because of an increasing number of traffic signals.
- **Local streets are increasingly subject to congestion and use by non-local traffic.** Increasing development and demand for limited transportation capacity are resulting in growing congestion on local streets. Currently in the project corridor, about 25% of all weekday peak-period VMT takes place under level of service (LOS) E or F (congested) conditions. Specific roadway segments in the project vicinity that currently do not meet the LOS standards of the jurisdictions that control them include the following:
    - Elk Grove
        - Bond Road from SR 99 to Elk Grove-Florin Road—LOS F
        - Elk Grove Boulevard from SR 99 to Waterman Road—LOS F
        - Grant Line Road from Sheldon Road to Wilton Road, and between Waterman Road and East Stockton Boulevard—LOS E

Figure 2-1
Project Vicinity



CAPITAL SOUTHEAST CONNECTOR
PROPOSED PROJECT
REVISED FIGURE 2-2A

CAPITAL | SOUTHEAST
CONNECTOR JPA
Connecting Communities

- Sacramento County
    - Grant Line Road from Sunrise Boulevard to Calvine Road—LOS E
    - Bradshaw Road from US 50 to Lincoln Village Drive, and from Florin Road to Gerber Road—LOS F
    - Hazel Avenue from US 50 to Folsom Boulevard—LOS F
    - Jackson Road from Sunrise Boulevard to Grant Line Road—LOS E
    - Sunrise Boulevard from US 50 to Zinfandel Drive—LOS F
- Rancho Cordova
    - Sunrise Boulevard from Folsom Boulevard to Trade Center Drive, and from Kiefer Boulevard to Jackson Road—LOS E
- Folsom
    - East Bidwell Street from Iron Point Road to US 50—LOS E
    - Folsom Boulevard from Iron Point Road to US 50—LOS E

Furthermore, growth in area households and employment is expected to far outpace roadway and transit improvements, which means congestion will worsen as newly constructed dwellings become occupied and as new jobs are filled in the project corridor and the greater Sacramento region. Sections of US 50 and SR 99 are very congested during peak periods, motivating travelers to seek alternate routes on arterials and local streets. Over the next 20 years, the tendency for drivers to avoid overly crowded freeways will intensify congestion on the local street system. Congestion along numerous segments in the project vicinity is also projected to worsen as planned growth and development in the region proceed. In addition, well-planned transportation improvements need to accompany and support housing and job growth to ensure that growth proceeds along planned patterns.

- **The project area needs an all-weather transportation facility to enable normal mobility and emergency vehicle access.** Portions of the project corridor lie within the Federal Emergency Management Agency (FEMA)–designated 100-year flood zone, meaning some segments of older arterials are impassible during high water conditions. Generally, the two-lane rural design of many roads in the corridor also creates problems for emergency vehicles responding to residential, workplace, and roadside emergencies. Transportation improvements would enable faster and safer access for emergency vehicles and residents in cases of emergency, during both flood and normal conditions.
- **Increasing vehicle traffic is degrading the safety of existing facilities; improvements are needed to ensure the safety and security of travel by all modes in the project corridor (automobile, transit, bicycle, and pedestrian).** Automobile accidents,[1] including those affecting pedestrians, bicyclists, and motorcycle riders, continue at high rates in Sacramento County. There were almost 15,000 accidents in Sacramento County in 2004, of which more than 10,000 involved physical injury and 127 involved one or more fatalities. More than half of the fatal accidents (72) occurred within unincorporated county areas, 75% (58) of which occurred

[1] When discussed in terms of on-road incidents and safety, the term "accidents" is interchangeable with the term "collisions."

on county roads. Research from the Transportation Research Board (TRB) and the Texas Transportation Institute (TTI) suggests a number of benefits from improving rural roads:

- Accidents are reduced 40% to 60% when a typical two-lane roadway is converted to a four-lane divided roadway. Accidents are reduced by 12% by widening a lane by 1 foot (e.g., from 10 feet to 11 feet).
- Widening lanes by 2, 3, and 4 feet will reduce related accidents by 23%, 32%, and 40%, respectively.
- Addition of a left-turn lane can result in crash reductions of 7% to 48%.
- Left-turn lanes, lighting, and wider right shoulders/right-turn lanes all contribute to reduced accident rates.
- Studies consistently show that the more access points per mile, the higher the accident rate. Access controls dramatically reduce fatalities, injuries, and property damage.

- **Increasing development encroaches on open space and wildlife habitat; planning is needed to preserve these resources and ensure access to open space.** Many segments of the project corridor run through areas containing valuable open space resources, particularly in the areas east and south of Grant Line Road. Many of these areas are designated in local general plans for open space, recreation, or agricultural uses, which would normally preclude them from development. However, many areas in the corridor are under tremendous development pressure, which would result in degradation of biological resources and open space values, as well as increased travel congestion.

2.3 Project Objectives

A statement of a project's objectives provides a basis for defining the range of alternatives to be evaluated in an EIR in accordance with CEQA and the State CEQA Guidelines. CEQA also requires the analysis of a range of reasonable alternatives to a proposed project, which would "feasibly attain most of the basic objectives of the project, but would avoid or substantially lessen any of the significant effects of the project." Based on these requirements, the JPA has developed project objectives intended to address the deficiencies in the project area's existing roadway system, as described above.

The overall objectives of the project are to improve mobility, access, and connections between residential and nonresidential land uses, which have been compromised by increasing congestion, and to assist in preservation of open space and threatened habitats. The project is intended to link employment centers and residential areas in the corridor and contribute to the remedy for current and future deficiencies in transportation capacity, safety, and land use compatibility. The project would serve both regional and local travel needs, and would relieve congestion on heavily used local roadways that currently serve the corridor. The specific objectives of the project are to:

- enhance mobility options within the project corridor and support planned growth;
- aid economic vitality by improving accessibility to existing and planned job centers and commercial areas;
- provide a limited-access, multi-modal facility; and

- preserve open space, wildlife habitat, and productive agricultural uses in the corridor.

These objectives are described in detail below.

2.3.1 Enhance Mobility Options within the Project Corridor and Support Planned Growth

The proposed project is intended to enhance mobility options within the project corridor (and the greater Sacramento region) to serve and support sustainable planned growth and development patterns and principles from the approved general plans and MTP 2035, while minimizing impacts on the livability of residences and communities along the project corridor. These communities reflect a range of development types, established attributes, and local activities; the project will need to be designed with the quality of life established by these communities.

2.3.1.1 Existing Communities in Corridor

In addition to incorporated areas, several defined communities exist along the corridor, including the small unincorporated community of Franklin, the Sheldon area of Elk Grove, the former military housing community on the Mather Air Force Base site, and the unincorporated community of El Dorado Hills in El Dorado County.

- Franklin is located approximately 2 miles south of Elk Grove and is centered on Franklin Boulevard. The community consists of several stores, a few residences, and a California Historical Landmark cemetery.
- Sheldon is a largely “exurban” rural area within Elk Grove located on either side of Grant Line Road, with mostly large-lot residential uses and a small cluster of commercial uses centered near the intersection of Grant Line and Wilton Roads. The historical two-lane configuration of Grant Line Road and the relative isolation of the area from other developed communities have fostered a strong sense of community in the area.
- The site of the former Mather Air Force Base includes approximately 1,300 single-family housing units in the central portion of the base. When the base was active, this housing supported approximately 4,000 people, including military personnel and their families. The units were vacated in 1993 when the base closed. The on-base housing area has been redeveloped. The residential subdivision “Independence at Mather” opened in 1999 and accommodates new homes, schools, several parks, mature vegetation, and open space on all four sides. Mature vegetation is embedded within the development. Mather Commerce Center, a 250-acre commercial office complex, is located close to the residential area and provides opportunities for employment within a short distance of the homes.
- El Dorado Hills is located in the lower Sierra Nevada foothills in western El Dorado County, about 25 miles east of Sacramento. US 50 is the primary route through the community, which is located immediately east of the Sacramento/El Dorado County line and has grown steadily over the past three decades. In the last few years, it has seen tremendous growth in both facilities and activities available to residents and businesses. Most recently, development has focused south of US 50 on both the two-and four-lane segments of the White Rock Road alignment, with residential development (e.g., Four Seasons, Stonebriar, Cresleigh, A Fuller Sunset, and Valley View) and commercial development (Town Center and Montano de El Dorado) directly abutting the roadway.

In addition to the incorporated areas and established communities along the project corridor, there are several individual residences and residential communities. The main residential communities include:

- the Sunridge Specific Plan Area of Rancho Cordova, which includes the existing Anatolia development and other approved residential projects;
- the Vineyard Area, which includes the Vineyard Specific Plan Area and the North Vineyard Station Specific Plan Area; and
- Elk Grove residential developments along Bradshaw Road, which include the following subdivisions:
  - Fieldstone,
  - Clarke Farms,
  - Tributary Pointe,
  - Remington Estates,
  - Bishop Ranch,
  - Char-Lyn Acres,
  - Meadowlark Ranch, and
  - Bradshaw Ranch Estates.

2.3.1.2 Planned Growth in the Corridor

SACOG's adopted 2035 MTP has identified several areas in the Sacramento Metropolitan Area where significant growth is expected to occur from 2005 to 2035. Along the project corridor, the city of Rancho Cordova and the Vineyard area are identified as having the highest potential for population, housing, and employment growth (Sacramento Area Council of Governments 2008:7-2). In addition, the five member agencies of the JPA have adopted general plans to guide growth in their jurisdictions. As identified in these adopted plans, the project corridor has been and continues to be the site of significant regional growth and development. Figure 11-2 in Chapter 11 of the Program EIR provides an overview of the planned developments in the Corridor study area.

The proposed project would enhance mobility options within the corridor and support existing and planned growth by strategically designing restricted access control and capacity characteristics to preserve the regional functionality of the project and, in part, relieve direct growth pressure on adjacent properties not designated for growth. The project will provide improvements along the Connector corridor, reducing congestion, thereby making it less attractive for motorists to use local roads.

2.3.2 Aid Economic Vitality by Improving Accessibility to Existing and Planned Job Centers and Commercial Areas

The proposed project would aid economic vitality by improving accessibility to existing and planned job centers and commercial areas, facilitating goods movement, and enhancing the attractiveness of existing and planned employment and commercial areas. Rancho Cordova is the largest employment center in the corridor, providing about 77,000 jobs in 2007. By 2045, employment in Rancho

Cordova is expected to more than double; its job total will be more than the current employment in central Sacramento. The El Dorado Hills Business Park will also become a major employment center, growing from 9,000 jobs in 2007 to more than 33,000 in 2045. Additionally, Elk Grove is expected to grow as a regional employment center, with an estimated increase from 25,000 jobs in 2007 to more than 84,000 in 2045.

The proposed project is a part of the overall regional transportation system, and its ability to improve access and provide connectivity among these communities and throughout the region complements other new or improved roadways identified in MTP 2035 as strategies to serve this focused residential and employment growth. The project would facilitate diversified employment opportunities for residents of the region and provide a larger reservoir of skilled workers to businesses in the corridor by creating a more direct connection between residential areas and employment centers.

Truck volumes along the proposed Connector alignment are estimated to range from 6% to 13% (except in EDH where 4% is expected) of the total traffic volumes by 2035. This is a high truck percentage for a typical major roadway (for comparison, existing truck percentages on area freeways range from 3.5% on US 50 east of SR 99 up to 10% on I-5 near downtown Sacramento). By substantially reducing delay and travel times along the alignment, the proposed project will reduce the cost of shipping goods and facilitate goods movement throughout the region.

2.3.3 Provide a Reduced-Access, Multi-Modal Facility

The proposed project would provide a multi-modal road that limits access points (i.e., streets and driveways) to the extent possible to provide efficient transportation options within the corridor that balance transportation needs between local access and shorter trips and regional needs for longer trips; enable flexibility among automobile, transit service, bicycle, and pedestrian uses; and incorporate intelligent transportation systems (ITS) elements where possible. The project is being proposed to achieve the following improvements in transportation operations:

- reduced total vehicle hours traveled (VHT) during morning and evening peak commute periods on corridor roadways, especially time spent in congested conditions;
- reduced travel times between key origins and destinations (e.g., between Elk Grove and Rancho Cordova, Elk Grove and El Dorado County, and Rancho Cordova and El Dorado County);
- fewer short trips on I-5, SR 99, and US 50, and fewer long trips on local/residential streets; and
- reduced transit travel times and improved service frequencies in the corridor—evidence of viable alternatives to automobile travel.

To achieve these improvements in transportation operations, the project would be designed for higher travel speeds (i.e., a minimum posted speed of 45 miles per hour [mph]) and have higher capacity and less delay at intersections than a typical arterial or thoroughfare facility. The project would be designed primarily to an expressway standard, which would have fewer access points than a thoroughfare and would include grade-separated interchanges instead of at-grade intersections at specific locations. To achieve the desired transportation operations, the portions of the project with intersection spacing of less than 0.5 mile would be greatly minimized.

2.3.4 Preserve Open Space, Wildlife Habitat, and Productive Agricultural Uses in the Corridor

The proposed project would preserve open space, wildlife habitat, and productive agricultural uses in the corridor and minimize growth inducement via sound transportation facility improvements and implementation. As described in Chapter 1, under "Project History", funding for construction of the Connector is "contingent on the establishment, approval, and adoption of a habitat conservation approach by the local recipient of funds", which was part of the voter-approved Sacramento County Measure A ballot and JPA formation documents.

As part of this effort, the Connector project has included $15 million for open space acquisition and habitat preservation. The $15 million allocation is an integral component of the Connector, as opposed to a mitigation measure intended to reduce environmental impacts associated with the Connector (which are addressed separately as part of the Program EIR).

The $15 million fund for open space acquisition would be applied based on the JPA and its member agencies within the Corridor. The preservation could be supported by an active, funded program for open space protection in conjunction with the transportation improvements. Such a program could strategically target those areas that are most susceptible to growth pressures associated with enhanced access. The manner in which such a program would be administered depends on the adoption of JPA policies and procedures that would accompany the development of the overall administration of the project. However, the program could include a variety of strategies designed to fund acquisition, operation, and management of open space resources. Given that the Connector open space preservation program would likely augment, rather than absorb, current efforts in the Corridor, an important function would be to aid efforts to secure other funding from grants and private donations by providing a source of local matching funds. If strategically programmed, these funds could effectively inhibit development in areas that are not planned for urban growth.

In addition to open space preservation, the proposed project would include design features that are intended to relieve potential encroachment on natural and agricultural resources. These would include access management techniques to minimize direct exposure of natural resources to increased activity. Features would also include a commitment to alternative modes of transportation, including enhanced transit services and non-motorized facilities. The corridor would also continue to accommodate agricultural uses by accommodating the regional need to transport agricultural products to market and to move agricultural equipment.

2.4 Alternatives Screening Process

Alternatives screening was used to determine a set of reasonable and feasible alternatives to be studied in detail in this Program EIR. The JPA (and SACOG, before the formation of the JPA), Sacramento County, and Caltrans have conducted extensive preliminary alternatives screening analyses over several years using a set of broad-based objectives. The numerous planning studies that were previously conducted are described in Chapter 1 of this Program EIR. These agencies developed a preliminary set of potential alternatives that could meet the project objectives. Information used in the screening process was based on extensive community outreach, preliminary studies and evaluations, traffic forecast modeling, reconnaissance-level field studies, geographic information system (GIS) mapping, literature and data reviews, and discussions with federal, state, and local agency officials.

As part of the program EIR process, the JPA conducted more-detailed alternatives screening and selected a proposed project for analysis in the Program EIR in May 2010—the Grant Line Road Alignment; this alignment, along with options along segments of the project, is studied in detail in the Program EIR. The detailed alternatives screening process and the alternatives that were eliminated from further evaluation are described in detail in Appendix H. The alternatives evaluated in this Program EIR are described in Chapter 17. Options within the proposed project corridor are described below in Sections 2.5.4 and 2.5.5.

2.5 Description of Proposed Project and Optional Components

2.5.1 Location of Project Components

The JPA has developed a proposed project to meet the project objectives and address the underlying transportation needs in the region. The main project facilities associated with the proposed project are shown in Figure 2-2a. The proposed project includes improvements to the following segments along the 35-mile-long project corridor:

- 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 one 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 been identified, as discussed in Section 2.5.4. below under "optional Project Components";
- 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.
- several options for the alignment from Bond Road to Calvine Road through the Sheldon area have been identified, as discussed in Section 2.5.5 below under "Optional Project Components";
- 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 US 50/Silva Valley Parkway interchange; and
- non-motorized multi-modal facilities.

As shown in Figure 2-2b, most of the improvements in the project corridor would occur on the centerline of existing roadways, with the following exceptions, where the alignment would venture to either side of the centerline or would be located completely outside the existing road right-of-way:

- an approximately 3-mile-long extension of Kammerer Road between Hood Franklin Road and Bruceville Road (3 miles);
- a potential bypass of Kammerer Road east of Bruceville Road (1.5 miles);
- a second potential bypass of Kammerer Road west of Bruceville Road (1.3 miles);
- a potential bypass of Grant Line Road through Sheldon (9.0 miles);
- a second potential bypass of Grant Line Road through Sheldon (8.0 miles);
- a short segment from Silva Valley Parkway to US 50 (0.3 mile); and
- if selected as an alternate option as opposed to an enhanced in-corridor multi-use path, an off-corridor multi-use path with new trail segments linking to an existing trail system between the southwestern and northeastern project limits (approximately 25 miles of new trail).

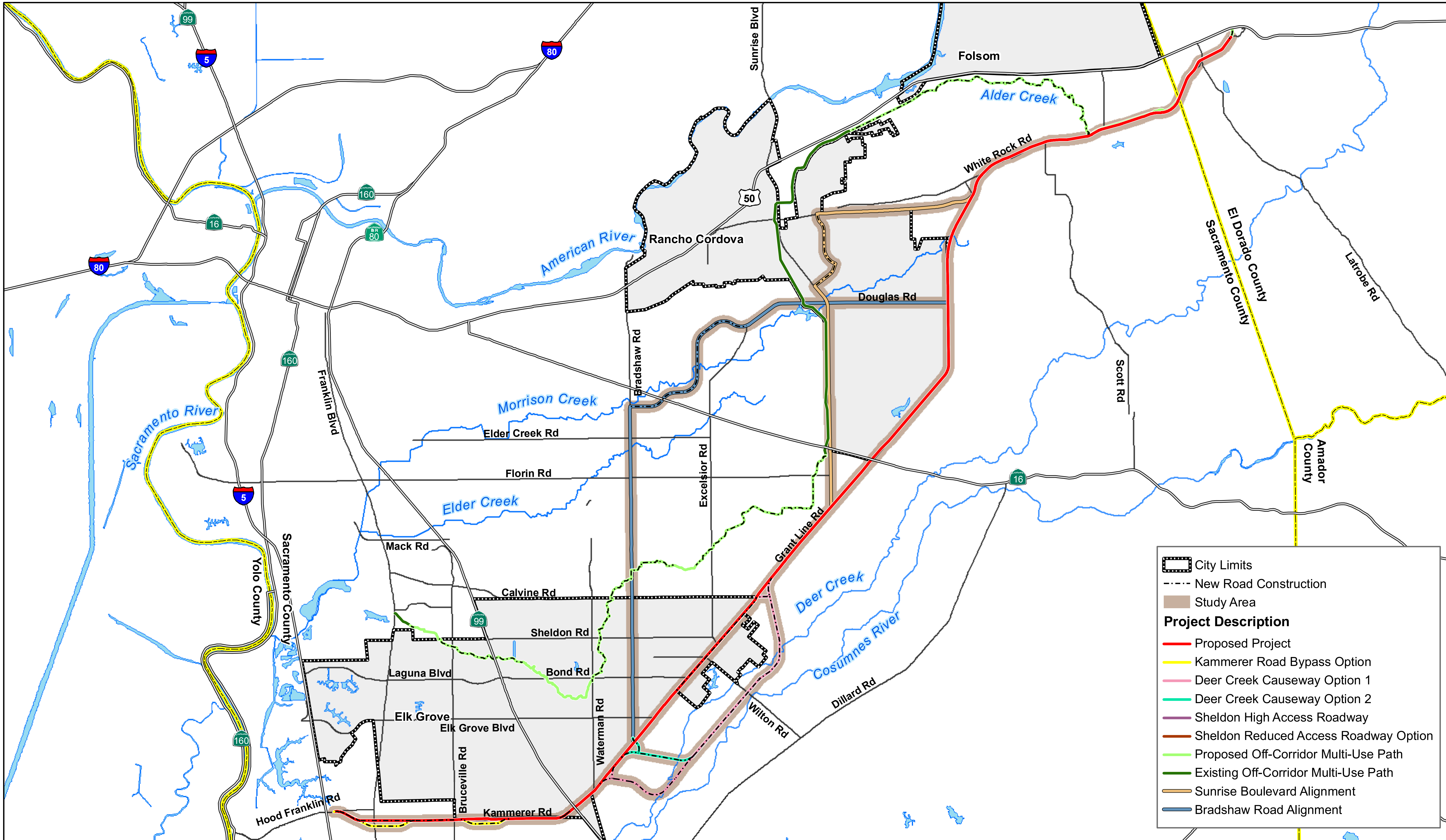
For these segments where the new road would not be located along the proposed centerline of existing roadways, more right-of-way acquisition would be required and more extensive conversion of ground resources (e.g., biological communities, agricultural lands) would occur.

2.5.2 Description of Project Design Criteria

The overall design concept for the Connector involves limiting access to the roadway facility—the more limited the access, the more capacity is improved along the segment, and the more unplanned growth is limited. Access limitation refers to the level of control of access to the roadway from adjacent land uses. Access limitation reduces the level of “friction” from side street and driveway traffic on the Connector, which increases the capacity of its lanes. A greater level of access control generally improves roadway operations and would allow the Connector to serve travel demand in the corridor with fewer travel lanes. Also, access limitation on the Connector is one way to reduce the growth-inducing effects of expanding roadway capacity.

Design criteria for the specific roadway segments were developed over several years under multiple studies conducted by the JPA (and SACOG, before the formation of the JPA). Design information for the corridor is at a program level (i.e., at a general level of detail). For the analysis in this Program EIR, design consists of a proposed centerline alignment and typical cross sections of major facility components. The general location of the various segments and potential locations of grade-separated interchanges are shown in Figure 2-2a, and the typical design components are described below. Detailed design and final alignment engineering are not part of the program EIR analysis—these project-specific efforts will be conducted subsequent to certifying the Final Program EIR and approving a corridor.

One objective of the Connector is to provide opportunities for non-vehicular modes of transportation. Bicycle and pedestrian facilities are viable alternative modes of transportation that will be included in the design along the alignment; these facilities vary by roadway segment and are described below for each roadway segment type.



K:\Projects_1\parsons_brinckerhoff\00907_08\mapdoc\Figures\Figure_Project_Safety_Facilities_20100908_93.mxd ds 1/27/2011

PB PSOMAS | ICF INTERNATIONAL

Data Layers Provided by Sacramento County GIS Department, Sacramento County Planning Department, SACOG, El Dorado County, El Dorado County Planning Department, The US Fish and Wildlife Service, and USGS

CAPITAL SOUTHEAST CONNECTOR
Connecting Communities

Proposed Project and Alternatives

Figure 2-2b

Plot Date
January 27, 2011

2.5.2.1 Expressway Segments

As shown in Figure 2-2a, much of the 35-mile-long project corridor is being planned to function as an expressway, which is defined as a roadway with at least partial control of access, where limits are placed on the number and types of intersecting streets, roads, and driveways. An expressway is typically divided, and has traffic signals or grade-separated intersections. Expressways differ from freeways in that freeways do not have traffic signals and include full control of access, where property owners next to the road have no direct access (access and egress to/from a freeway is provided completely by grade-separated interchanges).

The Connector's expressway segments would consist of four to six divided, high-speed traffic lanes, with grade-separated interchanges in areas where necessary to maintain an acceptable LOS and a design speed of 65 mph. Figure 2-3a shows a typical cross section of the proposed expressway segments. The expressway segments would require a 200-foot-wide right-of-way, which would include a separated in-corridor multi-use path and could accommodate future widening to six lanes for exclusive high-occupancy vehicle (HOV)/transit lanes.

Intersections and Grade-Separated Interchanges

For the expressway segments, access would be restricted to interchanges or intersections where feasible. Grade separations provide opportunities to maximize the capacity of available lanes on the Connector itself, reduce the need for widening roadways at major intersections to accommodate queues of vehicles, and reduce the delay inherent at roadway intersections. The Connector would replace at-grade intersections with grade-separated interchanges along the expressway segments at most major cross streets to allow traffic to pass through the junction without directly crossing other traffic stream. Where an LOS C can be maintained, at-grade signalized intersections will be allowed in lieu of the grade separated interchanges (Figures 2-3b and 2-3c). Potential locations for grade-separated interchanges along the expressway segments of the project are shown in Figure 2-2a and include:

- Jackson Road (SR 16)
- Kiefer Boulevard
- University Avenue
- Chrysanthy Boulevard
- Douglas Road
- White Rock Road
- Prairie City Road
- Scott Road
- Empire Ranch Road

Figure 2-4 shows a typical tight diamond interchange plan and cross section along an expressway route. In some cases, to further limit access, the design of the interchange would be even more limited than a tight diamond interchange. In this case, a *directional interchange* could be designed, which would allow for appropriate design speeds along the project corridor and for access of local roads to the Connector, but would limit the extension of roadways beyond Sacramento County's urban service boundary. Figures 2-5 and 2-5a show a typical directional interchange cross section and design concept. The design speed for the expressway segments is 65 mph.

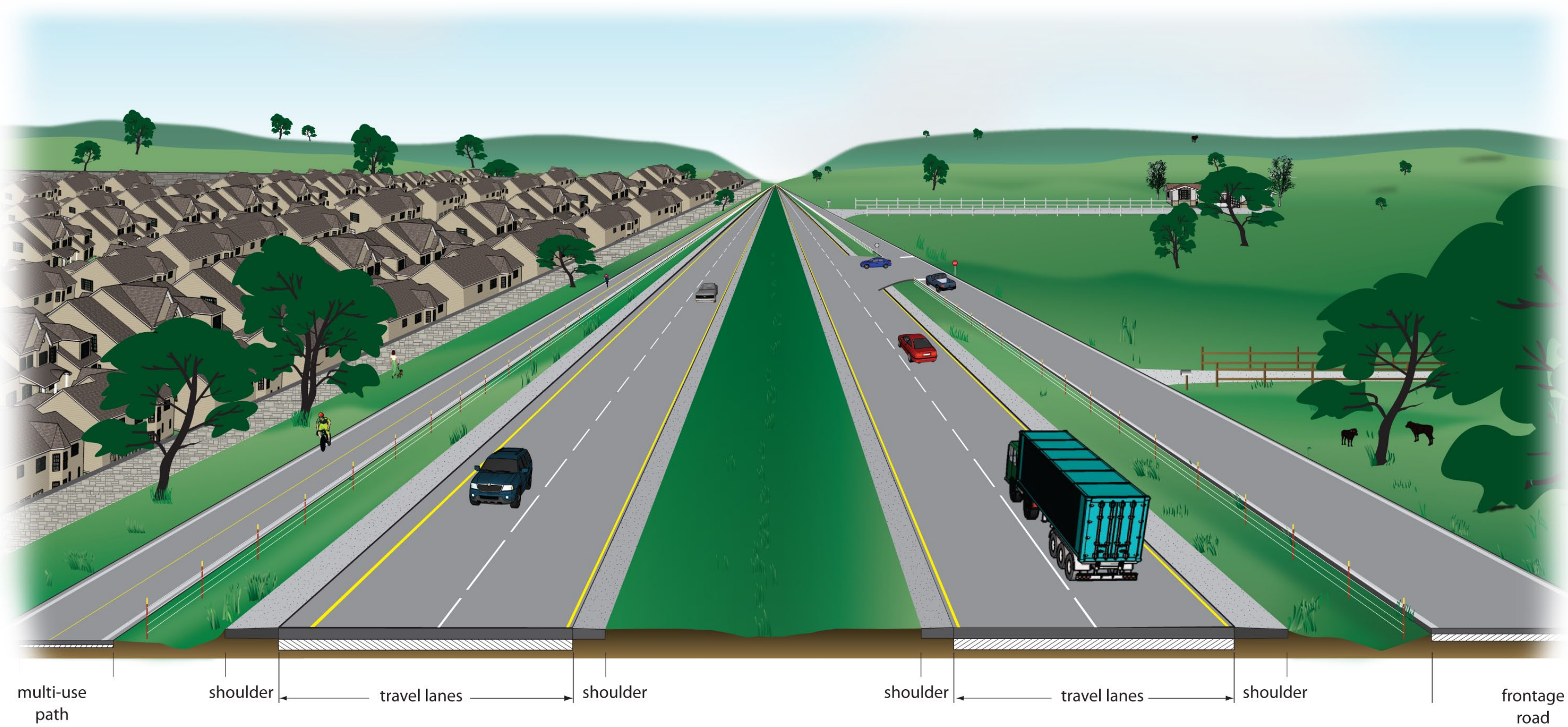
In-Corridor Pedestrian/Bicycle Facilities

Along the expressway segments of the Connector, a separated, 12-foot-wide Class I non-motorized paved multi-use path with graded shoulders will be located within the 200-foot right-of-way. A Class I Bikeway (Bike Path), as defined by the California Streets and Highways Code, provides a completely separated right-of-way for the exclusive use of bicycles and pedestrians with direct cross-flow of vehicular traffic minimized (California Streets and Highways Code Section 890.4). The enhanced multi-use path would provide safe and convenient access and connectivity to the residential areas, job centers, transit and other bicycle and pedestrian facilities in the area. The enhanced multi-use path would maximize the efficiency of bicycle and pedestrian use along the Connector alignment, with either undercrossings or overcrossings at the grade-separated interchanges to reduce the number of vehicle/path conflict points within the corridor. Figure 2-3c shows typical cross sections for multi-use path sections for expressways.

This multi-use path would also include some bicycle/pedestrian overcrossings at key locations between the interchange locations along the Connector to provide connectivity to local development. The enhanced multi-use path could include the following amenities:

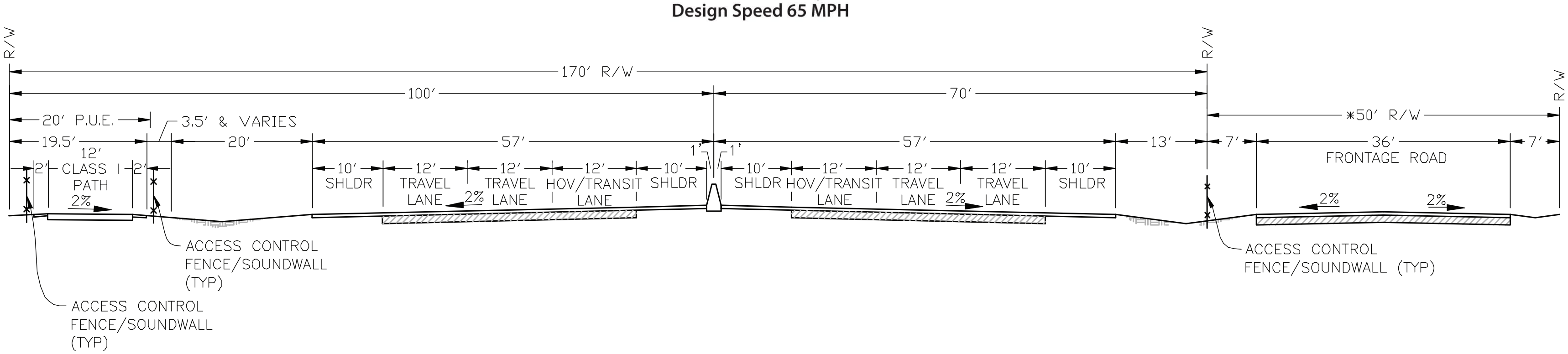
- undercrossings for the multi-use path at interchanges to reduce conflict with vehicles,
- lighting the pathway,
- park and ride (P&R) facilities at development locations,
- trailhead monument and interpretive information at P&R facilities,
- bike lockers and restrooms at P&R facilities,
- low maintenance/native species landscaping,
- decorative fencing between roadway and path,
- shade trees, and
- directional signage.

Because the path would be continuous and unimpeded, it would be located on one side of the Connector, most likely the west side. P&R facilities are proposed at six locations. Figure 2-3a shows a typical cross section of a multi-use path adjacent to an expressway. The path would be separated from the roadway by landscaping or barriers where necessary.



EXPRESSWAY

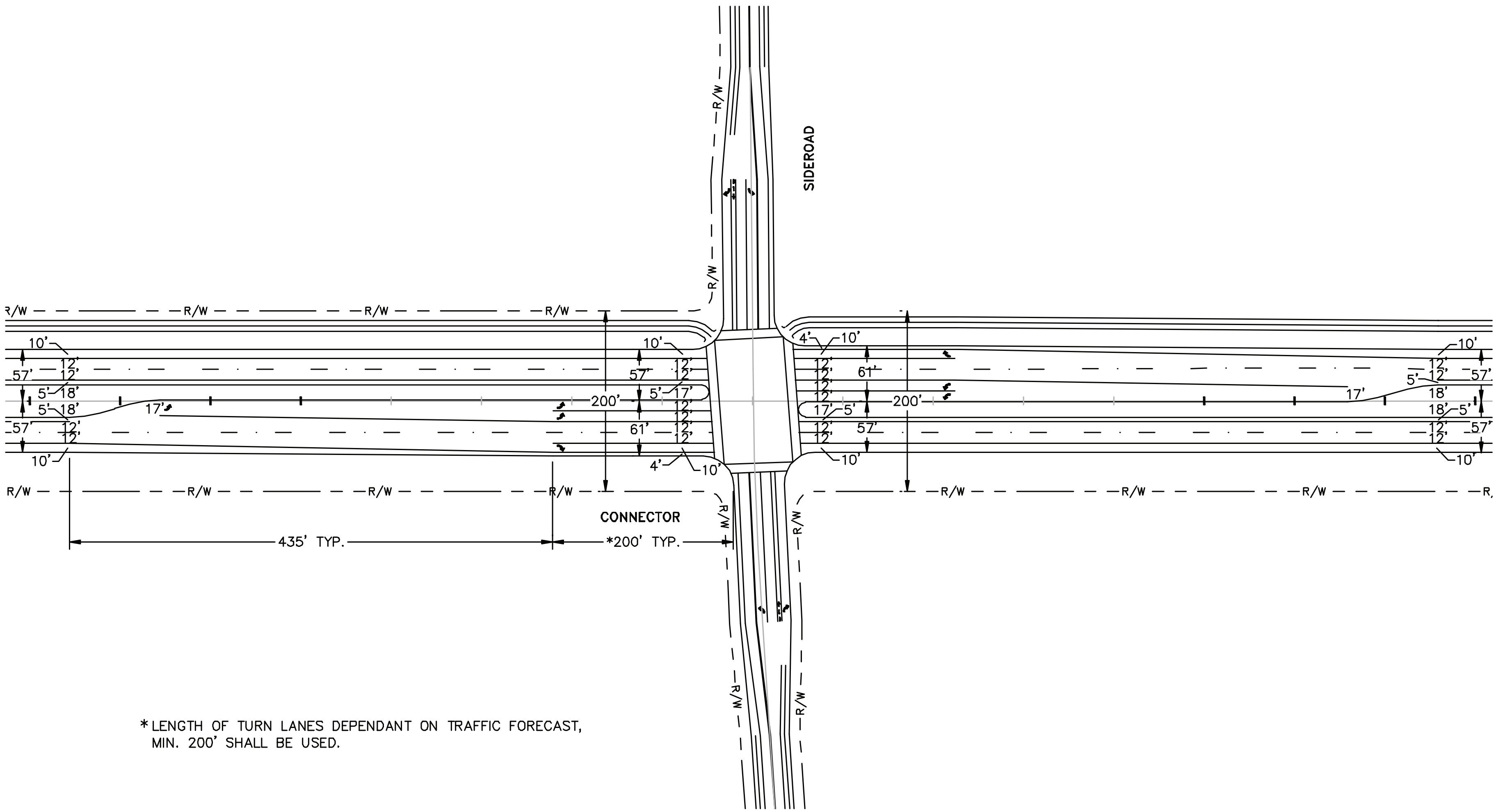
4-6 Lane Facility
Design Speed 65 MPH



Source: PB Americas, Inc and ICF International 2011.

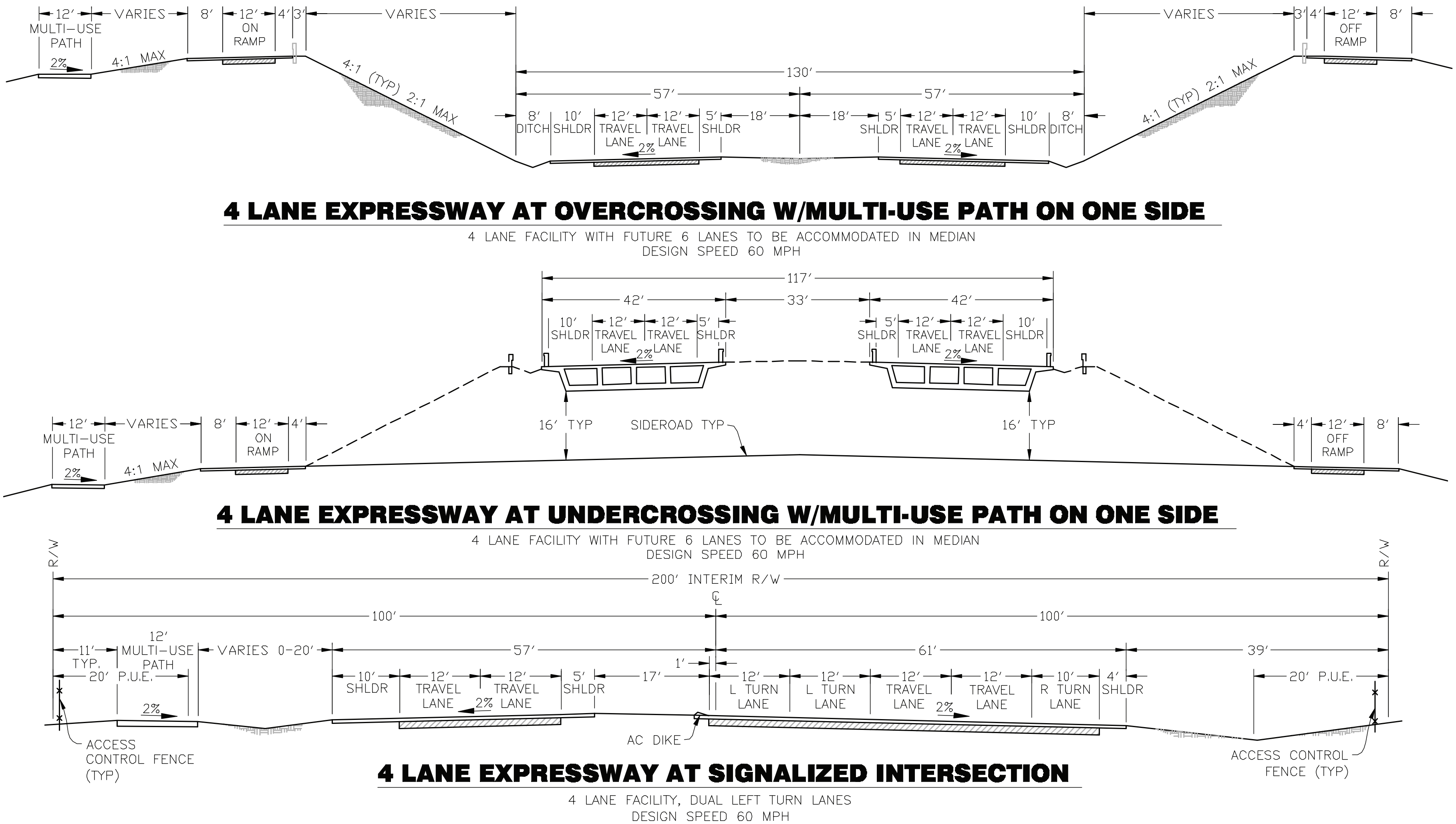
Graphics...00907.08 Project Description (rev. 3-2011) JD

Figure 2-3a
Typical Expressway Section



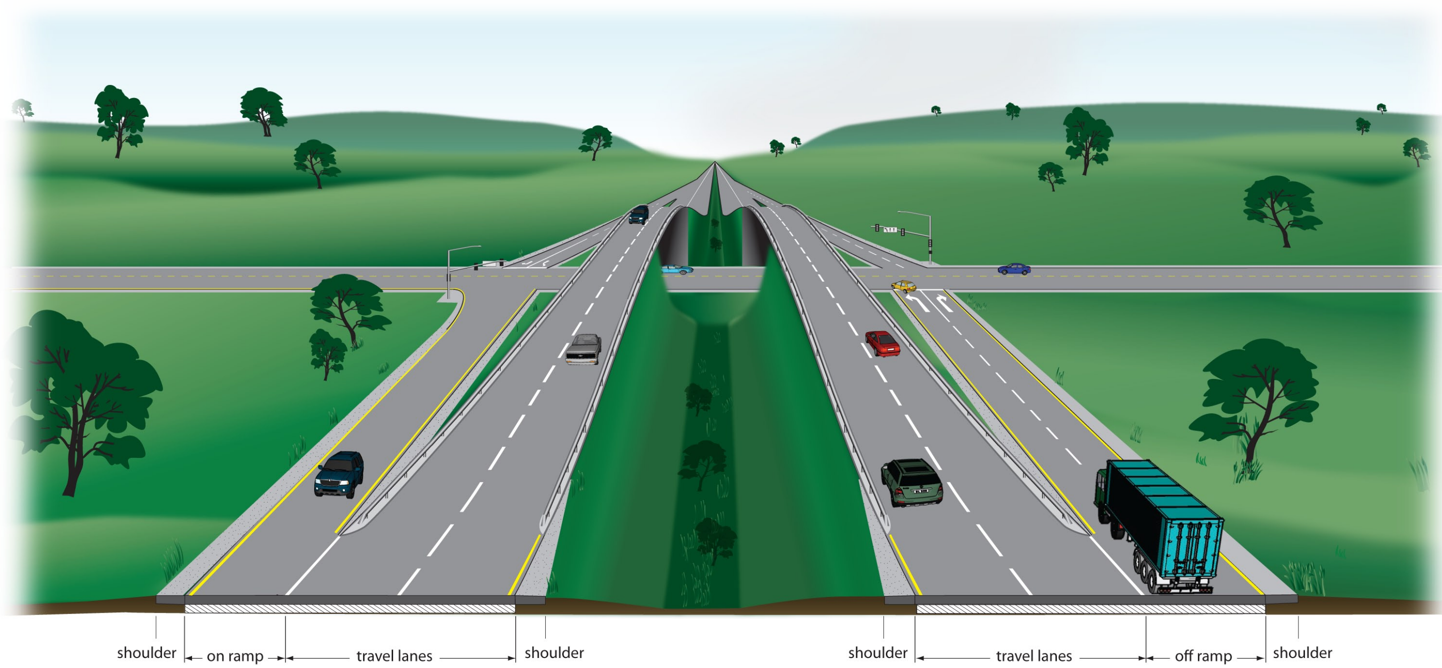
Source: PB Americas Inc., 2011.

Figure 2-3b
Typical Expressway Signalized Intersection

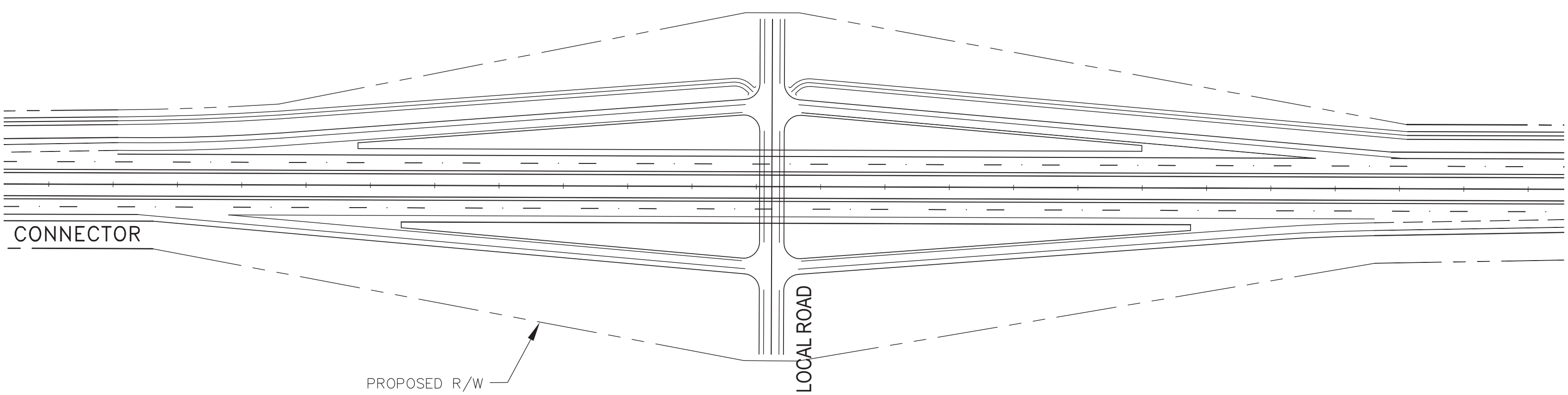


Source: PB Americas Inc., 2011.

Figure 2-3c
Typical Multi-Use Path Sections for Expressways



DIAMOND INTERCHANGE
4 Lane Facility
Design Speed 65 MPH



Source: PB Americas, Inc and ICF International 2010.

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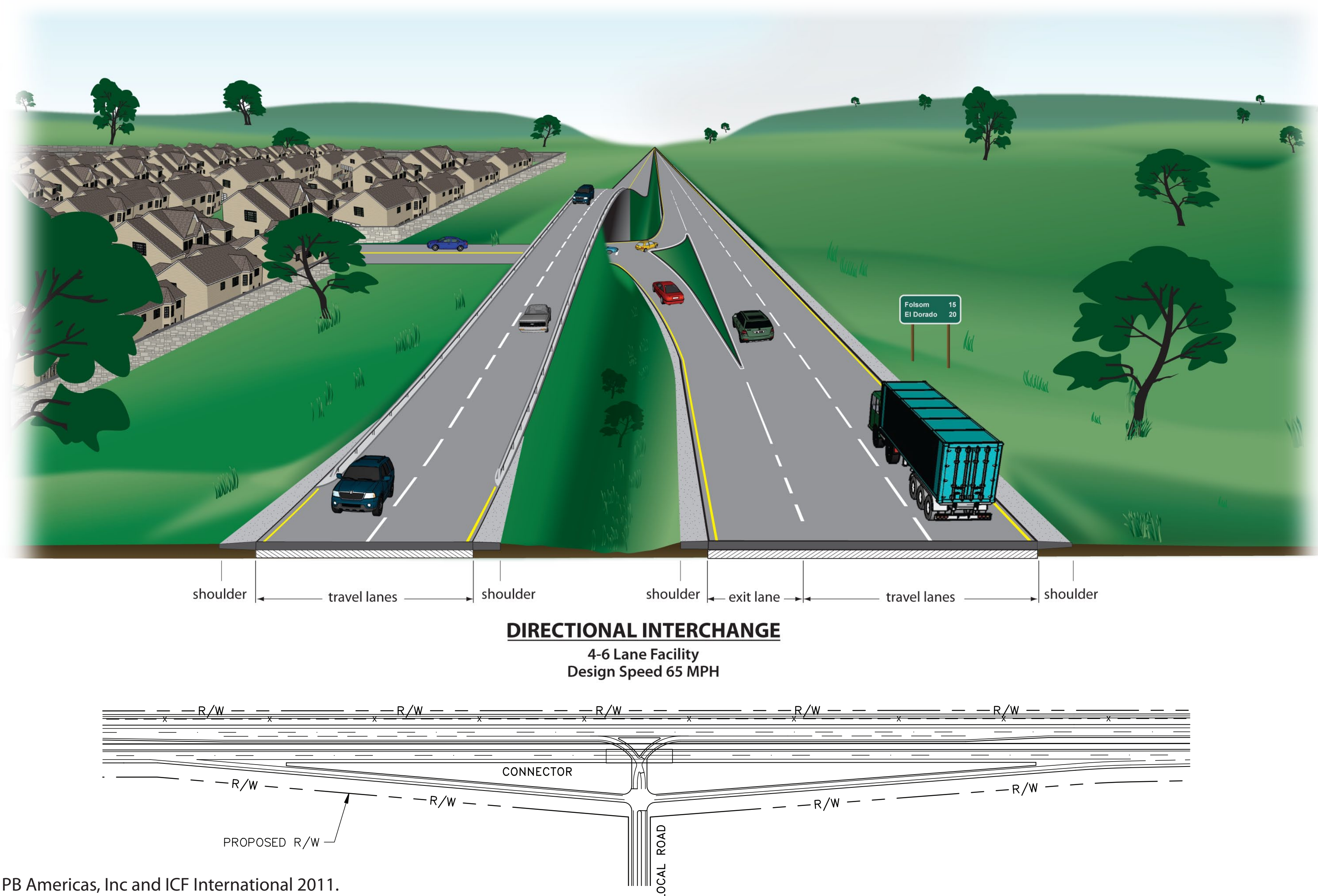
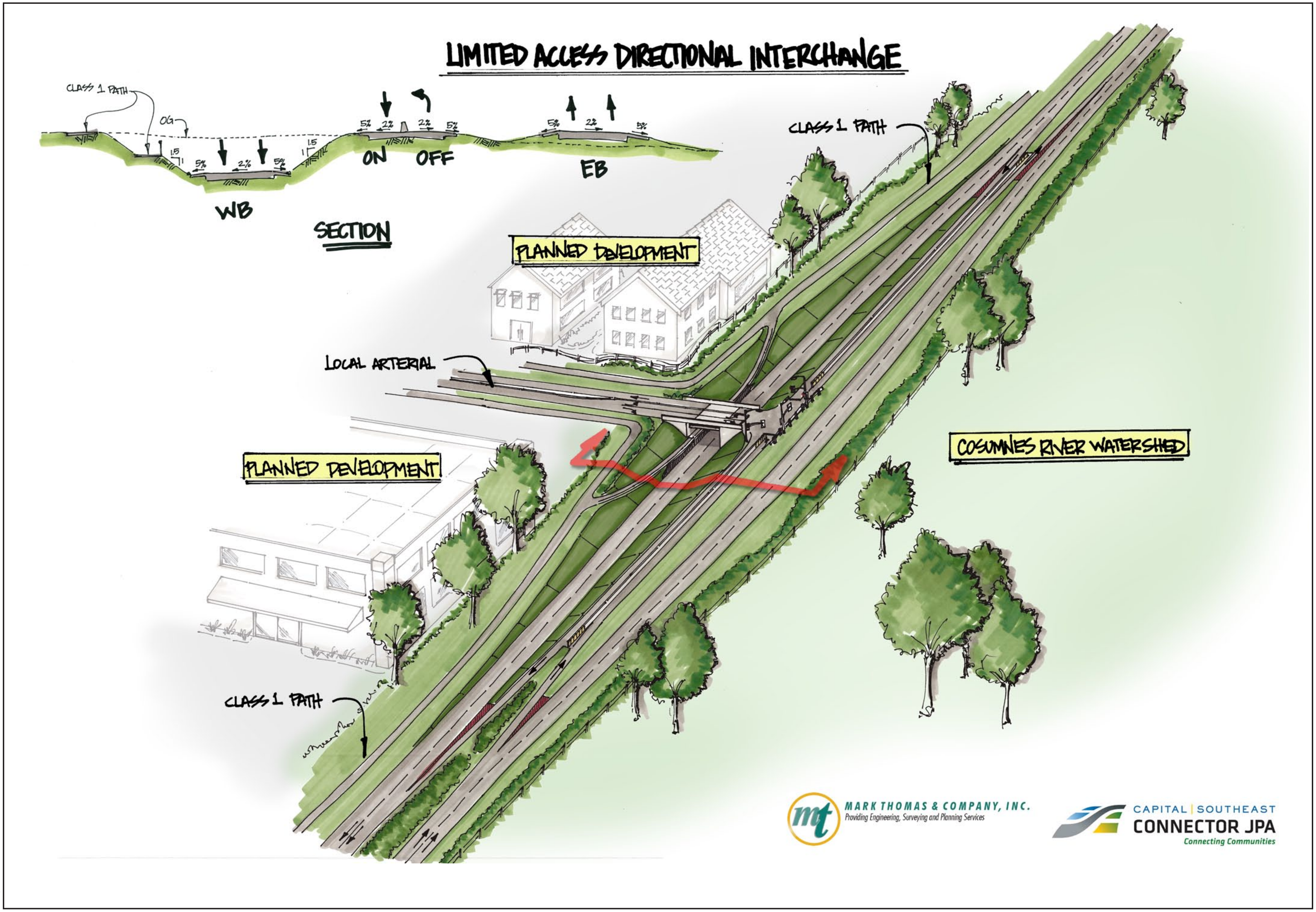
Figure 2-4
Typical Tight Diamond Interchange



Source: PB Americas, Inc and ICF International 2011.

Graphics...00907.08 Project Description (rev 3-2011) JD

Figure 2-5
Typical Directional Interchange



Graphics...00907.08 EIR (7-2011) JD

New Figure 2-5a
Directional Interchange Concept

2.5.2.2 Thoroughfare Segments

In certain areas along the Connector, existing development makes designing a full expressway standard infeasible; a thoroughfare is planned for these areas (Figure 2-2a). The thoroughfare segments would have four to six traffic lanes, similar to an urban arterial (Figure 2-6). Left turns would be allowed only at at-grade signalized intersections spaced at least 0.5 mile apart and ideally one mile apart. Where existing and already approved intersections cannot be consolidated, closer spacing (as short as 0.25 mile) may be allowed. Direct access to the roadway would be minimized and planned and existing driveways would be consolidated or eliminated where feasible. The thoroughfare segments typically would include a landscaped median. The design speed for the thoroughfare segments is 50 mph.

In-Corridor Pedestrian/Bicycle Facilities

Pedestrian and bicycle facilities in the thoroughfare segments of the project will accommodate both commuter and recreational cyclists. Thoroughfare segments would have Class II bikeways within the right-of-way on each side of the roadway to address the needs of the commuter bicyclist. A Class II bikeway (bike lane) provides a one-way, on-street route marked by signs and pavement legends and shared with motor vehicles and pedestrians

In addition to Class II facilities, a 10-foot-wide Class I multi-use path would be located on each side of the roadway for the recreational cyclist and pedestrians. Class I multi-use paths may be separated from the back of the curb, if separation can be accommodated within the available right-of-way width. Figure 2-6 shows typical cross-sections of the proposed Class I and Class II paths in a thoroughfare segment.

2.5.2.3 Sheldon Area Segment

The Connector's typical section along Grant Line Road in the Sheldon Area would consist of four traffic lanes with paved shoulders, a non-traversable median between signalized intersections and open ditches for drainage. Curb and gutter sections would be limited to the commercial areas. Access would be limited where feasible, with left turns allowed only at the signalized intersections (Figure 2-7). The overall design in this segment of the Connector is intended to maintain the rural character and context of the area. The design speed for the Sheldon Area segment is 50 mph.

In-Corridor Pedestrian/Bicycle Facilities

Because of the concentration of development and right-of-way limitations through the Sheldon area (Grant Line Road from Bond Road to Calvine Road), this segment of the Connector would not be able to accommodate sidewalks or striped Class II bike lanes. Instead, a Class III Bikeway would be constructed. Class III Bikeways (multi-use shoulder) are on-street signed bicycle routes with no dedicated lane. The bike lane would be a paved shoulder at least 6 feet wide that bicyclists and pedestrians would share. In addition, a separated Class I multi-use path and pedestrian/equestrian trail could be accommodated along one side of the road. A typical cross section of a paved shoulder adjacent to a road segment in the Sheldon area is shown in Figure 2-7. The above description is an approximation of the type of bikeway to be constructed; however, the final design is yet to be determined.

2.5.3 Transit Services and Facilities

The Connector JPA has adopted transit policies, as part of its Integrated Modes Policy, to provide capital funding for cost-effective transit facilities along the project alignment and provide funding for strategic, cost-effective capital improvements on routes parallel to the project alignment that can demonstrate strong potential for high-use service. As such, the proposed project includes considerations for expanded transit service in the project area. Providing integrated multi-modal connections would help reduce the necessity to travel by single-occupancy vehicles in the project corridor. The project design would accommodate intersection signal priority ("queue jumps"), and other transit-related components, which would be defined and implemented in a phased manner, consistent with development and ridership growth trends. The number, location, and design of these facilities would be developed in coordination with the expansion of local fixed-route bus, express bus, and bus rapid transit services as densities increase along the project corridor and subject to project-level environmental review.

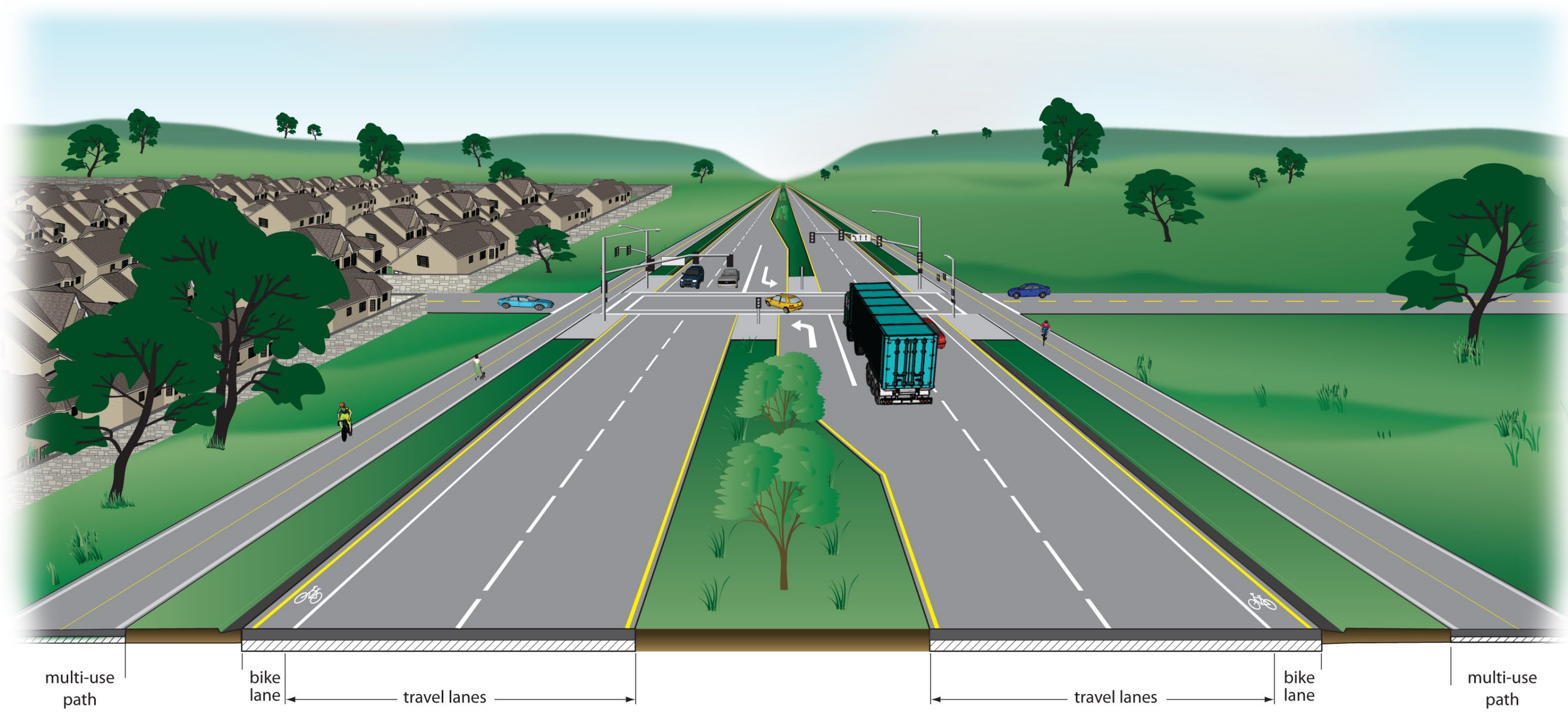
Transit-signal priority equipment and selected transit queue jumps would be included on the following high-frequency bus routes along the Connector (consistent with RT's Transit Action Plan):

- Bradshaw Road,
- Rancho Cordova Parkway, and
- Easton Valley Parkway.

The project also would include the construction of six park and ride lots at strategic locations along Kammerer Road, Grant Line Road and White Rock Road.

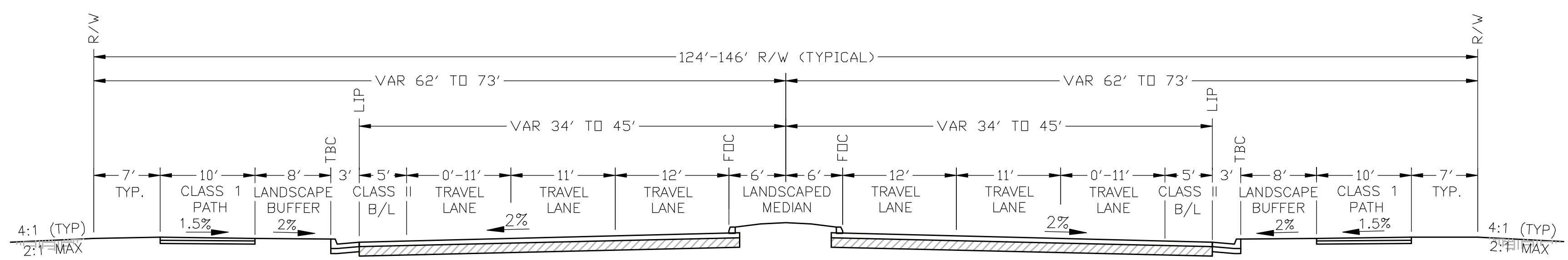
2.5.4 Off-Corridor Multi-Use Path Alternative

Under the Off-Corridor Multi-Use Path Alternative, a basic multi-use path would be constructed within the Connector corridor and an off-corridor trail would be completed in coordination with local park jurisdictions. The Off-Corridor Multi-Use Path would link existing disconnected trail segments in the study area (Figure 2-2b). Segments of a Class I multi-use path off the project corridor would be constructed along Laguna Creek, the Folsom South Canal, and Alder Creek. This path, which would be paved and measure 12 feet wide with 2- to 4-foot-wide graded shoulders, would be constructed between disconnected existing trail segments to create a fully linked system between the southwest and northeast portions of the project area. Figures 2-2a and 2-2b show the alignment of the existing trail system and location of the segments that would be constructed with this alternative. Figure 2-8 shows a typical off-corridor trail section. The off-corridor trail and the more basic, in-corridor path are described in detail below.



THOROUGHFARE

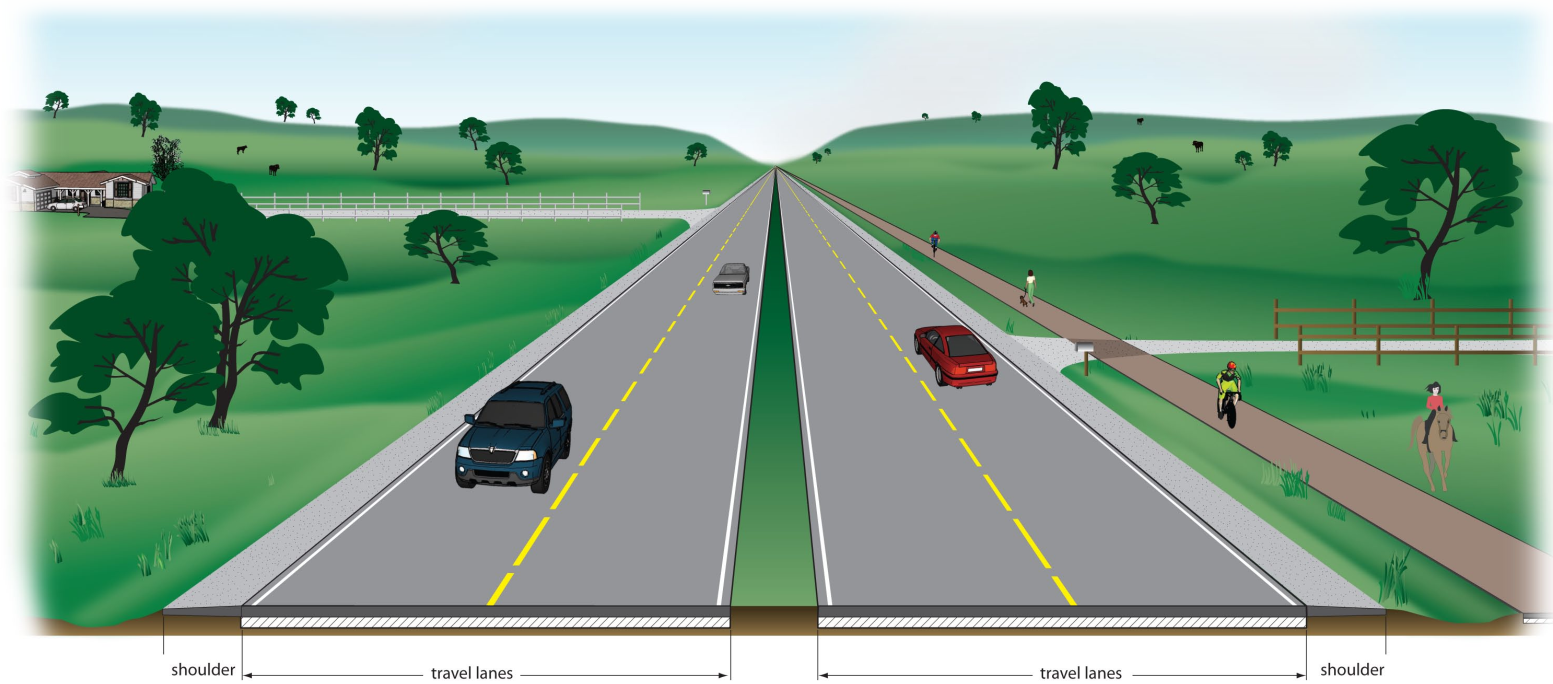
4-6 Lane Facility
Design Speed 50 MPH



Source: PB Americas, Inc and ICF International 2010.

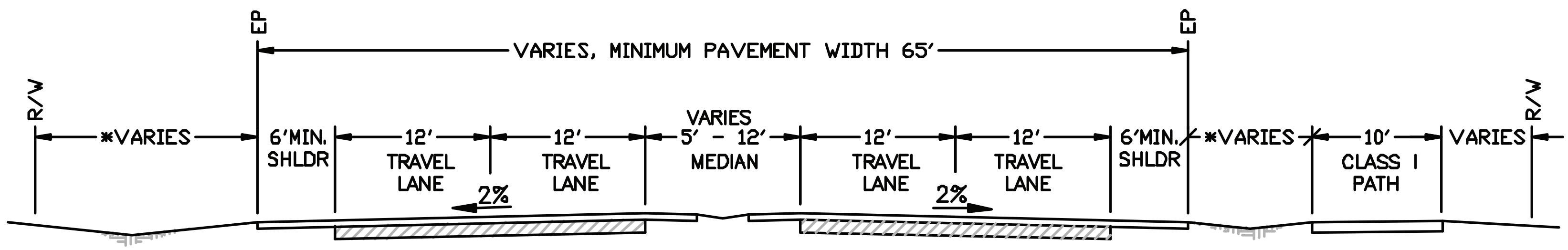
Graphics...00907.08 Project Description (rev. 2-2011) JD

Figure 2-6
Typical Thoroughfare Section



SHELDON AREA ROAD

4 Lane Facility
Design Speed 50 MPH



Source: PB Americas, Inc and ICF International 2010.

Graphics...00907.08 Project Description (rev. 6-2011) JD

Revised Figure 2-7
Sheldon Area Road

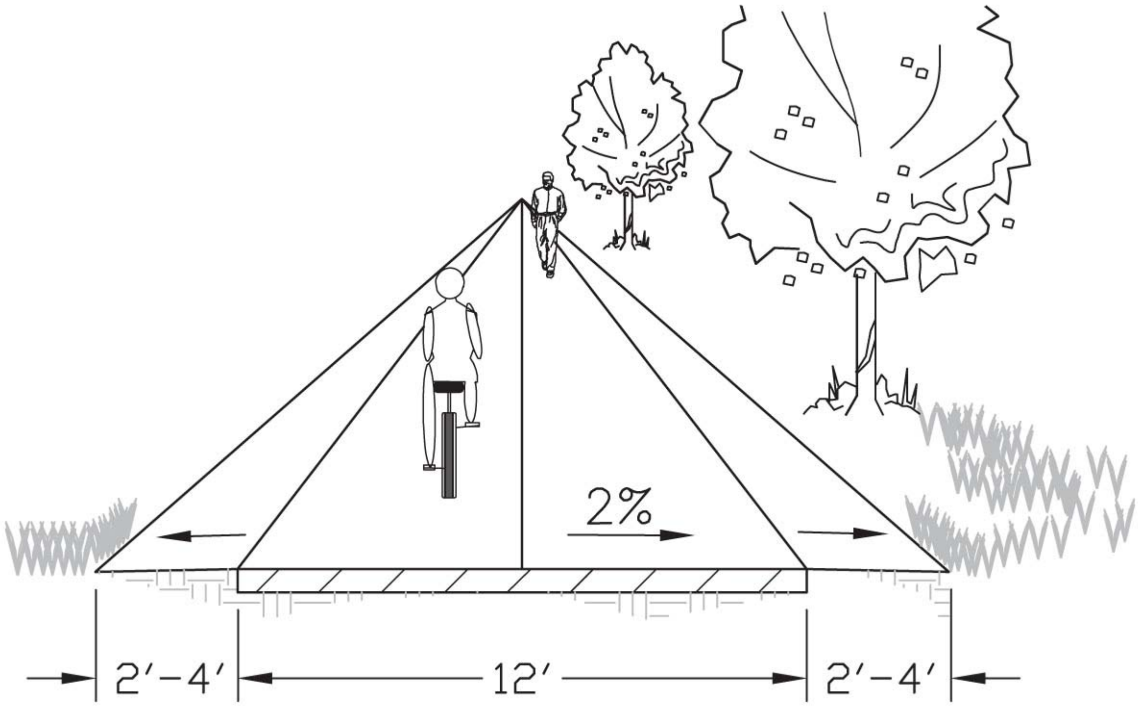


Figure 2-8. Typical Off-Corridor Class I Multi-Use Path Section

Off-Corridor Trail

The Connector would complete the remaining missing segments of the off-corridor path alignment to provide connectivity. The off-corridor path alignment is consistent with the master plans of the local park jurisdictions. Currently, the proposed trail alignment is constructed through dedicated easements, as adjacent land is developed. This path would serve both commuter and recreational bicyclist and pedestrians, providing connectivity to the existing trail system. With this alternative, the Connector would acquire the right-of-way where currently there are no easements, implement the required mitigation, construct the path and then turn over the maintenance and operation of the path to the local trail district.

Where existing development is proposed, the developer would be required to dedicate the right-of-way and make the planned improvements (i.e., Folsom SOI, etc.). The JPA would work with the local jurisdictions and trail districts to determine the critical missing links to establish a phasing plan for the off-corridor alignment. At cross-street locations, grading would be done to accommodate the path underneath the existing structure where feasible. Where there is not adequate vertical or horizontal clearance under the existing structure, signalized cross walks are proposed. Lighting would only be included along the off-corridor trail at intersections with cross-streets as the path hours would be limited to daylight hours as is with the existing portions of the path.

Reduced-Scope In-Corridor Path

With this alternative, the enhanced bicycle/pedestrian facilities within the corridor would be reduced to a Class I multi-use path without the under/overcrossings at the interchange locations along the expressway segments, Class II bike lanes and six-foot-wide sidewalks in the thoroughfare segments, and six-foot-wide paved shoulders in the Sheldon area. Table 2-1 compares the Off-Corridor Multi-Use path components to those of the In-Corridor Multi-Use Path Alternative.

Table 2-1. Comparison of Proposed Project (In-Corridor Enhanced Multi-Use Path) and an Off-Corridor Trail Alternative

	In-Corridor (Proposed Project)— Enhanced Class I Multi Use Path within Corridor	Off-Corridor Alternative— Off-Corridor Trail, Plus Basic Class I Path
Expressway	Undercrossings at interchange locations, landscaping	All crossings with local roadway will be brought to a signalized location
Thoroughfare section	Class I facility separated with an 8-foot landscape buffer, with additional Class II bike lanes in the roadway	Class II facility in the roadway only
Sheldon Area	Class III facility with separated Class I facility	Class III facility (paved shoulders)
Park and Ride Facilities	6 facilities planned	6 facilities planned
Restrooms and bike lockers, interpretive information areas	Yes—in expressway	No—within expressway
Lighting along expressway segments	Decorative	Standard
Lighting—off corridor trail	N/A	At conflict points only
Additional Right-of-way-Expressway	None—within existing roadway width	None—within existing roadway width
Additional Right-of-way-thoroughfare	Additional 8-foot width 7.2 acres	None—within existing roadway width
Right-of-way- off corridor trail	N/A	Assume additional right-of-way is required for 8.15 miles x 50-foot wide, totaling 49.5 acres
Mitigation	Minimal additional mitigation	Much of the trail is through areas that would require mitigation
Estimated Cost	$41,000,000	$35,000,000[a]

[a] The estimate for the Off-Corridor Trail Alternative does not include right-of-way costs, which would be higher for this alternative than the proposed In-Corridor Path. Also, this estimate assumes some portions of the trail to be constructed by others

Expressway

The multi-use path along the expressway portions of the Connector would be a Class I facility, a paved pathway with decomposed granite shoulders. In the interchange areas, the multi-use path would follow the alignment of the off-ramps, up to a signalized intersection with the cross street. Bicycle detection loops would be used at these signalized intersections with the multi-use path, ramp and cross street. Non-decorative safety lighting and minimal landscaping would be included for the portion of the path located within the Connector right-of-way.

Thoroughfare

The thoroughfare section would include a Class II facility within the roadway and a separated sidewalk with a landscape buffer, which is standard for all of the jurisdictions.

Sheldon Area

The Sheldon Area section would include a Class III facility consisting of six-foot-wide paved shoulders to be shared by the bicyclists and pedestrians.

2.5.5 Optional Project Components

Several optional project components are under consideration as alternatives to various segments along the proposed corridor. These “options” provide alternative alignments to the proposed project along Kammerer Road south of Elk Grove and along Grant Line Road through the community of Sheldon. The following optional components are evaluated in this Program EIR.

2.5.5.1 Kammerer Road Bypass Option

The Kammerer Road Bypass Option was developed to avoid residential areas along the existing Kammerer Road and the proposed extension of Kammerer Road. Under this option, the alignment would shift south just west of Franklin Boulevard and connect to the proposed Kammerer Road extension east of the proposed Willard Parkway, and continue to just east of Bruceville Road. At that point, it would shift south, continue east, and connect to the existing Kammerer Road just east of Big Horn Boulevard. The design of the Kammerer Road Bypass would be the same as the proposed Kammerer Road extension: a four-lane expressway west of Bruceville Road and a six-lane thoroughfare east of Bruceville Road with at-grade signalized intersections spaced 1 mile apart. The location of the bypass is shown in Figure 2-2b.

2.5.5.2 Sheldon Community Options

Several options are being evaluated for the portion of the project alignment through Sheldon. These options would realign local street and access points or shift the project alignment off Grant Line Road to avoid the Sheldon area.

Deer Creek Causeway Options

Deer Creek Causeway Options 1 and 2 would construct a mostly elevated, divided, two-lane causeway on concrete piers and bridge slabs, including extended sections of an alternate-direction passing lane to facilitate slower traffic and continuous shoulders on both sides (Figure 2-9). Emergency pullouts would be provided about every 0.25 mile. No access points would be constructed along the causeway except for the proposed connectors to Grant Line Road near each end. Only the paved shoulder along Grant Line Road, not the causeway, would accommodate bicycle and pedestrian access. The causeway would allow traffic on the connector to bypass Grant Line Road south of central Sheldon from approximately the Grant Line Road/Waterman Road intersection to the Grant Line Road/Calvine Road intersection. Two alignments for the causeway have been developed (Figures 2-2a and 2-2b).

Option 1 would divert from Grant Line Road just past its intersection with Waterman Road and would include a Grant Line Road connection at a signalized intersection just southeast of Mosher Road.

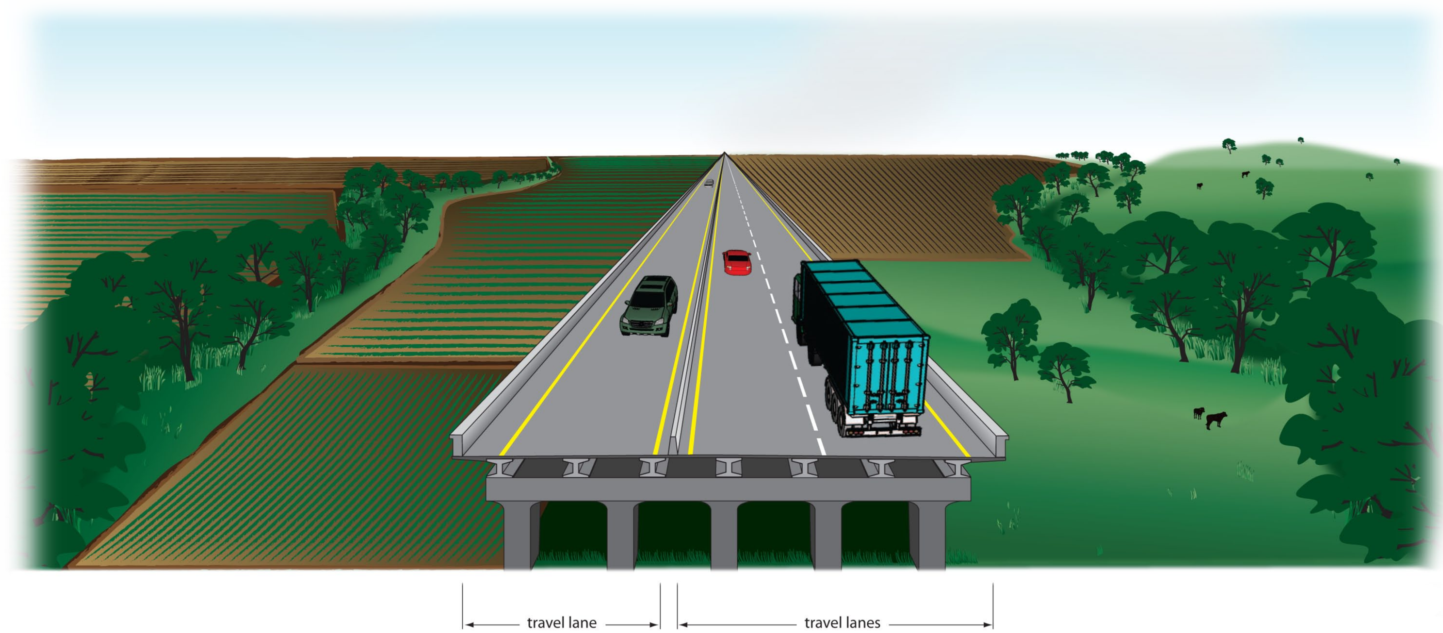
Option 2 would divert from Grant Line Road just south of Bradshaw Road and would include a Grant Line Road connection at a signalized intersection just southeast of Bradshaw Road.

Under both options, the causeway alignment would continue east, cross Deer Creek, head north just past Bradley Ranch Road, and connect to Grant Line Road just northeast of its intersection with Calvine Road. Access along the causeway would be limited to new connections from Grant Line Road near Mosher, Bradshaw, and Calvine Roads.

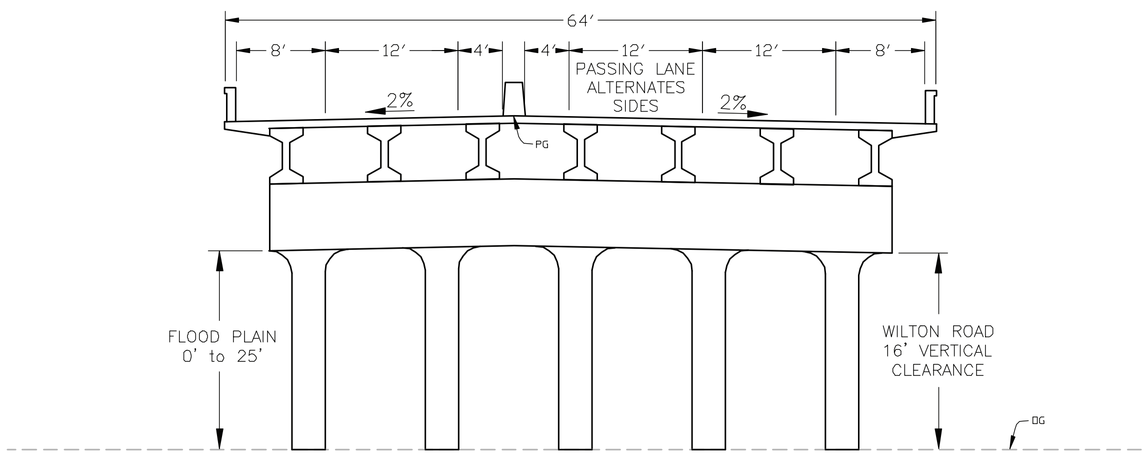
Under both options, the bypassed segment of Grant Line Road through Sheldon would not be incorporated into the proposed project. Any improvements to the bypassed segment would be in accordance with the Elk Grove General Plan as a separate project from the Capital Southeast Connector.

Sheldon Reduced Access Roadway Option (Grant Line Road between Bond Road and Calvine Road)

The proposed project also includes a Reduced Access Roadway (RAR) option through the Sheldon community from Bond Road to Calvine Road (Figure 2-10). This option was developed in response to concerns of local business, agricultural, and residential communities in the vicinity of Sheldon about the potential effects of the Connector on the community character. As part of this effort, the JPA sponsored a community design and planning process to identify additional options for the proposed project along Grant Line Road and summarized the findings in a report entitled *Sheldon Grant Line Road Vision Plan* (Design, Community & Environment 2010). Several preliminary concepts for the Sheldon Reduced Access Roadway Option were identified in the report. Following the initial development of these concepts, members of the Sheldon Community Working Group (CWG) expressed continued concern about the reduced access options and their effects on the community.



ELEVATED STRUCTURE
3 Lane Facility
Design Speed 65 MPH



Source: PB Americas, Inc and ICF International 2011.

Graphics...00907.08 Project Description (rev. 3-2011).JD

Figure 2-9
Typical Elevated Structure

Source: Design, Community & Environment 2010

Figure 2-10. Sheldon Reduced Access Roadway Option Study Area

In response to concerns expressed by the community, Elk Grove, the CWG, and the Connector JPA collaborated to formulate basic criteria to develop a range of access controls for options along this segment of Grant Line Road. Based on those discussions, design and performance criteria were identified for a Reduced Access Roadway option that represents a range of access control that can meet the objectives of the Connector and address community concerns. These criteria are described below. This Program EIR does not preclude other design options (such as an off-Grant Line Road trail system) through the Sheldon area. A precise design for an acceptable access-control option for the Connector along Grant Line Road through the Sheldon area will require additional project-level design and further community involvement and thus will not be prepared until subsequent project-level design and environmental review are completed in the segment of the Connector. Table 2-2 provides a summary of the proposed design and performance criteria for the access options on Grant Line Road through Sheldon.

Table 2-2. Summary of Access Options on Grant Line Road in Sheldon Area

Components	High Access Roadway	Reduced Access Roadway
Design Components		
Driveways and local road connections to Grant Line Rd	All (or nearly all) of existing connections remain (right turn in/out)	Reduce the number of connections to improve safety and operations. The number of driveways and local roads that would be combined or eliminated (with access provided via alternative connections) would be determined in a project-specific environmental review. A large reduction is very desirable for safety. The remaining unsignalized access points will be right turn in/out.
Nearest connection upstream from signalized intersection	No restriction assumed on existing connections	Restricted within 750 feet (would eliminate some existing connections)
Right turn in/out access at driveways and local roads	No special treatment	Lanes for acceleration & deceleration, typically for groups of driveways
Median	Non-traversable between signalized intersections	Non-traversable between signalized intersections
Left turns out of access points	Only at signalized intersections	Only at signalized intersections
Left turns into access points	Restricted	Limited to signalized intersections and one location in each direction between Calvine Rd and Sheldon Rd (with signalization)[a]
Through-lanes	4	4
Left turn lanes	Double left turn lanes at Wilton Rd and Sheldon Rd and single left turn lanes at other intersections	Double left turn lanes at Wilton Rd and Sheldon Rd and single left turn lanes at other intersections
Minimum Signal Spacing	600 feet	Arterials plus Aleilani Lane
Signalized Intersections (all movements allowed)	7 Total: Bond Road Sieker Court Wilton Road Aleilani Lane Sherman Oaks Ct Sheldon Road Calvine Road	5 Total: Bond Road Wilton Road Aleilani Lane Sheldon Road Calvine Road
Performance Components		
Level of Service	LOS F will result in commercial area	LOS D will result in commercial area (LOS C achieved w/o signal at Aleilani Lane)
Safety (estimated crash rate per million vehicle-miles)	> 5	Depends on number of unsignalized access points and design features: • Moderate access reduction: 3 to 5 • Eliminate most access points: < 2

Components	High Access Roadway	Reduced Access Roadway
2035 Traffic Volume:		
Calvine Rd to Sheldon Rd	31,000	31,000 to 31,600
Sheldon Rd to Wilton Rd	38,900	39,000 to 40,000
Wilton Rd to Bond Rd	34,000	35,000 to 36,400

[a] Signal warrants would not be met, so limited to one location to reduce out-of-direction travel. Locations should be at least 0.5 mile from signalized intersections

Design Criteria

1. A minimum of four through-lanes will extend through this segment of Grant Line Road with additional turn lanes at signalized intersections to provide the minimum acceptable LOS (see "Performance Criteria" below). Additional turn lanes would include double left-turn lanes or right-turn lanes at some intersections. Figure 2-7 depicts a typical cross section for one design of the Connector alignment through the Sheldon area. The Program EIR does not preclude other design options (Such as an off-Grant Line road trail system) through the Sheldon area.
2. Through-lanes will be 12 feet wide. Right- and left-turn lanes could be 10 or 11 feet wide. Bikes, pedestrians and equestrians will be accommodated consistent with the design parameters of the Connector's Integrated Modes Policy. Drainage will be accommodated underground or immediately adjacent to the shoulder in roadside swales. Curb and gutter will be strongly discouraged.
3. Left-turn movements out of access points along Grant Line Road would be restricted to signalized intersections. Left-turn movements into access points along Grant Line Road would be allowed at signalized intersections (see Criteria 4 below) as well as one additional location in each direction (to be determined) between Sheldon Road and Calvine Road to also facilitate U-turns. These additional left-turn lanes on Grant Line Road should be located at least 0.5 mile from other signalized intersections. Intersection designs will allow adequate turning radii for large farm vehicles and trailers.
4. Up to five signalized intersections would be allowed in this segment (including the existing signalized intersections at Bond Road, Wilton Road, and Calvine Road). Minimum spacing between signals should be 0.25 mile (1,300 feet) to allow for adequate signal progression and vehicle queuing/storage capacity. Allowing signal spacing of less than 0.25 mile will only be allowed if it can provide an acceptable LOS (see "Performance Criteria" below) and not result in excessive queuing or safety issues. The Sheldon Community has requested a signalized intersection on Grant Line Road at Aleilani Lane (less than 800 feet from the signal at Wilton Road) to provide additional access to the existing commercial area. A signal could be installed at this location and result in an acceptable LOS if no additional signals are installed between Wilton Road and Sheldon Road. To accommodate this additional signal, however, driveway access to Grant Line Road should be restricted between Wilton Road and Aleilani Lane and replaced with internal circulation between the adjacent commercial properties and driveways, which should be designed to provide access to multiple adjacent properties.
5. The number of driveways and local roadways connecting to Grant Line Road will be reduced and design features will be required at the remaining unsignalized access points to provide an adequate level of safety. The design guidelines and features for unsignalized access points along Grant Line Road in the Sheldon area will include the following :

a. Access points will be restricted within 750 feet upstream from a signalized intersection to allow adequate distance for vehicles to weave across lanes to reach a left turn lane. Access points within that area will be evaluated to determine if they can be provided by alternative means.

b. Design features and access treatments will be focused on “groups” of the remaining driveways/local roadways with the intent to significantly reduce the number of right-turn in/out access points, ensure adequate access spacing and provide separate lanes for acceleration and deceleration

6. The minimum design speed will be 50 mph (posted speed 45 mph) for through traffic.

Performance Criteria

1. A minimum LOS D will be maintained at all signalized intersections and segments between signals along Grant Line Road based on delay estimates from a traffic simulation model that considers all design and operational issues including coordination with adjacent traffic signals.

Sheldon High Access Roadway Option

Under the Sheldon High Access Roadway Option, Grant Line Road would be widened from four to six lanes consistent with the Elk Grove General Plan**,** and access would be maintained to driveways and local roadways on the segment through Sheldon, from Bond Road to Calvine Road. With 2035 traffic volume forecasts to exceed 30,000 daily vehicles on Grant Line Road through the Sheldon area, left-turn access would only be allowed at signalized intersections for safety reasons. Under the Sheldon High Access Roadway Option, in addition to roadway widening, any unsignalized locations would be restricted to right turns, which would cause a substantial increase in U-turns at signalized intersections. Up to seven traffic signals would likely need to be installed over the 2.7 miles from Bond Road to Calvine on Grant Line Road because of high traffic volumes or to connect commercial properties to Grant Line Road and allow left-turn access (Table 2-1).

2.6 Sustainable Design Elements

The Capital SouthEast Connector project offers a unique opportunity to implement sustainable design and context-sensitive solutions and represents a new generation of roadway project that can support the need for overall corridor planning while advancing smart growth/livable principles, protecting the area’s open space, and protecting established communities in a context-sensitive framework.

Sustainable design elements will be incorporated into the Connector’s functional guidelines and project-level design to minimize the long-term effects of the project beyond environmental requirements and mitigation and to address potential existing deficiencies. Sustainable design would include a wide range of elements, including the design of the facility, use of sustainable materials, and a commitment to sustainable practices during construction.

This section provides an overview of the sustainable practices available in roadway planning and how they can be applied to the Connector. Specific design elements can be selected as project design proceeds. These efforts ensure that the roadway is designed with the highest level of community and stakeholder involvement and inclusion of construction and design measures.

Sustainability features (either through design commitments or construction practices) could be incorporated into the design and operation of the project and are compatible with the Connector's Functional Guidelines addressing the design for the roadway, access, profile, design aesthetics, materials and maintenance.

Table 2-3 lists the performance metrics used in scoring the Connector's overall sustainability and the potential measures that can be included. In developing the range of possible sustainable design elements, numerous guides were consulted, including the Greenroads Manual (Muench, S.T., Anderson, J.L., Hatfield, J.P., Koester, J.R., & Söderlund, M. et al. 2010), the *Illinois Livable and Sustainable Transportation (I-LAST) Rating System and Guide* (Illinois Department of Transportation et al. 2010) and *Integrating Context-Sensitive Solutions into Transportation Practice* (ICF International 2009).

Table 2-3. Greenroads Project Scoring Criteria

Performance Metric	Potential Measures to include in Connector
Environmental review process	• Complete CEQA program level environmental review ; subsequent reviews for project-level design
Life Cycle Cost analysis	• Complete a life-cycle cost analysis for project-level design
Life Cycle Inventory	• Use materials from sources that are rapidly renewable when possible • Select materials that do not require high levels of energy or carbon release in their manufacture and that are durable • Design structure for long lifetime • Use paints, solvents and other materials that generate less volatile organic compounds over their lifetime
Quality Control Plan	• Prepare and implement quality control plan through design and construction
Noise Mitigation Plan	• Use quiet pavement • Use berms and green areas as noise barriers, in preference to noise walls
Waste Management Plan	• Develop construction waste management plan and establish target for diversion from landfill
Pollution Prevention Plan	• Improve water quality and/or nearby habitat through improvements to stormwater systems that are currently undersized or inadequate, stormwater crediting strategies, stream restoration, additional wetland protection, and inclusion of permanent stormwater management practices
Low-Impact Development	• Limit footprint and Create a vegetated berm/buffer or other light shield between the roadway and wildlife habitat • Restrict lighting in areas where it could impact wildlife - design to minimize light spill
Site Maintenance Plan	• Use environmentally-sensitive approaches to pest/vegetation management that minimize the use of pesticides and herbicides • Apply green construction practices to maintenance • Establish Best Management Practices (BMPs) for highway maintenance activities • Prepare response plan for handling spills/accidents and strengthen plan as experience dictates
Educational Outreach	• Engage stakeholders and develop stakeholders plan • Hold community meetings regularly
Environmental Management System	• Monitor environmental commitments via monitoring and reporting plan

Performance Metric	Potential Measures to include in Connector
Runoff Flow Control	• Minimize impervious surfaces where practical and retain stormwater runoff on facility and use pervious pavement for road shoulders • Create raingarden depression areas to 4”-6” depth around drain inlets to create 24-72 hour ponded conditions for wildlife water source after rains. Create appropriate high percolation soil mix in this area so that it will store and drain into surrounding soil. • Map natural flow of water during project design and, through project design, minimize disruption to natural drainage patterns where feasible
Runoff Quality	• Restore and stabilize soil (soil amendments) after construction in order to increase infiltration and subsurface storage • Create planted bioswales along the roadways that have high percolation soil mix and native plant species. Design the storm drainage system such that stormwater is directed to vegetated swales wherever space allows. Make sure all storm drainage has a chance to be filtered prior to entering storm drainage system. • Design the storm drainage system such that runoff from all paved areas is collected in a storm sewer system, which incorporates features to remove oils and sediment from the runoff. Stormceptors remove pollutants and protect the natural resources of creeks and wetlands.
Site Vegetation	• Landscape with drought-resistant, native or adaptive plants and install high-efficiency irrigation systems to minimize water demand from landscaping • Use landscape species appropriate to various ecosystems, microclimate, riparian corridors across the site
Habitat Restoration	• Locate construction storage and staging areas outside of habitat, wetland, and riparian areas • Avoid oak woodlands, wetlands, and riparian areas through project design whenever possible • Restore and improve habitat, including wetlands, affected by the project • Remove invasive weed species • Comprehensively survey the corridor early in the design process to identify habitats, wetland areas, riparian areas, and potential effects to special status species, then use that information to design the project so that it minimizes effects on those habitats, areas, and species.
Ecological Connectivity	• Provide wildlife crossings (e.g., bridges, culverts, eco-ducts) and erect barriers to protect wildlife as needed • Minimize through project design the disruption of wildlife corridors and isolation/fragmentation of habitat • Where the facility crosses streams or where existing culverts inhibit stream function, restore the stream crossings to ecological function
Light Pollution	• Use highly directional roadway lighting and full cutoff fixtures to reduce light pollution • Restrict lighting in areas where it could impact biodiversity • Shield upwards-facing light fixtures for dark-sky benefits and utilize 100% of lumens for roadway illumination • Use lowest acceptable level of lighting and provide light/glare shields
Intelligent Transportation Systems	• Install coordinated traffic system • Include transit vehicle priority

Performance Metric	Potential Measures to include in Connector
Context-Sensitive Solutions	• Provide for extensive community involvement during the planning and design phases of the project • Incorporate local or natural materials for substantial visual elements (e.g., bridge fascia, retaining walls) • Landscape with native species common to the area • Minimize the economic impacts on communities along the corridor by minimizing the necessary take of homes and businesses • Provide grade separated crossings in order to maintain the rural ambience of some areas of the corridor • Strictly limit the number of access points to the roadway and maximize the distance between interchanges • Focus primary access to the end points of the corridor. Design additional access where there is existing or planned development (as shown on the appropriate local General Plan), but avoid placing access where it would induce unplanned growth in the vicinity.
Traffic Emissions Reduction	• Design the facility to maximize continuous traffic flow • Install plantings to minimize the potential for dust from disturbed areas and aid in sequestering carbon • Consider the potential for carbon capture when selecting landscape species ; an analysis of carbon sequestration associated with landscaping in the project area shows that planting 1,000 acres of evergreen trees is equivalent to removing 77,900 cars over a 45-year period of maximum growth
Pedestrian Access	• Provide pedestrian and bicycle facilities as part of the facility, including grade-separated crossings and provisions for access to transit stops • Improve intersection design for bicycles and pedestrians
Bicycle Access	• Utilize buffers for the location of bicycle facilities when efficient for bicycle transit • Provide bikeways conducive to long-distance commuting • Improve intersection design for bicycles and pedestrians • Provide grade-separated (bridges/underpasses) at intersections • Facilitate development of multi-use paths along corridor
Transit and HOV Access	• Design the facility to accommodate use of BRT/HOV lanes • Design the facility to incorporate public transit along the corridor, including provisions for improved stops and access to stops from outside the corridor • Provide Park-and-Ride lots with bike accommodations and shading
Scenic Views	• Use green (planted) coverings for retaining walls and exposed surfaces • Maintain low growing vegetation or line up trees to retain desirable views • Minimize the use of land necessary for the corridor by minimizing the width of the developed area • Keep excavated rock and boulders on-site for decorative use in the right-of-way • Provide landscaped open space buffers along the corridor to screen it from adjoining land uses • Plant native large canopy shade trees where possible to block the sun and shade the right-of-way where possible to increase safety, reduce sunshine slow-down traffic and provide shade relief for the right-of-way ground cover
Cultural Outreach	• Coordinate activities with Native American Heritage Commission, local historical societies, and museums • Avoid designing facilities in known areas of high archeological or historic value
Environmental Training	• Incorporate on-site construction environmental awareness training
Site Recycling Plan	• Maximize use of recycled content (such as slag, fly ash, foundry sand, concrete/asphalt waste, glass cullet, scrap tires, plastic, etc.) in construction materials (fill, sub-base, drainage, concrete aggregate, etc.)

Performance Metric	Potential Measures to include in Connector
Equipment Emission Reduction	• Purchase green tags (renewable energy certificates) to offset carbon emissions associated with electricity use
Paving Emission Reduction	• Purchase green tags (renewable energy certificates) to offset carbon emissions associated with electricity use
Pavement Reuse	• Specify asphalt pavement mixes containing Recycled Asphalt Pavement (RAP) • Specify PCC pavement mixes containing Recycled Concrete Aggregate (RCA)
Earthwork Balance	• Specify that 75% or more of topsoil removed for grading is reused on site • Reuse excess fill (spoil) within the project corridor to minimize project site material in and material out
Recycled Materials	• Shred / chip non-invasive vegetation that is removed as part of construction and use on site for mulch • Recycle chipped untreated wood waste for use as mulch and/or ground cover
Regional Materials	• Arrange for the reuse of excess excavated material, asphalt pavement millings, or demolished concrete, by another municipality or state agency • Use a high percentage of California native plants where possible, including plants that are native to the area • Use regionally sourced materials to minimize energy use associated with transportation
Energy Efficiency	• Use high efficiency fixtures for roadway lighting, such as LEDs or high-output fluorescents to reduce energy demand
Warm-mix Asphalt	• Use of hot-in-place recycling of hot mix asphalt
Cool Pavement	• Use cool pavement and reflective materials to reduce heat island effect
Alternative Energy	• Use solar panels integrated into berms, light posts, sound barriers, and other constructed elements to power lighting

2.7 Proposed Project Construction

2.7.1 Phasing

The 35-mile-long Connector would be constructed as a series of shorter project segments over several years based on funding constraints and timing of needed improvements (the amount and rate of new development in the project corridor would vary substantially). No specific phasing plan has been identified for implementing the proposed project. Following completion of the Program EIR and adoption of the project corridor, the JPA or individual jurisdictions could move forward with project-level design and environmental review to implement specific project components. For purposes of this Program EIR, construction is assumed to begin in 2015 and to be complete by 2025. Initial phasing discussions for the Connector have identified three main phases of construction:

- **Near-Term Connector Improvements (2 to 5 Years).** Near-term improvements could take place where design and planning has advanced or where funding is expected to become available sooner. Improvements on the Connector alignment in the eastern portion of the Connector, from Kiefer Boulevard to the eastern project terminus at US 50 and Silva Valley Parkway, including widening of Grant Line Road and widening and re-alignment of White Rock Road between Sunrise Boulevard and El Dorado Hills have been identified as priority near-term improvements by local jurisdictions, regional agencies, and private developers, including construction of a new US 50 interchange at Silva Valley Parkway. These improvements would relieve existing congestion on the roadway and divert traffic from congested segments of US 50.

- **Mid-Term Connector Improvements (5 to 10 Years).** Improvements could be made on Grant Line Road between Sunrise Boulevard and Kiefer Boulevard and an extension of Kammerer Road from I-5 to Hood-Franklin Road could be completed within a 5-10 year timeframe.
- **Long-Term Connector Improvements (10 to 15 Years).** Improvements to the central segment of the Connector will require extensive coordination and planning and are expected to happen between 10 to 15 years; as such the improvements along Grant Line Road between Bradshaw Road and Sunrise Boulevard would likely occur in the long-term.

2.7.2 Disturbance Corridor

The analysis of the proposed project's impacts in this Program EIR assumes that the area of direct disturbance from construction and operation of all the project components, including road improvements and widening, intersection and interchange construction, transit accommodation, and in-corridor bike and pedestrian facilities, would be confined to a 400-foot-wide corridor along the Connector segments. In some areas where grade-separated interchanges (e.g., tight diamond interchanges as shown in Figure 2-4) would be constructed, a slightly wider area (550-foot-wide) could be needed. However, the use of retaining walls could reduce the footprint of grade-separated interchanges. The area of direct disturbance from construction and operation of the Off-Corridor Multi-use Path Option would be confined to a 50-foot-wide corridor, and all resources within that corridor would be affected.

These corridors will accommodate all project components and provide sufficient space for construction access, equipment storage, and laydown areas. Because the project design is at a program level, it is not known precisely where project impacts would occur within these corridors. Therefore, to provide a consistent, comprehensive analysis of potential impacts of the proposed project (including options and alternatives), all resources located within these corridors were assumed to be affected. During future environmental review, when project-level design has been developed to a level sufficient to permit a project-level environmental analysis, the impacts from the proposed project will be reviewed and updated. They are likely to be less than assumed for the program-level analysis.

2.8 Project Costs

The preliminary estimated project construction costs, in 2010 dollars, are summarized in Table 2-4. These estimates do not include right of way costs, mitigation, engineering or escalation.

Table 2-4. Preliminary Cost Estimate Summary

Option	Construction Cost Subtotal	Mobilization (10%)	Construction Contingencies (25%)	Total Construction Cost Estimate
Proposed Project with Deer Creek Causeway Option 1	$594,900,000	$66,100,000	$165,300,000	$826,300,000
Proposed Project with Deer Creek Causeway Option 2	$562,500,000	$62,500,000	$156,300,000	$781,300,000
Proposed Project with Sheldon Reduced Access Roadway Range	$386,100,000–$388,600,000	$42,900,000–$43,200,000	$107,200,000–$108,000,000	$536,200,000–$539,800,000
Proposed project with Sheldon High Access Roadway	$384,200,000	$42,700,000	$106,700,000	$533,600,000

Note: Construction Cost Estimates are in current dollars and have not been escalated.

Chapter 3
Aesthetics

3.1 Introduction

This chapter describes the existing visual environment of the project corridor; the project's consistency with relevant regulations and policies; potential visual impacts associated with the proposed project and optional project components; and mitigation measures to reduce significant visual impacts where necessary.

3.2 Environmental Setting

3.2.1 Existing Conditions

3.2.1.1 Terminology

Visual Character

The visual character of an area is usually defined by identifying its landscape components (e.g., water, vegetation, and human development) that form distinct visual units (areas). These units are further identified by their pattern elements (form, line, color, texture) and pattern character (dominance, scale, diversity, continuity). Any change in visual character cannot be described as positive or negative until the viewer's response to the change is taken into account. For example, if the public prefers the established visual character of an area's landscape, any change that would affect the character of that landscape can be evaluated as negative.

Visual Quality

Because the proposed project includes the construction of roadway thoroughfares and expressways, the Federal Highway Administration's (FHWA's) *Visual Impact Assessment for Highway Projects* (1981) was used to determine the visual quality of the aesthetics study area. The FHWA uses three criteria to measure visual quality—vividness, intactness, and unity—which are defined as follows:

- **Vividness:** The visual power or memorability of landscape components as they combine in distinctive visual patterns.
- **Intactness:** The visual integrity of the natural and human-built landscape and its freedom from encroaching elements. It can be present in well-kept urban and rural landscapes, as well as in natural settings.
- **Unity:** The visual coherence and compositional harmony of the landscape considered as a whole. It frequently attests to the careful design of individual components in the landscape.

Vividness is assessed using landform and landcover. Landform vividness is frequently determined by the pattern elements of form or line, such as the strongly defined skyline of a mountain landscape. Landcover consists of water, surface geology, vegetation, and human development. Areas with high vividness, for example, often contain water, which creates a vivid landscape component as a result of linear visual effects (e.g., a shoreline or the sharp edge of a waterfall) and color.

Intactness can be assessed in terms of the quality of the natural visual appearance of an area. Low intactness occurs when an unsightly human-made element ("eyesore") encroaches into an undisturbed natural area. High intactness is attributable to the natural visual order of an untouched landscape, such as a protected natural open space or park land.

Unity is generally used as a measure of how human and natural elements work together within the same visual unit. Human-made environments with no visual relation to natural landform or landcover patterns are usually considered to lack visual unity.

Landscape Units

The FHWA guidance defines the affected environment in terms of landscape units, which can be thought of as outdoor rooms. Landscape units are defined as an area of distinct landscape character, which forms a spatially enclosed unit at ground level. A landscape unit may include more than one landscape component.

3.2.1.2 Scoring System

For this analysis, the existing visual quality of each landscape unit was determined by using a numeric rating. Vividness, intactness, and unity were rated on a scale from 1 to 7. Table 3-1 defines this scoring system. The vividness, intactness, and unity scores were averaged and rounded to the nearest whole number to determine the overall visual quality score for each landscape unit. An area is considered to have high visual quality if it is rated high for all three criteria.

Table 3-1. Visual Quality Scoring System

Score	Definition
1	Very low
2	Low
3	Moderately low
4	Moderate
5	Moderately high
6	High
7	Very high

3.2.1.3 Regional Visual Quality and Character

The aesthetics study area is an approximately 35-mile-long corridor generally bound by I-5 on the west, the Cosumnes River on the south, Grant Line and White Rock Roads on the east, and US 50 on the north (Figure 3-1). Within Sacramento County, the corridor passes through the Franklin-Laguna and Cosumnes communities, the cities of Elk Grove Rancho Cordova, Folsom, and the community of Sheldon. Within El Dorado County, the corridor passes through the community of El Dorado Hills.

The natural landscape of the aesthetics study area has been modified by human-made elements including agriculture, residential and commercial development, transportation facilities (roads, rail, and highways), and mining activities, which has resulted in a diverse visual quality and character.

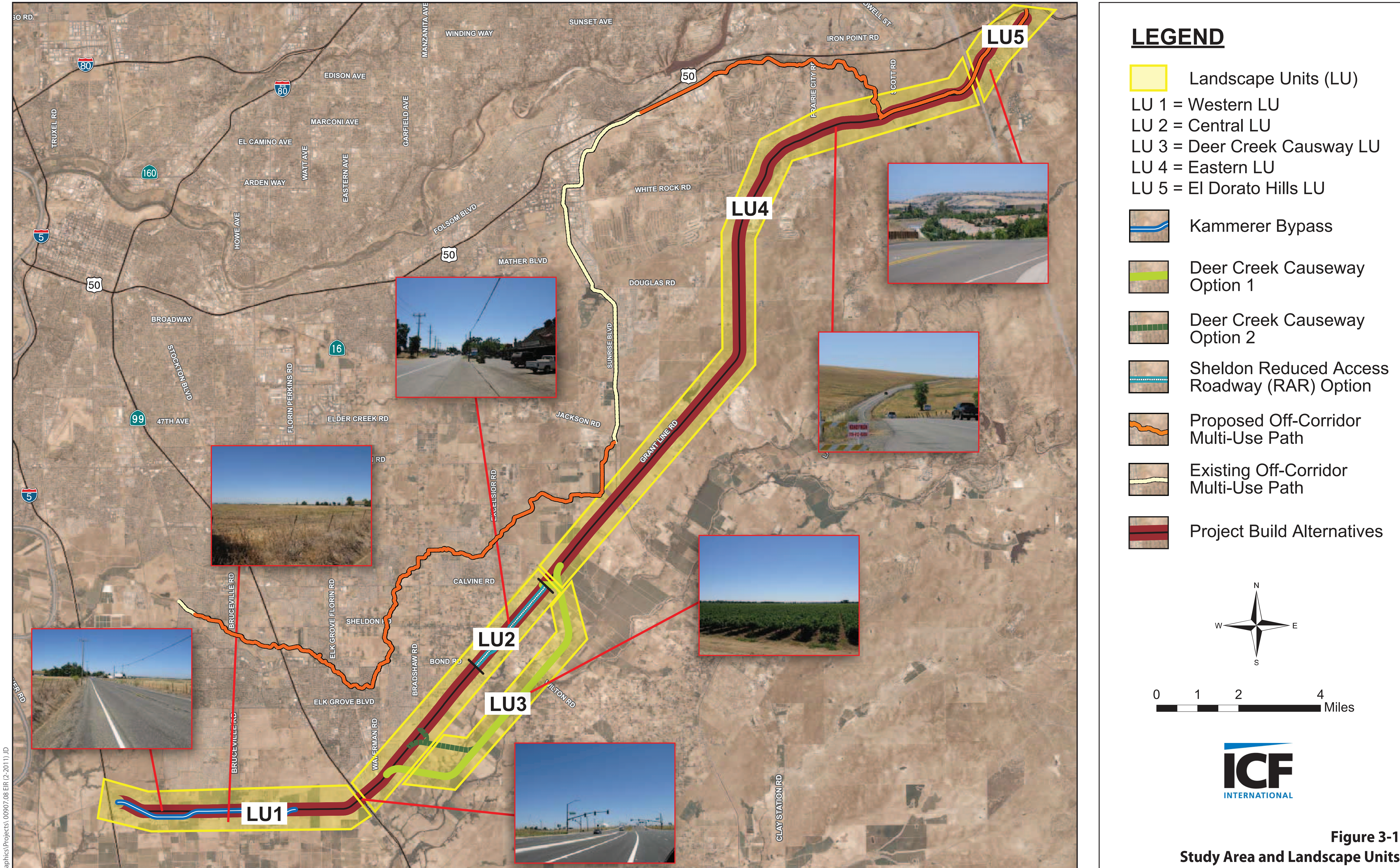


Figure 3-1
Study Area and Landscape Units

The aesthetics study area largely consists of flat agricultural lands of the Sacramento Valley, with interspersed development and transportation corridors (rail and highways/roads). The eastern end of the aesthetics study area transitions to rolling hills of the Sierra Nevada foothills, with interspersed development and transportation corridors.

The topography of the aesthetics study area varies from flat land to gently rolling hills, with elevations ranging from approximately 50 feet near the Cosumnes River to nearly 600 feet in northeastern El Dorado Hills. From some locations within the aesthetics study area, the distant Sierra Nevada, Mount Diablo, and Inner Coast Ranges are visible. Deer Creek, a tributary of the Cosumnes River, traverses the aesthetics study area in an east–west direction. Riparian vegetation and marshland habitat are present along the banks of this creek.

Urban forms within the aesthetics study area are highly variable. Although much of the aesthetics study area is rural, with agricultural uses and residential development, the northern portions exhibit more dense urbanized development associated with the fringes of Sacramento, Rancho Cordova, and other populated urban centers.

Existing roadways in the aesthetics study area are predominately rural in character (two-lane roadways); however, I-5, SR 99, and US 50 are major freeways that serve the Sacramento region. Because most vehicular movement occurs along transportation corridors, their placement largely determines what parts of the project corridor will be seen. Even for people not using the transportation system at a particular time, or who never use certain modes of travel, transportation systems are a dominant element of the visual environment.

3.2.1.4 Landscape Units in the Aesthetics Study Area

As shown in Figure 3-1, the aesthetics study area has been divided into five landscape units, each with its own distinct character and quality:

- **Western Landscape Unit:** The Western Landscape Unit extends from I-5 to SR 99, following the project corridor along Hood Franklin, Kammerer, and Grant Line Roads. This area includes the Kammerer Road Bypass Option.
- **Central Landscape Unit**: The Central Landscape Unit includes the central portion of Sheldon along Grant Line Road, and extends from SR 99 to the Grant Line Road/Calvine Road intersection. This area includes the Reduced Access Roadway Option.
- **Deer Creek Causeway Landscape Unit:** The Deer Creek Causeway Landscape Unit extends approximately 1.5 miles south of central Sheldon, from the Waterman Road/Grant Line Road intersection to the Mosher Road/Grant Line Road intersection. This area includes Deer Creek Causeway Options 1 and 2.
- **Eastern Landscape Unit**: The Eastern Landscape Unit follows Grant Line Road from Sunrise Boulevard to the Sacramento County/El Dorado County line.
- **El Dorado Hills Landscape Unit:** The El Dorado Hills Landscape Unit follows Grant Line and White Rock Roads, encompassing the portion of the aesthetics study area within El Dorado County, and ends at the US 50/Silva Valley Parkway interchange.

Table 3-2 indicates the existing ratings for the five landscape units in relation to the FHWA's three visual quality criteria, then indicates their overall visual quality.

Table 3-2. Existing Visual Quality in the Aesthetics Study Area

Landscape Unit	FHWA Criteria						Visual Quality (Average Scores)	
	Vividness		Intactness		Unity			
	Score	Definition	Score	Definition	Score	Definition	Score	Definition
Western	4	Moderate	3	Moderately low	3	Moderately low	3	Moderately low
Central	2	Low	2	Low	4	Moderate	3	Moderately low
Deer Creek Causeway	6	High	6	High	6	High	6	High
Eastern	4	Moderate	5	Moderately high	5	Moderately high	5	Moderately high
El Dorado Hills	4	Moderate	4	Moderate	4	Moderate	4	Moderate

As shown in Table 3-2, the aesthetics study area is made up of landscape units with a wide range of visual quality scores (low to high). With the exception of the Deer Creek Causeway Landscape Unit, there are no areas of high visual quality. More-detailed discussions of these landscape units are provided below.

Western Landscape Unit (Landscape Unit 1)

The visual character of the Western Landscape Unit is defined by flat agricultural fields, row crops, and scattered residential development. Within this unit, Hood Franklin Road runs in an east–west direction between I-5 and Franklin Boulevard. Kammerer Road also runs east–west between Bruceville Road and SR 99. Both Hood Franklin and Kammerer Roads are two-lane roadways without shoulders. There is currently no direct east–west connection between Hood Franklin and Kammerer Roads. The area directly between the I-5/Hood Franklin Road and SR 99/Grant Line Road interchanges consist of agricultural fields, and there are no pedestrian or bicycle facilities along the roadways within this unit.

There are scattered single-family homes and agricultural structures (i.e., barns and associated outbuildings) along the local roadways in this area. Overhead transmission lines run through the agricultural fields, and along and across many roads. Commercial and industrial development exists at the SR 99/Grant Line Road interchange.

The rural nature of this landscape creates a moderate level of vividness. Although most of this landscape unit appears intact and unified in its agricultural character, the random pattern of residential development along the roadways and the encroachment of commercial/industrial uses in the eastern portion detract from its intactness and unity. Overall, the visual quality of the Western Landscape Unit is moderately low.

Central Landscape Unit (Landscape Unit 2)

This unit represents a mix of urban agricultural uses and rural residential and commercial development primarily centered along Grant Line Road between SR 99 and Sheldon. The western end of this unit is urbanized. Grant Line Road is a two-lane rural roadway with paved shoulders in areas that include commercial land uses. There are no pedestrian or bicycle facilities along Grant Line Road.

Sheldon has a distinct visual character composed of residential and commercial land uses lining Grant Line Road. Residences are well maintained, with many grass lawns, trees, and landscaping providing a setback from the roadway to the one- to three-story homes along Grant Line Road. Commercial development is centered around the Grant Line Road/Wilton Road intersection. The buildings vary in age and architecture, but present a uniquely unified aesthetic common to rural communities.

The uniqueness of Sheldon contributes to a moderate level of unity in this landscape unit. However, the random pattern of commercial and residential development creates a lower level of vividness and intactness. Overall, the visual quality of the Central Landscape Unit is moderately low.

Deer Creek Causeway Landscape Unit (Landscape Unit 3)

The visual character of the Deer Creek Causeway Landscape Unit is defined by flat agricultural fields, row crops, and vineyards. Unlike other areas along the project corridor, this unit does not follow an existing roadway, although Wilton Road does cross in a north–south direction. Wilton Road is a two-lane rural roadway with no shoulders or pedestrian or bicycle facilities.

Few human-made structures are found in the Deer Creek Causeway Landscape Unit, except a historic grist mill site. Deer Creek, a tributary of the Cosumnes River, traverses this landscape unit in an east–west direction. Riparian vegetation and marshland habitat are present along the banks of the creek.

Because of its rural, agricultural, and natural characteristics and because there are few human-made structures, this unit exhibits high levels of unity, intactness, and vividness. Overall, the visual quality of the Deer Creek Causeway Landscape Unit is high.

Eastern Landscape Unit (Landscape Unite 4)

The Eastern Landscape Unit has a rural character defined by rolling hills of grasslands. Although Grant Line Road cuts through the unit, its rural character (two-lane roadway) detracts little from the visual intactness and unity of the area. Small segments of the road contain paved shoulders. However, there are no pedestrian or bicycle facilities.

This landscape unit includes portions of Prairie City State Park and the northern terminus of Scott Road, which is designated by Sacramento County as a scenic corridor (Sacramento County 2011). Power transmission lines are also a feature of this landscape unit. Very few human-made structures exist in the unit.

The rural character, rolling hills, and vegetation create a visual experience with moderately high vividness. Because there are few human-made elements, the landscape unit is also visually intact and unified. Overall, its visual quality is moderately high.

El Dorado Hills Landscape Unit (Landscape Unit 5)

The El Dorado Hills Landscape Unit has a suburban character and contains a variety of newer residential, commercial, and light industrial developments along White Rock Road. Natural hillsides form a visual backdrop for much of this area. White Rock Road is a dominant transportation corridor, with four lanes, a landscaped median, striped bike lanes, sidewalks, and paved shoulders.

The rolling hills and uniform commercial and residential development create a moderately vivid visual experience and a moderate level of intactness and unity. Overall, the visual quality of the El Dorado Hills Landscape Unit is moderate.

Off-Corridor Multi-Use Trail System

In addition to the landscape units described above, several segments of paved multi-use trails exist in the aesthetics study area, northwest of the project's roadway corridor (Figure 3-1). These existing trails are located along the Folsom South Channel, adjacent to Sunrise Boulevard, and along the banks of Laguna and Alder Creeks. The trails are generally located in developed portions of the aesthetics study area. Because of the adjacent water features and natural vegetation along the creeks, the recreational trails are considered to have high visual quality.

3.2.1.5 Existing Viewer Sensitivity and Viewer Exposure

Viewer sensitivity relates directly to the viewshed in which a project would be located. The viewshed includes all areas where physical changes associated with the project are visible from a sensitive viewpoint, and is influenced by existing topography, vegetation, and structures. Viewer sensitivity is defined as viewer activity, awareness, local values, and cultural significance of the visual resource.

The sensitivities of different types of viewers within the aesthetics study area vary, depending on viewer activity and awareness of and familiarity with the surrounding environment. The comparative sensitivities of the various types of viewers in the study area are described below:

- **Recreational viewers:** Recreational viewers, including those on the trail system with views of the project corridor, would be most sensitive to change because the nature of their viewing experience is often focused on their visual surroundings. Recreational viewers typically include pedestrians and cyclists.
- **Residents:** Residents, particularly those with views of the project corridor from their homes, would be sensitive to potential visual impacts because of the relative permanence of their viewing experience.
- **Workers:** Employees of retail, commercial, and industrial businesses within the project corridor's viewshed would be considered sensitive viewers because they have frequent opportunities to experience the views from their workplaces and routinely visit the area. These views can be short or lengthy in duration.
- **Motorists:** Motorists would be those who drive through the study area. Depending on the route, these motorists could have short or lengthy views of the project corridor's viewshed.

3.2.2 Regulatory Setting

Certain aesthetic resources in the study area are protected under state law and local planning documents. A summary of the regulations applicable to the project is provided below.

3.2.2.1 State

California Scenic Highway Program

California's Scenic Highway Program was created by the State Legislature in 1963. Its purpose is to preserve and protect scenic highway corridors from change that would diminish the aesthetic value of lands adjacent to the highways. The state laws governing the Scenic Highway Program are found in the Streets and Highways Code 260 et seq. There are state-designated scenic highways in the aesthetics study area. SR 160 is the closest state-designated scenic highway, approximately 3 miles west of the study area and is not within the project's viewshed. Motorists traveling on SR 160 would not be able to see the project corridor.

3.2.2.2 Local

Sacramento County Scenic Highways and Corridors

The Sacramento County General Plan (2011) protects the visual character along the major freeways in the county by establishing scenic corridors that extend 660 feet to each side beyond the right-of-way. Within the aesthetic study area, the freeways are surrounded by commercial and industrial land uses, and are not particularly scenic. These routes are mostly used for necessary travel rather than for pleasure driving. Nevertheless, the Sacramento County General Plan identifies SR 99 as a protected scenic corridor, including the portion that passes through the aesthetic study area.

The Sacramento County General Plan also identifies several roadways in the rural portions of the county that are considered scenic. Within the Eastern Landscape Unit, Scott Road is designated as a scenic corridor from White Rock Road to Latrobe Road.

The goals and policies within the adopted 2011 Circulation Element are consistent with the current protections of the county's scenic highways and scenic corridors described above. Refer to Table 3-3 below for a summary of these applicable policies.

Local Planning Documents

This section evaluates whether the proposed project is consistent with the goals and policies of applicable local general and specific plans. Table 3-3 provides a summary of relevant visual resource guidelines from local agency general plans with an evaluation of project consistency.

Revised Table 3-3. Consistency with General and Specific Plan Policies Relating to Aesthetics

Document	Element/Policy	Requirements	Project Consistency
Sacramento County General Plan (2011) Most of the project corridor is within unincorporated Sacramento County and therefore subject to the policies of the current general plan.	Circulation Element/Scenic Highways Goal	To preserve and enhance the aesthetic quality of scenic roads.	The project would not alter the visual character or quality of Sacramento County–designated scenic freeways or roadways within the aesthetics study area.
	Conservation Element Policy CO-117	Public roads, parking, and associated fill slopes shall be located outside of the stream corridor, except at stream crossings and for purposes of extending or setting back levees. The construction of public roads and parking should utilize structural materials to facilitate permeability. Crossings shall be minimized and be aesthetically compatible with naturalistic values of the stream channel.	The Deer Creek Causeway Options would be inconsistent with the natural appearance of the stream channel and marshland habitat in this portion of the aesthetics study area, and would therefore conflict with this policy. Potential impacts on the natural landscape of the study area are discussed further in Section 3.3.
	Circulation Element Policy CI-53	Roadway improvements along established scenic corridors shall be designed and constructed so as to minimize impacts to the scenic qualities of the corridor.	The project would not alter the visual character or quality of Sacramento County–designated scenic freeways or roadways within the aesthetics study area.
	Policy CI-58	Continue to provide scenic corridor protection for Scott Road from White Rock Road south to Latrobe Road, Michigan Bar Road, and Twin Cities Road from Highway 160 east to Highway 99.	
Elk Grove General Plan The portion of the project corridor from Hood Franklin Road to the Grant Line Road/Wilton Road intersection (including Deer Creek Causeway Options 1 and 2) would be located within the City of Elk Grove's sphere of influence (SOI). Although the project would not be located in an area subject to the policies of the	Conservation and Air Quality Element Policy CAQ-22	Stream crossings shall be minimized and be aesthetically compatible with the natural appearance of the stream channel. The use of bridges and other stream crossings with natural (unpaved) bottoms shall be encouraged to minimize impacts to natural habitat.	Deer Creek Causeway Options 1 and 2 would be within the Elk Grove SOI, and would be inconsistent with the natural appearance of the stream channel and marshland habitat in this portion of the aesthetics study area. Therefore, the project would conflict with this policy. Potential impacts on the natural landscape of the study area are discussed further in Section 3.3.

Document	Element/Policy	Requirements	Project Consistency
Elk Grove General Plan, its location within the Elk Grove SOI would make the included policies applicable to the proposed improvements.	Noise Element Policy NO-9	Where soundwalls or noise barriers are constructed, the city shall strongly encourage and may require the use of a combination of berms and walls to reduce the apparent height of the wall and produce a more aesthetically appealing streetscape.	Soundwalls, overpass structures, landscaping, and other expressway-related structures and features would be consistent with the aesthetic recommendations implemented in other areas of Sacramento County. As such, the portion of the project corridor within the Elk Grove SOI would be consistent with the soundwall aesthetic requirements of the Elk Grove General Plan.
	Parks Trails and Open Space Element Policy PTO-15	The city views open space lands of all types as important resource which should be preserved in the region, and supports the establishment of multipurpose open space areas to address a variety of needs, including, but not limited to: • Maintenance of agricultural uses • Wildlife habitat • Recreational open space • Aesthetic benefits • Flood control To the extent possible, lands protected in accordance with this policy should be in proximity to Elk Grove, to facilitate use of these areas by Elk Grove residents, assist in mitigation of habitat loss within the city, and provide an open space resource close to the urbanized areas of Elk Grove.	The portions of the project within the Elk Grove SOI would not affect the visual quality of existing open space lands, except for the area surrounding Deer Creek. Potential impacts on the natural landscape of the aesthetics study area are discussed further in Section 3.3.
Rancho Cordova General Plan The portion of the project corridor between the Grant Line Road/Jackson Road and Grant Line Road/Douglas Road intersections would be located within the Rancho Cordova SOI. Although the project would not be located in an area subject to the policies of the Rancho Cordova General Plan, its location within the Rancho	Land Use Element Policy LU.1.4	Promote high quality, efficient, and cohesive land utilization that minimizes negative impacts (e.g., traffic congestion and visual blight) and environmental hazards (e.g., flood, soil instability) on adjacent neighborhoods and infrastructure and preserve existing and future residential neighborhoods from encroachment of	The portion of the project corridor within the Rancho Cordova SOI generally provides a feeling of continuity, consistent with this policy.

Document	Element/Policy	Requirements	Project Consistency
Cordova SOI would make the included policy applicable to the proposed improvements.		incompatible activities and land uses.	
Folsom General Plan The portion of the project corridor between the White Rock Road/Prairie City Road intersection and the Sacramento County/El Dorado County line would be located within the recently annexed Folsom SOI and the approved Specific Plan area.	Land Use Element Policy 1.1	New development shall preserve or enhance to the maximum degree feasible, the existing natural vegetation, landscape features and open space, consistent with the Goals and Policies of this Plan.	The portion of the project corridor within the Folsom SOI would widen existing roadways, which generally follow the natural contours of the land. By doing so, the effects on the existing form of the hills and surrounding rural landscape would be minimal, resulting in a less-than-significant visual impact. Potential impacts on the natural landscape of the aesthetics study area are discussed further in Section 3.3.
	Land Use Element Policy 1.2	Existing viewsheds and opportunities for viewsheds should be incorporated into the design of new developments.	The project would not result in significant impacts on the existing scenic vistas in the aesthetics study area (see Impact AES-1).
El Dorado Hills Specific Plan The portion of the project corridor within El Dorado County would be located within the El Dorado Hills Specific Plan (El Dorado County 1988)	Goal i	Provide an aesthetic environment for public, private, and the natural open space areas.	The portion of the project within the El Dorado Hills Specific Plan boundaries would not result in a substantial change in the visual character of this area (see Impact AES-2).
Valley View Specific Plan The northern boundary of the Valley View Specific Plan includes a 750 foot frontage along a portion of White Rock Road (directly across from the Town Center commercial area) that is part of the project corridor.	White Rock Village Policy 1	Provide an attractive entrance statement to White Rock Road and East Villages from White Rock Road.	The entrances from White Rock Road to the Valley View Specific Plan development (Keagles Lane and Sunset Mobiles Lane) were constructed in accordance with policies of the planning document. The portion of the project within the Valley View Specific Plan boundaries would not result in a substantial change in the visual character of this area (see Impact AES-2). Therefore, the aesthetic quality of these entrances would not be affected by the project.
Carson Creek Specific Plan The northern boundary of the Carson Creek Specific Plan includes an approximately one-mile frontage along a portion of White Rock Road (directly adjacent to the east of the El	The Carson Creek Specific Plan does not contain aesthetic policies relevant to the proposed project improvements. The portion of the project within the Carson Creek Specific Plan boundaries would not result in a substantial change in the visual character of this area (see Impact AES-2).		

Document	Element/Policy	Requirements	Project Consistency
Dorado County line) that is part of the project corridor.			

City of Elk Grove Rural Road Improvement Standards

The City of Elk Grove's Rural Road Improvement Standards (2007) establish unique road improvement design standards that are rural (rather than urban) in character for future road improvements in Elk Grove and Sheldon. These design standards apply to the proposed improvements within the Central Landscape Unit.

The design standards include basic street typologies, describing the range of public roads planned for Sheldon. Roadway widening occurs when certain thresholds are met. The street sections are refined on a case-by-case basis for preserving trees. All roads have minimal lane width, with open drainage and native landscape. Planned roads within this area do not include curbs, gutters, or sidewalks. Except for demonstrated safety needs or for necessary tree preservation, medians are not included in the Rural Road Improvement Standards.

3.3 Impact and Mitigation Discussion

3.3.1 Thresholds of Significance

Appendix G of the State CEQA Guidelines identifies environmental issues to be considered when determining whether a project could have significant impacts on the environment. The project would have a significant impact if it would:

- 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 project area and its surroundings; or
- create a new source of substantial light or glare that would adversely affect day or nighttime views in the area.

3.3.2 Approach and Methods

The visual impacts of the project were determined by assessing the visual change caused by the project and predicting viewer response to that change. Specifically, the visual impact was determined by comparing the visual quality of the existing landscape unit with the visual quality of the same landscape unit after project implementation. Changes in visual character are also considered and discussed.

The visual resource change is the sum of the changes in visual character and quality. The first step in determining visual resource change is to assess the compatibility of the proposed project with the visual character of the existing landscape. As previously discussed, the FHWA's *Visual Impact Assessment for Highway Projects* was used to determine visual character and quality. As shown in

Table 3-2, the aesthetics study area is made up of landscape units with a wide range of visual quality scores (from low to high). Except for the Deer Creek Causeway Landscape Unit, there are no areas of high visual quality. A decrease in the visual quality rating of 2 points or more would be considered significant.

Viewer response to project changes is the combination of viewer exposure and sensitivity to the project. The resulting level of visual impact is determined by combining the severity of resource change with the degree to which people are likely to oppose the change.

3.3.3 Impacts of the Proposed Project

Impact AES-1: Adverse Effect on a Scenic Vista

The relevant visual resource guidelines from the local planning documents in the aesthetics study area (Table 3-3) do not specifically identify any scenic vistas in the project region. In general, these guidelines require the preservation of the aesthetic quality of scenic corridors, open space lands, and natural landscape features (e.g., waterways and mountain ranges). For the purposes of this analysis, impacts on such views are evaluated in the context of impacts on scenic vistas.

Scenic Corridors: SR 160 is the closest state-designated scenic highway, approximately 3 miles west of the aesthetics study area; however, SR 160 is not within the project's viewshed. Motorists traveling on SR 160 would not be able to see the project corridor.

Although there are no designated scenic highways that would be affected by the project, Sacramento County identifies Scott Road and SR 99 as local scenic corridors. Scott Road between White Rock and Latrobe Roads is designated as a scenic corridor in the Circulation Element of the Sacramento County General Plan. The northern terminus of Scott Road intersects the project corridor, and a grade-separated interchange is proposed at this location that would realign the terminus of Scott Road. The project would change the visual character of the northern terminus of Scott Road by increasing the dominance of Grant Line Road. However, this would not substantially change the scenic character of most of Scott Road.

The scenic corridor along Scott Road extends for approximately 8 miles to Latrobe Road. For much of this length, there are views of rural hillsides, creeks, and trees with more distant views of the Sierra Nevada foothills and Sacramento Valley. Although the northernmost end of the Scott Road scenic corridor would experience some visual change, the overall aesthetic character and views along Scott Road would be unchanged by the project.

The Sacramento County General Plan also protects the visual character of the county's major freeways. The portion of SR 99 that passes through the aesthetics study area, at the SR 99/Grant Line Road interchange, is identified as a freeway with a protected scenic corridor. The project would not result in substantial visual changes near the SR 99/Grant Line Road interchange because the roadways in this area are already constructed to four- to six-lane standard widths.

Natural Landscape Features: From some locations within the aesthetics study area, the distant Sierra Nevada, Mount Diablo, and Inner Coast Ranges are visible. However, because of their distance, views of each of these are limited. Also, because most of the project improvements would consist of at-grade facilities, the long-range views currently experienced by motorists, residents, and workers would not be affected by the project. Construction of interchanges and elevated roadway segments could result in view blockage of distant natural features; however, because of the rural character of most of the project corridor, the number of affected viewers would be minimal. Elevated interchanges and roadway segments have the effect of removing near-ground visual obstructions (essentially seeing over foreground obstacles) allowing improved views of long-distance natural resources. This could result in improved views for motorists.

The overall impact of the project on scenic vistas would be minimal and is considered less than significant. No mitigation is required.

Impact AES-2: Damage to Scenic Resources or Degradation of Existing Visual Character or Quality of Project Area and Surroundings

The project would alter the visual character of the aesthetics study area by introducing major roadway segments and increasing the visual dominance of paved surfaces. However, the continuity of the new roadways would result in a more unified visual quality. Construction activities (e.g., establishing equipment storage and staging areas; storing excavated material and stockpiles; installing temporary construction offices, fences, sanitary facilities, and appurtenant structures; grading; construction of above-ground structures; and similar activities) would be highly visible and could temporarily affect grassland, agricultural lands, stream crossings, and similar features that could contribute to visual quality in the aesthetics study area.

Western Landscape Unit: Construction of a four- to six-lane thoroughfare with signalized intersections at Franklin Boulevard and Bruceville Road would increase the visual dominance of the transportation corridors in the Western Landscape Unit, except at the SR 99/Grant Line Road interchange where the roadway has already been constructed to the expressway standard. Portions of the new thoroughfare would connect Hood Franklin and Kammerer Roads through existing agricultural fields. These improvements would introduce a transportation corridor in an area where no roadway alignment currently exists, which would detract from the intactness and unity of the area. In areas where the project corridor would follow the existing alignment of Hood Franklin and Kammerer Roads, sidewalks and striped bike lanes would incrementally increase the dominance of the transportation facility. However, these facilities are typical visual features of transportation corridors, and would not constitute visual elements that would detract from the overall visual quality of the landscape unit.

Project improvements would displace several single-family homes and agricultural structures (i.e., barns and associated outbuildings), but their removal would further emphasize the rural agricultural aesthetic in this area and slightly increase the intactness and unity of the landscape unit.

Because of the conflicting effects on the intactness and unity of the area depending on the existing roadway alignments, scoring for overall visual quality within the Western Landscape Unit would generally remain the same, as shown in Table 3-4. Project improvements would include typical visual features of transportation corridors that are not anticipated to illicit strong viewer response in this area.

Table 3-4. Visual Quality Changes in Western Landscape Unit with Proposed Project

	FHWA Criteria						Visual Quality (Average Scores)	
	Vividness		Intactness		Unity			
Conditions	Score	Definition	Score	Definition	Score	Definition	Score	Definition
Existing Conditions	4	Moderate	3	Moderately low	3	Moderately low	3	Moderately low
Project Conditions	4	Moderate	3	Moderately low	3	Moderately low	3	Moderately low

Central Landscape Unit: As previously discussed, the City of Elk Grove provides design standards to preserve and enhance existing rural character in the Central Landscape Unit. The rural roadway segments for the proposed project would consist of two to four lanes with paved shoulders and open ditches for drainage. No sidewalks or bike lanes are proposed for the rural roadway segment through the Sheldon area. A minimum 5-foot-wide paved shoulder would be constructed to accommodate bicyclists, or parallel and connecting local roads could accommodate both bicyclists and pedestrians. Project improvements in this area would include typical visual features of rural transportation corridors that are consistent with the applicable design standards.

Widening Grant Line Road through the Sheldon area would increase the visual dominance of the roadway, which would in turn diminish the unique rural character and unity of Sheldon. However, the major aesthetic elements of the well-maintained residences and unique commercial establishments of Sheldon would remain intact. Scoring for overall visual quality within the Central Landscape Unit would decrease with this option, as shown in Table 3-5. Although the proposed improvements would be consistent with the Rural Road Improvement Standards, viewer response to the widening of the roadway in this area is anticipated to be moderate.

Table 3-5. Visual Quality Changes in Central Landscape Unit with Proposed Project

	FHWA Criteria						Visual Quality (Average Scores)	
	Vividness		Intactness		Unity			
	Score	Definition	Score	Definition	Score	Definition	Score	Definition
Existing Conditions	2	Low	2	Low	4	Moderate	3	Moderately low
Project Conditions	2	Low	2	Low	3	Moderately low	2	Low

Eastern Landscape Unit: Because the widened roadways would not be able to follow the natural contours of the land as closely as the existing two-lane rural roadways, expansion of Grant Line Road and portions of White Rock Road to a four- to six-lane expressway would increase their dominance in the landscape and decrease the vividness and intactness of the rural character and rolling hills that typify the Eastern Landscape Unit. Scoring for overall visual quality within the Eastern Landscape Unit would decrease slightly, as shown in Table 3-6.

Table 3-6. Visual Quality Changes in Eastern Landscape Unit with Proposed Project

	FHWA Criteria						Visual Quality (Average Scores)	
	Vividness		Intactness		Unity			
	Score	Definition	Score	Definition	Score	Definition	Score	Definition
Existing Conditions	4	Moderate	5	Moderately high	5	Moderately high	5	Moderately high
Project Conditions	4	Moderate	4	Moderate	4	Moderate	4	Moderate

El Dorado Hills Landscape Unit: White Rock Road is already a dominant visual feature in the landscape as a four-lane roadway with a landscaped median through much of this landscape unit, and widening would not change the views of rolling hills and surrounding commercial development. Scoring for overall visual quality within the El Dorado Hills Landscape Unit would remain unchanged, as shown in Table 3-7.

Table 3-7. Visual Quality Changes in El Dorado Hills Landscape Unit with Proposed Project

	FHWA Criteria						Visual Quality (Average Scores)	
	Vividness		Intactness		Unity			
	Score	Definition	Score	Definition	Score	Definition	Score	Definition
Existing Conditions	4	Moderate	4	Moderate	4	Moderate	4	Moderate
Project Conditions	4	Moderate	4	Moderate	4	Moderate	4	Moderate

The overall impact of the project on scenic resources and visual character and quality would be minimal and is considered less than significant. No mitigation is required.

Impact AES-3: New Source of Substantial Light or Glare That Adversely Affects Daytime or Nighttime Views

The project could introduce new or enhanced street lighting into rural areas, which would alter the existing nighttime aesthetic and create new sources of light and glare.

In addition, construction activities occurring during nighttime hours could result in temporary increases in light and glare. The impact would be substantial and is considered significant. Implementation of Mitigation Measures AES-1 and AES-2 would reduce the impact of light and glare to a less-than-significant level.

Mitigation Measure AES-1: Prepare and Implement a Construction Lighting Plan

During the design of the project improvements, the JPA or individual jurisdictions will prepare and implement a plan for construction lighting that minimizes the release of light and glare either upward or toward properties and residences adjoining the construction site. At a minimum, the plan will contain the following elements:

- To minimize trespass lighting to the skies, use full cutoff luminaires. Full cutoff luminaires are designed to not emit any light above 90 degrees, thereby reducing sky glow.

- Use internal or external shields when necessary to minimize light trespass onto neighboring properties.

Mitigation Measure AES-2: Conform to Lighting Design Standards

Operational lighting of the project will be designed for safety and will include features that minimize the release of light and glare either upward or toward properties and residences adjoining the project corridor. The lighting design will conform to all applicable County, State, Federal, and public safety standards, as appropriate. Features could include shielding lighting elements, using lower-voltage lighting, incorporating downward-casting lighting, using lighting fixtures that conform to the visual character of the area, and similar design measures, as listed below:

- Consider the least intrusive lighting when improvements are made at an intersection, when lighting is needed for safety reasons, or when a new intersection is constructed.
- Minimize continuous roadway lighting.
- Calculate the optimum location, height, and spacing for alternative lighting solutions at each intersection using computer software.
- Do not permit the use of high-pressure sodium lamps. Metal halide is preferred because of the more natural color rendition and pure white light.
- Minimize trespass lighting to the skies by using full cutoff luminaires. Full cutoff luminaires are designed to not emit any light above 90 degrees, thereby reducing sky glow.
- Reduce the amount of light required for an intersection by using Caltrans' and Sacramento County Department of Transportation minimum requirements, as appropriate.
- Use internal or external shields when necessary to minimize light trespass onto neighboring properties.

Impact AES-4: Temporary Alteration of Visual Character of the Project Area and Surroundings

During construction, large equipment and construction activities would be highly visible and would detract from the rural and agricultural setting of much of the project area. However, this condition would be temporary in nature and is considered less than significant.

In addition, construction activities during nighttime hours could result in temporary increases in light and glare. The impact would be substantial and is considered significant. As described above, implementation of Mitigation Measures AES-1 and AES-2 would reduce the impact of light and glare to a less-than-significant level.

3.3.4 Impacts of the Off-Corridor Multi-Use Path Alternative

Impact AES-1: Adverse Effect on a Scenic Vista

Constructing an off-corridor multi-use path instead of an expanded in-corridor multi use path would involve new segments of a multi-use path, linking existing segments of multi-use trails in the aesthetics study area. The new multi-use path segments would consist of paved, 12-foot-wide pathways that would cross Laguna Creek, Alder Creek, and the Folsom South Canal. The northernmost segments of the new paths would be aligned and adjacent to the project corridor along White Rock Road. Figure 3-1 illustrates the location of the off-corridor multi-use trail system.

The scale of the pathways and their general route along creek banks would not affect scenic corridors or natural features that would constitute a scenic vista, as previously evaluated under the project impacts. As such, this alternative would not increase the project's potential to affect scenic vistas in the aesthetics study area. Therefore, the impact on scenic vistas would be minimal and is considered less than significant.

Impact AES-2: Damage to Scenic Resources or Degradation of Existing Visual Character or Quality

The construction of the paved multi-use pathways would generally have minimal effect on the visual character of the landscape. In agricultural and rural areas, construction of the new pathways would introduce paved surfaces into the visual environment; however, the scale of the pathways and route along creek banks would not result in a substantial change in the vividness, intactness, and unity of the agricultural and rural character of the area. The overall impact on scenic resources and visual character and quality would be minimal and is considered less than significant.

Impact AES-3: New Source of Light or Glare

No additional lighting of the off-corridor multi-use path is proposed. This alternative would not generate new sources of light and glare. There is no impact.

Impact AES-4: Temporary Alteration of Visual Character of the Project Area and Surroundings

Construction of the off-corridor trail could require temporary use of nighttime lighting, which would alter the existing nighttime aesthetic and create new sources of light and glare. This impact would be temporary during construction but substantial, and is considered significant. As described above, implementation of Mitigation Measures AES-1 and AES-2 would reduce the impact of light and glare to a less-than-significant level.

3.3.5 Impacts of the Project Options

3.3.5.1 Kammerer Road Bypass Option

Impact AES-1: Adverse Effect on a Scenic Vista

There are no scenic corridors or natural features in the vicinity of the Kammerer Road Bypass Option that would constitute a scenic vista, as previously evaluated under the project impacts. As such, this optional project component would not increase the project's potential to affect scenic vistas in the aesthetics study area. Therefore, this impact is considered less than significant and no mitigation is necessary.

Impact AES-2: Damage to Scenic Resources or Degradation of Existing Visual Character or Quality

The Kammerer Road Bypass Option is located within the Western Landscape Unit. As previously discussed, this area is defined by flat agricultural fields, row crops, and scattered residential development. The Kammerer Road Bypass Option would pass through the portion of the Western Landscape Unit between Hood Franklin and Kammerer Roads, and would not follow an existing roadway alignment.

This optional project component would avoid displacement of several single-family homes and agricultural structures (i.e., barns and associated outbuildings) along Kammerer Road that would occur with the proposed Kammerer Road project alignment. Removal of these structures under the proposed project was considered to emphasize rural agricultural aesthetic and increase the intactness and unity of the area. Instead, the Kammerer Road Bypass Option would introduce a transportation corridor in an area where no roadway alignment currently exists, which would detract from the intactness and unity of the landscape unit.

Although these improvements would slightly change the scoring for overall visual quality within the Western Landscape Unit (Table 3-8), the overall impact on scenic resources and visual character and quality would be minimal and considered less than significant.

Table 3-8. Visual Quality Change in Western Landscape Unit with Kammerer Road Bypass Option

	FHWA Criteria						Visual Quality (Average Scores)	
	Vividness		Intactness		Unity			
	Score	Definition	Score	Definition	Score	Definition	Score	Definition
Existing Conditions	4	Moderate	3	Moderately low	3	Moderately low	3	Moderately low
Optional Project Component Conditions	4	Moderate	2	Moderately low	2	Moderately low	3	Moderately low

Impact AES-3: New Source of Light or Glare

As with the proposed project, the Kammerer Road Bypass Option would introduce new or enhanced street lighting into rural areas, which would alter the existing nighttime aesthetic and create new sources of light and glare. The impact would be substantial and is considered significant. As described above, implementation of Mitigation Measures AES-1 and AES-2 would reduce the impact of light and glare to a less-than-significant level.

Impact AES-4: Temporary Alteration of Visual Character of the Project Area and Surroundings

During construction, large equipment and construction activities would be highly visible and would detract from the rural and agricultural setting of much of the project area. However, this condition would be temporary in nature and is considered less than significant.

In addition, construction activities occurring during nighttime hours could result in temporary increases in light and glare. The impact would be substantial and is considered significant. As described above, implementation of Mitigation Measures AES-1 and AES-2 would reduce the impact of light and glare to a less-than-significant level.

3.3.5.2 Deer Creek Causeway Options

Impact AES-1: Adverse Effect on a Scenic Vista

Deer Creek Causeway Options 1 and 2 would create a highly vivid human-made element within the natural and agricultural setting, which includes riparian/wetland habitat associated with Deer Creek and the Cosumnes River floodplain. Implementation of either of these optional project components would diminish views of the natural resources available from existing roads and residences. Changes to these natural resources would constitute an adverse effect on scenic vistas, as previously evaluated under the project impacts. There are no substantial differences between Options 1 and 2. The impact on scenic vistas would increase with either of these optional project components in comparison to the proposed project, and would be substantial and considered significant. No mitigation is available to reduce the impact to a less-than-significant level. This impact is significant and unavoidable.

Impact AES-2: Damage to Scenic Resources or Degradation of Existing Visual Character or Quality

Either of these optional project components would introduce an elevated two-lane facility on concrete piers and bridges into an area with a predominantly rural, agricultural, and natural visual character and very few human-made structures. These improvements would diminish the character of the area, specifically at the overcrossing of Deer Creek and its associated riparian/wetland habitat in the Cosumnes River floodplain (Table 3-9). With either of these optional project components, the overall impact on scenic resources and visual character and quality would be substantial in comparison to the proposed project, and is considered significant. No mitigation is available to reduce the impact to a less-than-significant level. This impact is significant and unavoidable.

Table 3-9. Visual Quality Change in Deer Creek Causeway Landscape Unit with Deer Creek Causeway Options

	FHWA Criteria						Visual Quality (Average Scores)	
	Vividness		Intactness		Unity			
	Score	Definition	Score	Definition	Score	Definition	Score	Definition
Existing Conditions	6	High	6	High	6	High	6	High
Optional Project Component Conditions	3	Moderate	3	Moderate	3	Moderate	3	Moderate

Impact AES-3: New Source of Light or Glare

Either of these optional project components would introduce a new source of light and glare into the aesthetics study area that would be visible by motorists and residents, particularly in the Central Landscape Unit encompassing Sheldon and nearby Wilton (to the east). The impact would be substantial and is considered significant. As described above, implementation of Mitigation Measures AES-1 and AES-2 would reduce the impact of light and glare to a less-than-significant level.

Impact AES-4: Temporary Alteration of Visual Character of the Project Area and Surroundings

During construction, large equipment and construction activities would be highly visible and would detract from the rural and agricultural setting of much of the project area. However, this condition would be temporary in nature and is considered less than significant.

In addition, construction activities occurring during nighttime hours could result in temporary increases in light and glare. The impact would be substantial and is considered significant. As described above, implementation of Mitigation Measures AES-1 and AES-2 would reduce the impact to a less-than-significant level.

3.3.5.3 Reduced Access Roadway Option

Impact AES-1: Adverse Effect on a Scenic Vista

There are no scenic corridors or natural features in the vicinity of the Reduced Access Roadway Option that would constitute a scenic vista, as previously evaluated under the project impacts. As such, this optional project component would not increase the project's potential to affect scenic vistas in the aesthetics study area. Therefore, the impact on scenic vistas with this optional project component would be minimal and would be similar to that of the proposed project, which is considered less than significant.

Impact AES-2: Damage to Scenic Resources or Degradation of Existing Visual Character or Quality

The Reduced Access Roadway Option is located within the Central Landscape Unit, which includes a mix of agricultural and rural residential and commercial development primarily centered along Grant Line Road and Sheldon. This optional project component would create access roads or frontage roads on the eastern side of Grant Line Road through Sheldon, potentially requiring relocation or removal of several existing structures. Grant Line Road would be widened.

These improvements would increase the visual dominance of Grant Line Road and other paved surfaces, slightly detracting from the unique rural character and unity of Sheldon. However, the major aesthetic elements of Sheldon, including unique commercial buildings and well-tended residential areas, are anticipated to remain. The scoring for overall visual quality within the Central Landscape Unit would be similar to the project (Table 3-10). The overall impact on scenic resources and visual character and quality with this optional project component would be minimal and similar to the proposed project, which is considered less than significant.

Table 3-10. Visual Quality Change in Central Landscape Unit with Reduced Access Roadway Option

	FHWA Criteria						Visual Quality (Average Scores)	
	Vividness		Intactness		Unity			
	Score	Definition	Score	Definition	Score	Definition	Score	Definition
Existing Conditions	2	Low	2	Low	4	Moderate	3	Moderately low
Optional Project Component Conditions	2	Low	2	Low	3	Moderately low	2	Low

Impact AES-3: New Source of Light or Glare

As with the proposed project, the Reduced Access Roadway Option would introduce new or enhanced street lighting into rural areas, which would alter the existing nighttime aesthetic and create new sources of light and glare. The impact would be substantial and is considered significant. As described above, implementation of Mitigation Measures AES-1 and AES-2 would reduce the impact of light and glare to a less-than-significant level.

Impact AES-4: Temporary Alteration of Visual Character of the Project Area and Surroundings

During construction, large equipment and construction activities would be highly visible and would detract from the rural and agricultural setting of much of the project area. However, this condition would be temporary in nature and is considered less than significant.

In addition, construction activities during nighttime hours could result in temporary increases in light and glare. The impact would be substantial and is considered significant. As described above, implementation of Mitigation Measures AES-1 and AES-2 would reduce the impact of light and glare to a less-than-significant level.

3.3.5.4 High Access Roadway Option

Impact AES-1: Adverse Effect on a Scenic Vista

There are no scenic corridors or natural features in the vicinity of the High Access Roadway Option that would constitute a scenic vista, as previously evaluated under the project impacts. As such, the no-build option would not increase the project's potential to affect scenic vistas in the aesthetics study area. Therefore, the impact on scenic vistas with the no-build option would be minimal and would be similar to that of the proposed project, which is considered less than significant.

Impact AES-2: Damage to Scenic Resources or Degradation of Existing Visual Character or Quality

The High Access Roadway Option is located within the Central Landscape Unit, which includes a mix of agricultural and rural residential and commercial development primarily centered along Grant Line Road and Sheldon. The no-build option would involve widening Grant Line Road from four to six lanes through Sheldon, consistent with the Elk Grove General Plan, potentially requiring relocation or removal of several existing structures.

These improvements would increase the visual dominance of Grant Line Road and other paved surfaces, slightly detracting from the unique rural character and unity of Sheldon. However, the major aesthetic elements of Sheldon, including unique commercial buildings and well-tended residential areas, are anticipated to remain. The scoring for overall visual quality within the Central Landscape Unit would be similar to the project (Table 3-11). The overall impact on scenic resources and visual character and quality with the no-build option would be minimal and would be similar to the proposed project, which is considered less than significant.

Table 3-11. Visual Quality Change in the Central Landscape Unit with the High Access Roadway Option

	FHWA Criteria						Visual Quality (Average Scores)	
	Vividness		Intactness		Unity			
	Score	Definition	Score	Definition	Score	Definition	Score	Definition
Existing Conditions	2	Low	2	Low	4	Moderate	3	Moderately Low
No-Build Option Conditions	2	Low	2	Low	3	Moderately Low	2	Low

Impact AES-3: New Source of Light or Glare

As with the proposed project, the High Access Roadway Option would introduce new or enhanced street lighting into rural areas, which would alter the existing nighttime aesthetic and create new sources of light and glare. The impact would be substantial and is considered significant. As described above, implementation of Mitigation Measures AES-1 and AES-2 would reduce the impact of light and glare to a less-than-significant level.

Impact AES-4: Temporary Alteration of Visual Character of the Project Area and Surroundings

During construction, large equipment and construction activities would be highly visible and would detract from the rural and agricultural setting of much of the project area. However, this condition would be temporary in nature and is considered less than significant.

In addition, construction activities during nighttime hours could result in temporary increases in light and glare. The impact would be substantial and is considered significant. As described above, implementation of Mitigation Measures AES-1 and AES-2 would reduce the impact of light and glare to a less-than-significant level.

Chapter 4
Air Quality and Climate Change

4.1 Introduction

This chapter provides an analysis of air quality and climate change impacts resulting from the proposed project. It describes existing air quality conditions in the project area, identifies sensitive land uses, and summarizes the overall regulatory framework for air quality management in California and the region, as well as regulations pertaining to climate change and greenhouse gas (GHG) emissions. Environmental impacts related to air quality and climate change, as well as mitigation measures to reduce or eliminate potential impacts, are also discussed.

The following sources were used to prepare this chapter:

- Aerometric Data Analysis and Management System's Air Quality Data Regulatory Setting (California Air Resources Board 2010a)
- Air Designation Maps/State and National (California Air Resources Board 2010b)
- *The Green Book of Nonattainment Areas for Criteria Pollutants* (U.S. Environmental Protection Agency 2010a)
- *Guide to Air Quality Assessment in Sacramento County* (Sacramento Metropolitan Air Quality Management District 2009a)
- *Guide to Air Quality Assessment: Determining Significance of Air Quality Impacts under the California Environmental Quality Act* (El Dorado County Air Pollution Control District 2002)
- Intergovernmental Panel on Climate Change. 1996. 1995: Science of Climate Chang. (Second Assessment Report). Cambridge University Press. Cambridge, U.K.
- Intergovernmental Panel on Climate Change. 2001. Atmospheric Chemistry and Greenhouse Gases. In: Climate Change 2001: Working Group I: The Scientific Basis. Available: http://www.ipcc.ch/ipccreports/tar/wg1/pdf/TAR-04.PDF. Accessed: September 22, 2009.
- Intergovernmental Panel on Climate Change. 2007. Introduction. In: Climate Change 2007: Mitigation (Working Group III Fourth Assessment Report.) Available: <://www.ipcc.ch/pdf/assessment-report/ar4/wg3/ar4-wg3-spm.pdf >. Accessed: August 11, 2009.

4.2 Environmental Setting

4.2.1 Existing Conditions

This section discusses existing air quality conditions in the study area, which is bounded by I-5 and Bradshaw Road on the west, the Cosumnes River on the south, Grant Line and White Rock Roads on the east, and US 50 on the north.

4.2.1.1 Climate and Meteorology

California is divided into 15 air basins based on geographic features that create unique regional climates. Sacramento County is located within the southern region of the Sacramento Valley Air Basin (SVAB), and El Dorado County is located within the westernmost area of the Mountain Counties Air Basin (MCAB). Because the project alignment only stretches 3 miles into the MCAB, and the climate does not change dramatically at this border between the SVAB and MCAB, the climate within the air quality study area is most accurately characterized by that of the SVAB.

Hot, dry summers and mild, rainy winters characterize the Mediterranean climate of the SVAB. During the year, the temperature may range from 20–115°F, with summer highs usually in the 90s and winter lows occasionally below freezing. Average annual rainfall is about 20 inches, with about 75% of the total falling during the rainy season (generally from November through March). The prevailing winds are moderate in strength and vary from moist, clean breezes from the south to dry land flows from the north.

The mountains surrounding the SVAB create a barrier to airflow, which can trap air pollutants under certain meteorological conditions. The highest frequency of air stagnation occurs in autumn and early winter when large high-pressure cells lie over the Sacramento Valley. The lack of surface wind during these periods and the reduced vertical flow caused by less surface heating reduces the influx of outside air and allows air pollutants to become concentrated in a stable volume of air. The surface concentrations of pollutants are highest when these conditions are combined with smoke or when temperature inversions trap cool air, fog, and pollutants near the ground.

The ozone season (May through October) in the Sacramento Valley is characterized by stagnant morning air or light winds with the Delta sea breeze arriving in the afternoon out of the southwest. Usually, the evening breeze transports the airborne pollutants to the north out of the Sacramento Valley. During about half of the days from July to September, however, a phenomenon called the Schultz Eddy prevents this from occurring. Instead of allowing the prevailing wind patterns to move north carrying the pollutants out, the Schultz Eddy causes the wind pattern to circle back south. Essentially, this phenomenon causes the air pollutants to be blown south toward the Sacramento area. This phenomenon exacerbates the pollution levels in the area and increases the likelihood of violating federal or state standards. The eddy normally dissipates around noon, when the Delta sea breeze arrives. (Sacramento Metropolitan Air Quality Management District 2009a.)

4.2.1.2 Criteria Pollutants

The U.S. Environmental Protection Agency (EPA) and California Air Resources Board (ARB) have established ambient air quality standards for six criteria pollutants: ozone, carbon monoxide (CO), nitrogen dioxide, sulfur dioxide, lead, and particulate matter (PM), which consists of PM less than 10 microns (PM10) and PM less than 2.5 microns (PM2.5). Primary air pollutants generated by vehicle exhaust and combustion of fossil fuel include ozone precursors—nitrogen oxides (NO_x) and reactive organic gases (ROGs)—CO, and PM. Although not yet regulated by federal air standards, toxic air containments (TACs) and GHGs are also generated by vehicle exhaust and fossil fuel combustion.

Based on local monitoring data, the major pollutants of concern in the air quality study area are ozone, CO, and PM. These criteria pollutants, as well as TACs, mobile source air toxics (MSATs), naturally occurring asbestos (NOA), and GHGs, are described below.

Ozone

Ozone is a nearly colorless, odorless gas that irritates the lungs and damages materials and vegetation. It is created by chemicals that come from many sources, including mobile sources such as automobiles, buses, trucks, trains, construction vehicles, and airplanes. Ozone is a major component of smog in the Sacramento region (approximately 40%), and results from the photochemical reaction of ROGs and NO_x in the presence of sunlight and heat. Although ozone is the air contaminant for which standards are set, ozone precursors (ROGs and NO_x) are the pollutants that must be controlled. Health researchers have found that exposure to ozone can decrease lung function, reduce disease resistance, and aggravate heart disease, asthma, bronchitis, and emphysema.

Carbon Monoxide

CO is a highly toxic, odorless, colorless gas that binds to hemoglobin in the bloodstream in place of oxygen molecules. By reducing the oxygen-carrying potential of blood, CO causes heart difficulties in people with chronic diseases, reduces lung capacity, impairs mental functioning by interfering with the transfer of oxygen to the brain, and may aggravate arteriosclerosis. CO is primarily produced by the incomplete combustion of carbon-containing fuels (vehicular exhaust from tailpipes). CO is primarily a local pollutant that creates individual hot spots, or small areas where CO concentrations are high. CO is mostly a winter problem in the Sacramento urbanized area.

Particulate Matter

PM refers to finely divided solids or liquids, such as soot, dust, aerosols, and mists. Suspended particulates aggravate chronic heart and lung disease problems, produce respiratory problems, and often transport toxic elements. Suspended particulates also absorb sunlight, producing haze and reducing visibility. PM in Sacramento County is caused primarily by dust from grading and excavation activities, agricultural uses, and motor vehicles, particularly diesel-powered vehicles. PM10 causes a greater health risk than larger particles because these fine particles can more easily penetrate the defenses of the human respiratory system.

Similar to PM10, PM2.5 is primarily the result of combustion in motor vehicles, particularly diesel engines, as well as industrial sources and residential/agricultural activities such as burning. It is also formed through the reaction of other pollutants. As with PM10, these particulates can increase the chance of respiratory disease, and cause lung damage and cancer.

Toxic Air Contaminants

TACs are pollutants that may result in an increase in mortality or serious illness, or that may pose a present or potential hazard to human health. Health effects of TACs include cancer, birth defects, neurological damage, damage to the body's natural defense system, and diseases that lead to death. In 1998, following a 10-year scientific assessment process, the ARB identified PM from diesel-fueled engines—commonly called diesel particulate matter (DPM)— as a TAC. Compared to other air toxics the ARB has identified, DPM emissions are estimated to be responsible for about 70% of the total ambient air toxics risk (California Air Resources Board 2000).

Mobile Source Air Toxics

By including air toxics regulations in the California Clean Air Act (California CAA), the State of California made controlling air toxic emissions a national priority. Congress followed this lead and mandated that the EPA regulate 188 air toxics. These substances are also known as hazardous air pollutants (HAPs). The EPA's latest rule on the control of HAPs from mobile sources (72 Federal Register [FR] 8430) identified a group of 93 compounds emitted from mobile sources that are listed in its Integrated Risk Information System. From this list, the EPA has identified seven as priority MSATs:

- Acrolein
- Benzene
- 1,3-Butadiene
- DPM/diesel exhaust organic gases
- Formaldehyde
- Naphthalene
- Polycyclic organic matter

The EPA's rule requires controls that will dramatically decrease MSAT emissions through cleaner fuels and cleaner engines. According to an FHWA analysis using the EPA's MOBILE6.2 model, even if VMT increases by 145% (as assumed by 2050), a combined reduction of 72% in the total annual emission rate for the priority MSATs is projected from 1999 to 2050 (Federal Highway Administration 2009).

Naturally Occurring Asbestos

Asbestos is the name given to a number of naturally occurring fibrous silicate minerals. It has been mined for applications requiring thermal insulation, chemical and thermal stability, and high tensile strength. In addition to finding asbestos in older buildings, it is also found in its natural state (NOA).

Exposing or disturbing rock and soil that contains NOA can result in the release of fibers to the air, and consequently public exposure. Asbestos most commonly occurs in ultramafic rock that has undergone partial or complete alteration to serpentine rock (or serpentinite) and often contains chrysotile asbestos. In addition, another form of asbestos, termolite, can be found associated with ultramafic rock, particularly near faults. Sources of asbestos emissions include unpaved roads or driveways surfaced with ultramafic rock, construction activities in ultramafic rock deposits, or rock quarrying activities where ultramafic rock is present.

Exposure and disturbance of rock and soil that contain asbestos can result in the release of fibers to the air and consequent exposure to the public. Asbestos can result in a human health hazard when airborne. The inhalation of asbestos fibers into the lungs can result in a variety of adverse health effects, including inflammation of the lungs, respiratory ailments (e.g., asbestosis, which is scarring of lung tissue that results in constricted breathing), and cancer (e.g., lung cancer and mesothelioma, which is cancer of the linings of the lungs and abdomen).

Greenhouse Gases

GHGs primarily generated by vehicle exhaust and fossil fuel combustion are carbon dioxide (CO_2), methane, and nitrous oxide. The Intergovernmental Panel on Climate Change (IPCC) estimates that CO_2 accounts for more than 75% of all anthropogenic (i.e., human-made) GHG emissions. Approximately 75% of anthropogenic CO_2 emissions are the result of fossil fuel burning; approximately 25% are the result of land use change (Intergovernmental Panel on Climate Change 2007). Methane is the second-largest contributor of anthropogenic GHG emissions and results from growing rice, raising cattle, combustion, and mining coal (National Oceanic and Atmospheric Administration 2005). Nitrous oxide, while not as abundant as CO_2 or methane, is a powerful GHG. Sources of nitrous oxide include agricultural processes, nylon production, fuel-fired power plants, nitric acid production, and vehicle emissions.

To simplify reporting and analysis, methods have been set forth to describe emissions of GHGs in terms of a single gas. The most commonly accepted method to compare GHG emissions is the global warming potential methodology defined in the IPCC reference documents (Intergovernmental Panel on Climate Change 1996, 2001). The IPCC defines the global warming potential of various GHG emissions on a normalized scale that recasts all GHG emissions in terms of CO_2 equivalent (CO_2e), which compare the gas in question to that of the same mass of CO_2 (CO_2 has a global warming potential of 1 by definition).

Table 4-1 lists the global warming potential of CO_2, methane, and nitrous oxide; their lifetimes; and abundances in the atmosphere in parts per trillion (ppt).

Table 4-1. Lifetimes and Global Warming Potentials of Several Greenhouse Gases

GHG	Global Warming Potential (100 years)	Lifetime (years)	1998 Atmospheric Abundance (ppt)[a]
CO_2	1	50–200	365,000,000
Methane	21	9–15	1,745
Nitrous oxide	310	120	314

Sources: Intergovernmental Panel on Climate Change 1996, 2001:388–390.

[a] 1 ppt is a mixing ratio unit indicating the concentration of a pollutant in ppt by volume.

A GHG inventory is a quantification of all GHG emissions and sinks within a selected physical and/or economic boundary. GHG inventories can be performed on a large scale (i.e., for global and national entities) or on a small scale (i.e., for a particular building or person). Although many processes are difficult to evaluate, several agencies have developed tools to quantify emissions from certain sources.

Table 4-2 outlines the most recent global, national, statewide, and local GHG inventories to help contextualize the magnitude of potential project-related emissions.

Table 4-2. Global, National, State, and Local GHG Emissions Inventories

Emissions Inventory	CO_2e (metric tons)
2004 IPCC Global GHG Emissions Inventory	49,000,000,000
2008 EPA National GHG Emissions Inventory	6,956,800,000
2008 ARB State GHG Emissions Inventory	477,700,000
2005 Sacramento County GHG Emissions Inventory	13,938,537
City of Citrus Heights Inventory	578,134
City of Elk Grove Inventory	842,971
City of Folsom Inventory	609,009
City of Rancho Cordova Inventory	557,943
City of Sacramento Inventory	4,553,051

Sources: Intergovernmental Panel on Climate Change 2007; U.S. Environmental Protection Agency 2010d; California Air Resources Board 2009; ICF Jones & Stokes 2009.

4.2.1.3 Existing Air Quality Conditions

Existing air quality conditions in the project area can be characterized in terms of the federal and state air quality standards, and by monitoring data collected in the region. The EPA and ARB maintain an extensive network of monitoring stations throughout California. Table 4-3 presents pollutant concentrations measured at the Elk Grove–Bruceville Monitoring, El Camino and Watt, and Branch Center Road Stations for the past 3 years for which complete data are available (2007–2009). These stations were selected based on their proximity to the project area. Table 4-3 indicates which pollutants are measured at each station because not all stations monitor for the same pollutants. Concentrations are typically measured in parts per million (ppm) or micrograms per cubic meter ($\mu g/m^3$).

As shown in Table 4-3, Sacramento County has experienced frequent violations of the state and federal ozone and PM10 standards.

Table 4-3. Pollutant Concentrations Measured at the Elk Grove–Bruceville, El Camino and Watt, and Branch Center Road Monitoring Stations

	Sacramento County		
Pollutant Standards	2007	2008	2009
1-Hour Ozone (Elk Grove–Bruceville)			
Maximum 1-hour concentration (ppm)	0.102	0.111	0.102
1-hour California designation value	0.110	0.110	0.100
1-hour expected peak day concentration	0.109	0.105	0.099
Number of days standard exceeded[a]			
CAAQS 1-hour (>0.09 ppm)	1	5	2
8-Hour Ozone (Elk Grove–Bruceville)			
National maximum 8-hour concentration (ppm)	0.087	0.093	0.086
National second-highest 8-hour concentration (ppm)	0.082	0.085	0.078
State maximum 8-hour concentration (ppm)	0.088	0.093	0.087
State second-highest 8-hour concentration (ppm)	0.083	0.085	0.079
8-hour national designation value	0.083	0.082	0.079
8-hour California designation value	0.096	0.093	0.085
8-hour expected peak day concentration	0.097	0.095	0.086
Number of days standard exceeded[a]			
NAAQS 8-hour (>0.075 ppm)	5	7	5
CAAQS 8-hour (>0.070 ppm)	13	13	12
Carbon Monoxide (El Camino and Watt)			
National maximum 8-hour concentration (ppm)[b]	3.20	2.84	2.84
National second-highest 8-hour concentration (ppm) [b]	2.96	2.60	2.84
California maximum 8-hour concentration (ppm)[c]	3.20	2.84	2.84
California second-highest 8-hour concentration (ppm)[c]	2.96	2.60	2.84
Maximum 1-hour concentration (ppm)	3.50	3.20	–
Second-highest 1-hour concentration (ppm)	3.10	2.80	–
Number of days standard exceeded[a]			
NAAQS 8-hour (≥9 ppm)	0	0	0
CAAQS 8-hour (≥9.0 ppm)	0	0	0
NAAQS 1-hour (≥35 ppm)	0	0	0
CAAQS 1-hour (≥20 ppm)	0	0	0
PM10[d] (Branch Center Road)			
National[b] maximum 24-hour concentration (μg/m³)[b]	70	71	45
National[b] second-highest 24-hour concentration (μg/m³)[b]	61	53	35
California maximum 24-hour concentration (μg/m³)[c]	75	72	48
California second-highest 24-hour concentration (μg/m³)[c]	66	57	38
California annual average concentration (μg/m³)[e]	20.7	23.2	18.7
Number of days standard exceeded[a]			
NAAQS 24-hour (>150 μg/m³)[f]	0	0	0
CAAQS 24-hour (>50 μg/m³)[f]	30	12	0

Pollutant Standards	Sacramento County 2007	2008	2009
PM2.5 (Elk Grove–Bruceville)			
National maximum 24-hour concentration (μg/m³)[b]	–	–	–
National second-highest 24-hour concentration (μg/m³)[b]	–	–	–
California maximum 24-hour concentration (μg/m³)[c]	57.7	83.3	41.0
California second-highest 24-hour concentration (μg/m³)[c]	48.2	79.2	39.3
National annual designation value (μg/m³)	–	–	–
National annual average concentration (μg/m³)	–	–	–
California annual designation value (μg/m³)	–	16.0	16.0
California annual average concentration (μg/m³) [e]	–	16.1	14.7
Number of days standard exceeded[a]			
NAAQS 24-hour (>35 μg/m³)[f]	–	–	–

Sources: California Air Resources Board 2010a; U.S. Environmental Protection Agency 2010b.

Notes: CAAQS = California ambient air quality standards.
NAAQS = national ambient air quality standards.
ppm = parts per million.
μg/m³ = micrograms per cubic meter.
– = insufficient data available to determine the value.

[a] An exceedance is not necessarily a violation.

[b] National statistics are based on standard conditions data. In addition, national statistics are based on samplers using federal reference or equivalent methods.

[c] State statistics are based on local conditions data, except in the South Coast Air Basin, for which statistics are based on standard conditions data. In addition, state statistics are based on California-approved samplers.

[d] Usually, measurements are collected every 6 days.

[e] State criteria for ensuring that data are sufficiently complete for calculating valid annual averages are more stringent than the national criteria.

[f] Mathematical estimate of how many days concentrations would have been measured as higher than the level of the standard had each day been monitored. Values have been truncated.

4.2.1.4 Regional Attainment Status

Local monitoring data (Table 4-3) are used to designate areas as nonattainment, maintenance, attainment, or unclassified for the national ambient air quality standards (NAAQS) and California ambient air quality standards (CAAQS). The four designations are further defined as follows:

- **Nonattainment**: Assigned to areas where monitored pollutant concentrations consistently violate the standard in question.
- **Maintenance**: Assigned to areas where monitored pollutant concentrations exceeded the standard in question in the past, but are no longer in violation of that standard.
- **Attainment**: Assigned to areas where pollutant concentrations meet the standard in question over a designated period of time.
- **Unclassified**: Assigned to areas where data are insufficient to determine whether a pollutant is violating the standard in question.

Table 4-4 summarizes the attainment status of Sacramento and El Dorado Counties with regard to the NAAQS and CAAQS.

Table 4-4. Federal and State Attainment Status of Sacramento and El Dorado Counties

	Sacramento County		El Dorado County	
Pollutant	NAAQS	CAAQS	NAAQS	CAAQS
1-hour ozone	–	Serious nonattainment	–	Serious nonattainment[b]
8-hour ozone	Serious nonattainment	Nonattainment	Serious nonattainment[b]	Nonattainment
CO	Moderate maintenance[a]	Attainment	Attainment[b]	Unclassified
PM2.5	Nonattainment	Nonattainment	Nonattainment[b]	Unclassified
PM10	Moderate nonattainment	Nonattainment	Attainment	Nonattainment

Sources: California Air Resources Board 2010b; U.S. Environmental Protection Agency 2010a.
Note: – = no applicable standard.
[a] Designation applies to a portion of the county.
[b] Designation applies to the portion of the county in which the project corridor is included.

4.2.1.5 Sensitive Receptors

The Sacramento Metropolitan Air Quality Management District (SMAQMD) identifies sensitive receptors as "facilities that house or attract children, the elderly, people with illnesses, or others who are especially sensitive to the effects of air pollutants." Hospitals, schools, convalescent facilities, and residential areas are examples of sensitive receptors (Sacramento Metropolitan Air Quality Management District 2009a). Along the project corridor, sensitive receptors are most concentrated in defined communities, such as Franklin, Sheldon, Mather Air Force Base (see the discussion of alternative corridor alignments in Chapter 17), and El Dorado Hills. In addition, several single residences and subdivisions are also scattered north and west of the project corridor. Figure 12-1 in Chapter 12 shows the location of sensitive receptors within a 1-mile radius of the project corridor and alternative alignments (discussed in Chapter 17).

4.2.2 Regulatory Setting

4.2.2.1 Criteria Pollutants

The federal and state air quality management agencies of direct importance in the project area are the EPA and ARB, respectively. Within Sacramento and El Dorado Counties, the SMAQMD and the El Dorado County Air Pollution Control District (EDCAPCD), respectively, have jurisdiction over local air quality. These agencies either have regulatory authority or are responsible for the development and implementation of programs and plans designed to reduce air pollution levels.

Federal

The federal Clean Air Act (CAA), promulgated in 1963 and amended twice thereafter, including the 1990 Clean Air Act Amendments (CAAA), establishes the framework for modern air pollution control. The act directs the EPA to establish NAAQS for the six criteria pollutants discussed above. The NAAQS are summarized in Table 4-5. Most standards have been set to protect public health. For some pollutants, standards have been based on values such as protection of crops, protection of materials, or avoidance of nuisance conditions.

The CAA requires states to submit a state implementation plan (SIP) for areas in nonattainment for NAAQS. The SIP, which is reviewed and approved by the EPA, must demonstrate how the federal standards will be achieved. Failing to submit a plan or secure approval could lead to denial of federal funding and permits. In cases where an SIP is submitted but fails to demonstrate achievement of the NAAQS, the EPA is directed to prepare a federal implementation plan.

Table 4-5. Ambient Air Quality Standards Applicable in California

Pollutant	Symbol	Average Time	Standard (parts per million) California	Standard (parts per million) National	Standard (micrograms per cubic meter) California	Standard (micrograms per cubic meter) National	Violation Criteria California	Violation Criteria National
Ozone*	O_3	1 hour	0.09	–	180	–	If exceeded	–
		8 hours	0.070	0.075	137	147	If exceeded	If fourth-highest 8-hour concentration in a year, averaged over 3 years, is exceeded at each monitor within an area
Carbon monoxide	CO	8 hours	9.0	9	10,000	10,000	If exceeded	If exceeded on more than 1 day per year
		1 hour	20	35	23,000	40,000	If exceeded	If exceeded on more than 1 day per year
(Lake Tahoe only)		8 hours	6	–	7,000	–	If equaled or exceeded	–
Nitrogen dioxide	NO_2	Annual arithmetic mean	0.030	0.053	57	100	If exceeded	If exceeded on more than 1 day per year
		1 hour	0.18	0.100	339	188	If exceeded	–
Sulfur dioxide	SO_2	Annual arithmetic mean	–	–	–	80	–	If exceeded
		24 hours	0.04	–	105	365	If exceeded	If exceeded on more than 1 day per year
		1 hour	0.25	0.075	655	–	If exceeded	–
Hydrogen sulfide	H_2S	1 hour	0.03	–	42	–	If equaled or exceeded	–
Vinyl chloride	C_2H_3Cl	24 hours	0.01	–	26	–	If equaled or exceeded	–
Inhalable particulate matter	PM10	Annual arithmetic mean	–	–	20	–	–	–
		24 hours	–	–	50	150	If exceeded	If exceeded on more than 1 day per year
	PM2.5	Annual arithmetic mean	–	–	12	15	–	If 3-year average from single or multiple community-oriented monitors is exceeded
		24 hours	–	–	–	35	–	If 3-year average of 98th percentile at each population-oriented monitor within an area is exceeded

Pollutant	Symbol	Average Time	Standard (parts per million) California	Standard (parts per million) National	Standard (micrograms per cubic meter) California	Standard (micrograms per cubic meter) National	Violation Criteria California	Violation Criteria National
Sulfate particles	SO_4	24 hours	–	–	25	–	If equaled or exceeded	–
Lead particles	Pb	Calendar quarter	–	–	–	1.5	–	If exceeded no more than 1 day per year
		30-day average	–	–	1.5	–	If equaled or exceeded	–
		Rolling 3-month average	–	–	–	0.15	If equaled or exceeded	Averaged over a rolling 3-month period
Source: California Air Resources Board 2010c.								

State

Responsibility for achieving the CAAQS (Table 4-5) is placed on the ARB and local air districts, and is to be achieved through district-level air quality management plans that will be incorporated into the SIP. In California, the EPA has delegated authority to prepare SIPs to the ARB, which in turn has delegated that authority to individual air districts.

The ARB has traditionally established state air quality standards, maintaining oversight authority in air quality planning, developing programs for reducing emissions from motor vehicles, developing air emission inventories, collecting air quality and meteorological data, and approving SIPs. Please refer to the following section for a discussion of SIPs approved by the SMAQMD and EDCAPCD, respectively.

The California CAA of 1988 substantially added to the authority and responsibilities of air districts. The California CAA designates air districts as lead air quality planning agencies, requires them to prepare air quality plans, and grants them authority to implement transportation control measures (TCMs). The California CAA also requires that local and regional air districts expeditiously adopt and prepare an air quality attainment plan if the district violates the CAAQS. These clean air plans are specifically designed to attain these standards and must be designed to achieve an annual 5% reduction in district-wide emissions of each nonattainment pollutant or its precursors. Please refer to the following section for a discussion of air quality plans approved by the SMAQMD and EDCAPCD, respectively.

The California CAA requires that the state air quality standards be met as expeditiously as practicable, but unlike the federal CAA, it does not set precise attainment deadlines. Instead, it establishes increasingly stringent requirements for areas that will require more time to achieve the standards. In addition, the California CAA emphasizes the control of “indirect and area-wide sources” of air pollutant emissions and gives local air pollution control districts explicit authority to regulate indirect sources of air pollution and to establish TCMs.

Local

Sacramento Metropolitan Air Quality Management District

Most of the project corridor is located within the jurisdiction of the SMAQMD. As discussed above, under the California CAA, the SMAQMD is required to develop an air quality plan for nonattainment criteria pollutants within the air district. Counties within the Sacramento area (Sacramento, Yolo, and portions of Placer, El Dorado, Solano, and Sutter) have adopted the 2009 Sacramento Metropolitan Area 8-Hour Ozone Attainment Plan (2009 Ozone Plan) (Sacramento Valley Air Quality Engineering and Enforcement Professionals 2010). This plan outlines strategies to achieve the health-based ozone standard. The Sacramento region is also in the process of developing a plan to address PM.

The proposed project is subject to SMAQMD rules and regulations at the time of construction, and may be subject to the following SMAQMD, as well as other, rules. These rules have been adopted by the SMAQMD to reduce emissions throughout the district. Failure to comply with any applicable district rule would be a violation subject to district enforcement action. (California Air Resources Board 2010d.)

- **Rule 402 (Nuisance)**: Prohibits the discharge of air containments which cause injury, detriment, nuisance, or annoyance.
- **Rule 403 (Fugitive Dust)**: Regulates operations which periodically may cause fugitive dust.
- **Rule 404 (Particulate Matter)**: Limits the quantity of PM through concentration limits.
- **Rule 412 (Stationary Internal Combustion Engines):** Limits emissions of NO_x, CO, and non-methane hydrocarbons from stationary internal combustion engines. (If construction requires engines rated at more than 50 brake horsepower.)
- **Rule 453 (Cutback and Emulsified Asphalt Paving)**: Limits emissions of ROGs from the use of cutback and emulsified asphalt paving materials, paving, and maintenance operations.

El Dorado County Air Pollution Control District

The northernmost portion of the project corridor extends 3 miles past the Sacramento County/El Dorado County line and therefore falls within the jurisdiction of the EDCAPCD. As discussed above, counties within the Sacramento area, included El Dorado, have adopted the 2009 Ozone Plan and are currently drafting a plan to address PM. Similar to the SMAQMD, the EDCAPCD has established several rules to improve air quality within El Dorado County. The proposed project is subject to EDCAPCD rules and regulations at the time of construction, and may be subject to the following EDCAPCD, as well as other, rules: (California Air Resources Board 2010d.)

- **Rule 205 (Nuisance)**: Prohibits the discharge of air containments which cause injury, detriment, nuisance, or annoyance.
- **Rule 207 (Particulate Matter)**: Limits the quantity of PM through concentration limits.
- **Rule 223 (Fugitive Dust)**: Limits the amount of PM and asbestos PM entrained in the atmosphere.
- **Rule 224 (Cutback and Emulsified Asphalt Paving Materials)**: Limits emissions of ROGs from the use of cutback and emulsified asphalt paving materials, paving, and maintenance operations.
- **Rule 233 (Stationary Internal Combustion Engines)**: Limits emissions of NO_x and CO from stationary internal combustion engines. (If construction requires engines rated at more than 50 brake horsepower.)

4.2.2.2 Greenhouse Gases and Climate Change

Climate change has only recently been widely recognized as an imminent threat to the global climate, economy, and population. Therefore, the climate change regulatory setting—nationally, statewide, and locally—is complex and evolving. This section identifies key legislation, executive orders, and relevant court cases relevant to the environmental assessment of project GHG emissions.

Federal

Endangerment Finding

On December 7, 2009, the EPA administrator found that current and projected concentrations of CO_2, methane, nitrous oxide, hydroflourocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6) threaten the public health and welfare of current and future generations. Additionally, the administrator found that combined emissions of CO_2, methane, nitrous oxide, and HFCs from motor vehicles contribute to the atmospheric concentrations and thus to the threat of climate change. Although the endangerment finding in itself does not place requirements on industry, it was an important step in the EPA's process to regulate of GHGs.

President's Council on Environmental Quality Draft Guidance

On February 18, 2010, Nancy Sutley, chair of the President's Council on Environmental Quality (CEQ), issued a memorandum providing guidance on consideration of the effects of climate change and GHG emissions under NEPA (Sutley 2010). The draft guidance suggests that the effects of projects directly emitting GHGs in excess of 25,000 tons annually be considered in a qualitative and quantitative manner. The CEQ does not propose this reference as a threshold for determining significance, but as "a minimum standard for reporting emissions under the CAA." The draft guidance also recommends that the cumulative effects of climate change on the proposed project be evaluated. The draft guidance is still undergoing public comments and will not be effective until issued in final form (Sutley 2010).

National Tailpipe Standards

On April 1, 2010, the EPA and the National Highway Traffic Safety Administration announced the first national tailpipe standards for new cars and trucks sold in the United States. The program applies to passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012 through 2016, and requires these vehicles to meet combined average fuel economy of 35.5 miles per gallon. It is estimated that these standards will cut GHG emissions by 960 million metric tons over the lifetime of the vehicles (U.S. Environmental Protection Agency 2010c).

State

A variety of legislation has been enacted in California relating to climate change, much of which sets aggressive goals for GHG reductions within the state. The following key legislation is applicable to the proposed project.

Executive Order S-3-05

Under this Executive Order S-3-05, state agencies ordered to reduce California's GHG emissions to: 1) 2000 levels by 2010, 2) 1990 levels by 2020, and 3) 80% below the 1990 levels by 2050.

Assembly Bill 32: Global Warming Solutions Act of 2006

Assembly Bill (AB) 32 sets the same overall year 2020 GHG emissions reduction goals as Executive Order S-3-05, while further mandating that the ARB create a plan includes market mechanisms) and implement rules to achieve "real, quantifiable, cost-effective reductions" of GHGs. AB 32 further directs state agencies and the newly created state Climate Action Team to identify discrete early action GHG reduction measures. These actions were adopted in early 2010 and relate to truck efficiency, port electrification, tire inflation, and reduction of PFCs, propellants, and sulfur hexafluoride.

Climate Change Scoping Plan

The ARB's Climate Change Scoping Plan prepared pursuant to AB 32 contains the main strategies California will use to reduce GHG from business-as-usual emissions projected for 2020 back to 1990 levels (California Air Resources Board 2008). As part of the scoping plan, the ARB and other agencies are undertaking regulatory rule making, culminating in rule adoption by January 1, 2011, for reducing GHG emissions to achieve the emissions cap by 2020, although official adoption has not yet occurred at the time of this writing.

Executive Order S-01-07: Low Carbon Fuel Standard

Executive Order S-01-07 requires a 10% or greater reduction in the average fuel carbon intensity for transportation fuels in California regulated by the ARB.

Assembly Bill 1493 (Pavely): Greenhouse Gases, Chapter 200, Statutes of 2002

AB 1493 requires the ARB to adopt regulations to reduce GHG emissions from noncommercial passenger vehicles and light-duty trucks of model years 2009 and later. The regulations were adopted September 24, 2009.

Senate Bill 375 (Steinberg): Statutes of 2008

Senate Bill (SB) 375 requires regional transportation plans, developed by metropolitan planning organizations (MPOs), to incorporate a "sustainable communities strategy" in their regional transportation plans that will achieve GHG emission reduction targets set by the ARB. The targets established for the SACOG region are a 7% reduction by 2020 and a 16% reduction by 2035.

State CEQA Guidelines, As Amended in 2010

The State CEQA Guidelines require lead agencies to describe, calculate, or estimate the amount of GHG emissions resulting from a project. Moreover, the guidelines emphasize the necessity to determine potential climate change effects of the project and propose mitigation as necessary. The guidelines confirm the discretion of lead agencies to determine appropriate significance thresholds, but require the preparation of an EIR if "there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding compliance with adopted regulations or requirements" (Section 15064.4).

Local

Sacramento Metropolitan Air Quality Management District

The SMAQMD's *Guide to Air Quality Assessment in Sacramento County* establishes analysis expectations with regard to GHG emissions in CEQA documents such as EIRs (Sacramento Metropolitan Air Quality Management District 2009a). The district recommends that an analysis of potential impacts of project-generated GHG emissions should include a description of GHGs, summary of existing regulations, and discussion of GHG emissions sources in the project area. The guidelines further state that the analysis quantifies the mass emissions associated with project construction and operation. Although the guidelines recommend that GHG emissions be quantified, they do not identify thresholds at which emissions are considered significant. Rather, they state that the lead agency should determine a threshold appropriate to the project using either thresholds adopted by other agencies or their own. Finally, the SMAQMD requires that CEQA documents make a conclusion about the significance of project-related GHG emissions and identify feasible mitigation measures to reduce those emissions.

El Dorado County Air Pollution Control District

The EDCAPCD's *Guide to Air Quality Assessment* does not currently contain any guidance for the analysis of climate change impacts (El Dorado County Air Pollution Control District 2002). Consultation with district staff indicates that guidance is forthcoming, but no date or timeline is currently available. In the meantime, use of the SMAQMD's guidance is recommended (Otani pers. comm.).

4.3 Impact and Mitigation Discussion

4.3.1 Thresholds of Significance

4.3.1.1 Criteria Air Pollutants

Based on State CEQA Guidelines Appendix G, an impact pertaining to air quality is considered significant if it would:

- 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 in nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)[1];
- expose sensitive receptors to substantial pollutant concentrations; or
- create objectionable odors affecting a substantial number of people.

The guidelines further state that the significance criteria established by the applicable air quality management or air pollution control district may be relied on to make the determinations above.

[1] See Chapter 18 for a discussion of cumulative impacts.

Both the SMAQMD and EDCAPCD have established quantitative thresholds for the evaluation of air quality impacts. Table 4-6 summarizes both agencies' significance thresholds.

Table 4-6. SMAQMD and EDCAPCD Thresholds of Significance

Pollutant	Application	SMAQMD	EDCAPCD
ROGs	Construction emissions	–	82 pounds per day
	Operational emissions	65 pounds per day	82 pounds per day
NO_x	Construction emissions	85 pounds per day	82 pounds per day
	Operational emissions	65 pounds per day	82 pounds per day
CO	Operational emissions	Exceedance of CAAQS	Exceedance of CAAQS
PM10 and PM2.5	Construction and operational emissions	Exceedance of CAAQS **or** of failure to implement emissions control practices	Exceedance of CAAQS

Sources: Sacramento Metropolitan Air Quality Management District 2009a; El Dorado County Air Pollution Control District 2002.

Note: – = no applicable threshold.

4.3.1.2 Greenhouse Gases

Based on 2010 State CEQA Guidelines Appendix G, an impact pertaining to climate change is considered significant if it would:

- conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing GHGs, or
- generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.

As discussed above, neither the SMAQMD nor EDCAPCD have established thresholds to define a "significant amount" of GHGs. Within the state, the Bay Area Air Quality Management District (BAAQMD), South Coast Air Quality Management District (SCAQMD), and San Joaquin Valley Air Pollution Control District (SJVAPCD) are the only agencies to have adopted GHG thresholds. Although un-adopted, Sacramento County has also proposed a per capita threshold for transportation projects (Table 4-7).

To evaluate significance, this analysis draws upon the adopted GHG thresholds in Table 4-7 to evaluate GHG emissions, as well as the project's consistency with applicable climate action plans and regulations. In accordance with the SMAQMD CEQA guidelines and scientific consensus regarding the cumulative nature of GHGs[2], the analysis includes a cumulative, rather than project-level, evaluation of climate change impacts in Chapter 18.

[2] Climate change is a global problem, and GHGs are global pollutants, unlike criteria air pollutants (such as ozone precursors), which are primarily pollutants of regional and local concern. Given their long atmospheric lifetimes (see Table 4-1), GHGs emitted by countless sources worldwide accumulate in the atmosphere. No single emitter of GHGs is large enough to trigger global climate change on its own. Rather, climate change is the result of the individual contributions of countless sources past, present, and future. Therefore, GHG impacts are inherently cumulatively.

Table 4-7. Adopted Greenhouse Gas Thresholds

Agency	Threshold	Application
BAAQMD	1,100 (metric tons/year)	Development projects (operational emissions)
	Compliance with GHG reduction strategy	
	4.6 metric tons/service population/year	
	25,000 (metric tons/year)	Stationary source projects (operational emissions)
SCAQMD	10,000 (metric tons/year)	Stationary source projects (operational emissions)
SJVAPCD	Compliance with GHG reduction strategy	Development and stationary source projects (operational emissions)
	Implementation of best performance standards	
	29% reduction in GHG emissions relative to business-as-usual conditions[a]	
Sacramento County (Draft)	4.56 metric tons per capita[b]	Transportation projects

Sources: Bay Area Air Quality Management District 2010; South Coast Air Quality Management District 2008; San Joaquin Valley Air Pollution Control District 2009; Sacramento County 2010d.

[a] Defined as emissions that would occur if no GHG mitigation measures were implemented.

[b] This threshold is based on a per capita approach. Consequently, it difficult to apply this threshold to the proposed project—there is not a means of identifying the population served by the project, particularly since the project is intended to provide a transportation link across the Sacramento and into El Dorado counties.

Climate Change Impacts on the Project

Climate change is a complex phenomenon that has the potential to alter local climatic patterns and meteorology. Although modeling indicates that climate change will result in sea level rise, changes in regional climate and rainfall, among other things, a high degree of scientific uncertainty still exists with regard to characterizing future climate characteristics and predicting how various ecological and social systems will react to any changes in the existing climate at the local level. Regardless of this uncertainty, it is widely understood that some form of climate change is expected to occur in the future. Consequently, the proposed project may be impacted by changing climatic conditions.

Appendix G of the CEQA Guidelines does not include an entry for the effects of climate change on projects. However, in its own words, "[t]he sample questions in this form are intended to encourage thoughtful assessment of impacts, and do not necessarily represent thresholds of significance." The absence of an issue from Appendix G does not mean that it may not be meaningful to a particular project and therefore worthy of analysis (*Protect the Historic Amador Waterways v. Amador Water Agency* (2004) 117 Cal.App.4th 590). Therefore, for completeness and informational purposes, a brief summary of anticipated regional changes in climate are provided below.

Several recent studies have attempted to characterize future climatic scenarios for the State. While specific estimates and statistics on the severity of changes vary, sources agree that the Sacramento Valley will witness warmer temperatures, increased heat waves, and changes in rainfall patterns.

Specifically, the California Energy Commission (CEC) estimates that average annual temperatures in the Valley will increase by approximately 1°C to 3°C between 2010 and mid-century. Climatic models also predict that between 2035 and 2064, the number of heat wave days will increase by more than 100, relative to the previous 30 year period between 2005 and 2034. Annual precipitation is expected to witness a declining trend, but remain highly variable, suggesting that the Sacramento Valley will be vulnerable to increased drought. Warmer temperatures and increased precipitation in the form of rain are expected to result in decreased snowpack in the Sierra Nevada. Such effects will translate into earlier snowmelt and increased potential for flooding as a result of insufficient reservoir capacity to retain earlier snowmelt. (Sacramento County 2010d; Intergovernmental Panel on Climate Change 2007; California Natural Resources Agency 2009; California Energy Commission 2009.)

Sea level rise during the next 50 years is expected to increase dramatically over historical rates. The CEC predicts that by 2050, sea level rise, relative to the 2000 level, ranges from 30 centimeters (cm) to 45 cm. Coastal sea level rise could result in saltwater intrusion to the delta and associated biological impacts in the Sacramento Valley. Changes in soil moisture and increased risk of wildfires may also dominate future climatic conditions in the project area. (Sacramento County 2010d; Intergovernmental Panel on Climate Change 2007; California Natural Resources Agency 2009; California Energy Commission 2009.)

The proposed project will likely be most affected by climatic changes that could comprise the structural integrity of the facility. Such events include extreme heat, flooding, changes in soil moisture, and fire hazards. For example, extreme heat events coupled with changes in soil moisture could lead to pavement breaks or cracks. Likewise, flooding could erode underlining earth, which may cause portions of the roadway to become unlevel. While these future climatic conditions pose a threat to the proposed project, the severity of the impact is currently unknown.

4.3.2 Approach and Methodology

This section describes potential air quality impacts that could result from implementation of the proposed project and optional project components. This evaluation of impacts is at a program level and enables the JPA to select a Connector corridor and move into more detailed planning and design. Components of the proposed project and optional project components will be subject to further project-level environmental review at a later time.

The land use and transportation network configurations assumed for the proposed project are described in Chapters 11 and 16, respectively. Section 15126 of the State CEQA Guidelines provides that the environmental setting “will normally constitute the baseline physical conditions by which a lead agency determines whether an impact is significant.” The environmental setting consists of existing physical conditions at the time the NOP is released or CEQA analysis is begun.

In 2010, the California Supreme Court clarified that “[n]either CEQA nor the CEQA Guidelines mandates a uniform, inflexible rule for determination of the existing conditions baseline. Rather, an agency enjoys the discretion to decide, in the first instance, exactly how the existing physical conditions without the project can most realistically be measured, subject to review, as with all CEQA factual determinations, for support by substantial evidence.” The Court limited this flexibility by further stating that “[a]n approach using hypothetical allowable conditions as the baseline results in ‘illusory’ comparisons that ‘can only mislead the public as to the reality of the impacts and subvert full consideration of the actual environmental impacts,’ a result at direct odds with CEQA's intent.”

(*Communities for a Better Environment v. South Coast Air Quality Management District* (2010) 48 Cal.4th 310.)

Past practice in traffic impact analysis undertaken to help determine the significance of a project's air quality impact has often relied upon a "future no-project" scenario as its CEQA baseline. The project's impact is derived from the difference between "future with-project" and "future no-project" scenarios. This approach has been used in the past because it offers a means of comparing with- and without-project scenarios that share common assumptions for future growth and improvements. It may not, however, conform to the *Communities for a Better Environment* decision. In fact, that approach was invalidated in late 2010 in the Sixth District Court of Appeal's decision in *Sunnyvale West Neighborhood Assn. v. City of Sunnyvale* (2010) 190 Cal.App.4th 1351. Since the *Sunnyvale West* decision, two additional appellate court decisions have addressed issues regarding the appropriate CEQA baseline: *Madera Oversight Coalition, Inc., v. County of Madera* (2011) 199 CalApp.4th 48, and *Pfeiffer v. City of Sunnyvale*, 2011 WL 5845009 (Cal.App. 6th Dist.) (Nov. 22, 2011).

In recognition of the *Communities for a Better Environment* and *Sunnyvale West* decisions, the EIR for the Southeast Connector does not follow the past practice of evaluating impacts by comparing the "future with-project" and the "future no-project" scenarios. For purposes of determining the impact on air quality in this EIR, the baseline is physical conditions along the Southeast Connector alignment as they existed in 2008. The data on existing traffic levels has been used to estimate existing air quality conditions based on standard modeling techniques. The estimated existing conditions are compared to the existing conditions with the project to determine the significance of the project's air quality impact. This approach complies with the intent of the *Communities for a Better Environment*, by providing a significance determination based on the change from existing conditions and avoiding the use of a hypothetical baseline condition.

Determining the significance of an impact by comparing anticipated project conditions to existing conditions in the area affected by the project is a relatively straightforward analysis for most impacts. However, the air quality impact of a project that will not be operational for years is not easily compared to existing conditions. By the time the Project is operational in 2025 there will be new infrastructure and background growth in the region unrelated to the project that will impact area roads. The 2025 traffic conditions modeled for the proposed project and used as the basis for the air quality analysis do not include reasonable assumptions about new infrastructure and background growth within the region. As a result, although this analysis provides a comparison between existing conditions and existing conditions with the Project in place, the resultant significance determination will likely overstate the extent of change in air quality conditions that is a direct result of the Project.

This EIR does not ignore the potential impacts that would occur under the "future with-project" scenario. The significance of the impacts of the "future with-project" scenario in comparison to the "future without-project" scenario is disclosed in the cumulative impact discussion in Chapter 18, "Cumulative and Growth Inducing Impacts."

The study of future conditions, in addition to existing conditions, was expressly approved in both *Sunnyvale West* and *Pfeiffer*. In *Pfeiffer*, the court acknowledged that discussions of "foreseeable changes and expected future conditions" have may be considered in determining a proposed project's impact on the environment, and "may be necessary to an intelligent understanding of a project's impacts over time and full compliance with CEQA." (*Pfeiffer*, *supra*, at p. 23, quoting

Sunnyvale West, *supra*, 190 Cal.App.4th at p. 1381.) In addition, the CEQA Guidelines expressly provide for the consideration of potential future conditions, and require that an EIR clearly identify and describe the "direct and indirect significant effects of the project on the environment" and give "due consideration to both the short-term and long-term effects." (California Code of Regulations, title 14, section 15126.2, subd. (a).)

Buildout of the proposed project may include any of the following optional project components: Kammerer Road Bypass Option, Off-Corridor Multi-Use Path Option, Deer Creek Causeway Options 1 and 2, Reduced Access Roadway Option, and High Access Roadway Option. Construction emissions associated with these optional project components were evaluated in accordance with the methods outlined in Section 4.3.2.1.

Operational emissions associated with the proposed project and optional project components were evaluated based on the methods described in Section 4.3.2.2 and Appendix B. Operational emissions associated with the Kammerer Road Bypass Option and the Off-Corridor Multi-Use Path Alternative were not estimated because the traffic analysis (Chapter 16) found that they would have no discernable impacts on the transportation network and did not identify any differences in the operational data.

4.3.2.1 Construction Emissions

Although the approval of a project corridor at the conclusion of the program EIR process will not immediately lead to project construction, estimates of the type of equipment were made in this program EIR analysis for purposes of calculating eventual project construction impacts related to air quality. Construction emissions were estimated using the SMAQMD's Road Construction Emissions Model (Version 6.3.2). The road construction model is a public-domain spreadsheet model formatted as a series of individual worksheets. The model enables users to estimate emissions using a minimum amount of project-specific information. The model estimates emissions for load hauling (on-road heavy-duty vehicle trips), worker commute trips, construction site fugitive dust (PM10 and PM2.5), and off-road construction vehicles.

This analysis is based on anticipated construction equipment calculated by the Road Construction Emissions Model, which estimates construction equipment based on project size, duration of construction activities, and level of daily construction activities. Although exhaust emissions are estimated for each activity, fugitive dust estimates are currently limited to major dust-generating activities, which include grubbing/land clearing and grading/excavation. Table 4-8 outlines the modeling inputs used to quantify construction emissions.

Table 4-8. Modeling Assumptions to Quantify Construction Emissions

Proposed Project and Optional Project Component	Project Length (miles)	Acreage Disturbed[a]	Maximum Acreage Disturbed per Day[b]
Proposed Project with Reduced Access Roadway	33.5	1,471	368
Proposed Project with Deer Creek Causeway Option 1	35.8	1,403	351
Proposed Project with Deer Creek Causeway Option 2	35.8	1,427	357
Proposed Project with High Access Roadway	33.5	1,477	369
Proposed Project with Off-Corridor Multi-Use Path[c]	63.5	1,554	388
Proposed Project with Kammerer Road Bypass	34.3	1,476	369

[a] Assumes alignment footprint plus 50 feet on either side for construction staging. Calculated using ArcGIS.

[b] A default assumption of 25% the total acreage was assumed based on guidance found in the SMAQMD CEQA guidelines (Sacramento Metropolitan Air Quality Management District 2009a). The maximum daily acreage under mitigated conditions is assumed to be 15 acres, based on Mitigation Measure AQ-2 (see below).

[c] Off-corridor trail assumed to have a total disturbance area of 84.8 acres.

Table 4-9 presents the portion of the project alignment within the SMAQMD and EDCAPCD.

Table 4-9. Percent of Roadway to Be Constructed within the SMAQMD and EDCAPCD[a]

Proposed Project and Optional Project Component	Percent in SMAQMD	Percent in EDCAPCD
Proposed Project with Reduced Access Roadway	91.05%	8.95%
Proposed Project with Deer Creek Causeway Option 1	91.61%	8.39%
Proposed Project with Deer Creek Causeway Option 2	91.63%	8.37%
Proposed Project with High Access Roadway	91.05%	8.95%
Proposed Project with Off-Corridor Multi-Use Path[b]	90.56%	9.44%
Proposed Project with Kammerer Road Bypass	91.25%	8.75%
No Project[c]	91.05%	8.95%

[a] Three miles of the total roadway length (Table 4-8) are assumed to be constructed in the EDCAPCD, unless otherwise stated.

[b] Three miles of the total off-trail length are assumed to constructed in the EDCAPCD.

[c] Only for operational emissions analysis (see below).

4.3.2.2 Operational Emissions

The analysis of air quality impacts under existing (2008) and future (2025 and 2035) conditions employed slightly different methodologies due to constraints associated with the available traffic data. A brief methods overview is presented below. However, for more detailed information, please refer to Appendix B.

Future Conditions (2025 and 2035)

Operational emissions for the Reduced Access Roadway Option, Deer Creek Causeway Options 1 and 2, and High Access Roadway Option were quantified using the most recent approved methodologies and models. The effects of criteria pollutants (ozone precursors, CO, PM10, and PM2.5) were quantified with Caltrans' CT-EMFAC emissions model (Version 2.6) and traffic data provided by the project traffic engineers, DKS (Fugitt pers. comm.). The effects of localized CO hotspot emissions were evaluated through CO dispersion modeling using the *Transportation Project-Level Carbon Monoxide Protocol* developed for Caltrans by the Institute of Transportation Studies at the University of California, Davis (Garza et al. 1997). An analysis of potential health risks associated with exposure of sensitive receptors to DPM was conducted using the CAL3QHCR dispersion model and the SMAQMD's *Recommended Protocol for Evaluating the Location of Sensitive Land Uses Adjacent to Major Roadways* (Sacramento Metropolitan Air Quality Management District 2010).

Existing Conditions (2008)

Pollutant emissions were estimated under the "no project" and the proposed project with Reduced Access Roadway Option using traffic data provided by the traffic engineers (Long pers. comm.). This design option was identified as having the worst traffic impacts in the Chapter 16. However, although related, the severity of traffic impacts is not directly commensurate with air quality impacts on a one to one ratio due to other compounding factors, such as vehicle speed and type, that also influence vehicle emissions. In fact, the analysis of air quality impacts completed under future conditions (2025 and 2035) identified both the Reduced Access Roadway Option and the Deer Creek Causeway Option 1 as having the highest emissions. Thus an analysis of both design options was undertaken using the assumptions outlined in Appendix B to evaluate a worst-case scenario relating to air quality emissions.

While the Future Conditions analysis evaluated six intersections (White Rock Road/Latrobe Road, White Rock Road/Off-Vehicle Road, Teichert [local road]/Grant Line Road, SR 99 Northbound ramps/Grant Line Road, East Bidwell Road/Iron Point Road, and Scott Road/Easton Valley Parkway), the effects of localized CO hotspot emissions under existing conditions were analyzed at the intersection of East Bidwell Road and Iron Point Road. This intersection was selected as the traffic data indicates that it is the only intersection that will experience higher delay and/or LOS with implementation of the project under existing conditions, as four of the other five intersections will experience operational improvements and the remaining intersection does not exist under existing no project" and proposed project conditions. The traffic data required to conduct a CO analysis was only available for the no project alternative and the design option with the highest average daily traffic (ADT). Based on ADT provided under future conditions, this option was assumed to be the High Access Roadway. Appendix B presents a detailed methodology used in the CO analysis.

An analysis of potential health risks associated with exposure of sensitive receptors to DPM was conducted for the "no project" condition and the High Access Roadway using the CAL3QHCR dispersion model and the SMAQMD's *Recommended Protocol for Evaluating the Location of Sensitive Land Uses Adjacent to Major Roadways* (Sacramento Metropolitan Air Quality Management District 2010).

4.3.3 Impacts of the Proposed Project

Implementation of the proposed project will generate short-term construction emissions from construction and long-term operational emissions from vehicle travel on the project corridor. Because the specific components to be included in the project have not been selected, traffic data required to provide a quantitative analysis of the air quality impacts that could result from operation of the project is not available. Rather, the available data consisted of traffic volumes for the proposed project with the various optional project components. Consequently, a quantitative analysis of operational air quality impacts from the proposed project is not possible and a qualitative assessment was conducted. For consistency, construction impacts are also discussed qualitatively.

Consistent with the availability of the traffic data, the impacts of the proposed project with optional project components are discussed in combination below. As shown in Impact AQ-2, all optional project components will generate construction and operational NO_x emissions in excess of the SMAQMD thresholds. In addition, the proposed project with the Reduced Access Roadway will exceed the District's operational ROG threshold. None of the optional project components will result in impacts on sensitive receptors or generate odors, and impacts under the proposed project alone would be similar to those for the proposed project in combination with optional project components. Consequently, it reasonable to conclude that construction and operational NO_x emissions will exceed the SMAQMD thresholds.

Impact AQ-1: Conflict with or Obstruct Implementation of the Applicable Air Quality Plan

A project is deemed inconsistent with air quality plans if it would result in population or employment growth that exceeds growth estimates included in the applicable air quality plan, which in turn would generate emissions not accounted for in the applicable air quality plan emissions budget. Because these emissions budgets are developed using growth projections outlined in the applicable local and regional planning documents, any conflicts with area general or transportation plans would constitute a conflict with the applicable air quality plan.

As discussed in Chapter 11, the proposed project and optional project components would not conflict with the planning assumptions in the Sacramento County, El Dorado County, Elk Grove, Rancho Cordova, and Folsom General Plans. The proposed project and optional project components is generally consistent with MTP 2035. Since publication of MTP 2035, the project scope has changed to include a reduced number of lanes and roadway extensions (see Chapter 16). Although these designs are not included in MTP 2035, they do represent reductions in the project scope, so they are not anticipated to result in any impacts greater than those identified for MTP 2035, and would likely result in smaller impacts than those identified in the MTP 2035 due to the reduced project elements reflected as part of the proposed project and optional project components. Therefore, the proposed project and optional project components are not considered to conflict with the growth projections or emissions analyses assumed by MTP 2035 and would not conflict with or obstruct implementation of the applicable air quality plan. This impact is considered less than significant.

Impact AQ-2: Violate Any Air Quality Standard or Contribute Substantially to an Existing or Projected Air Quality Violation

Construction Emissions

Implementation of the project would result in new roadway alignments and improvements, as well as the addition of traffic lanes. Temporary construction emissions would result from grubbing/land clearing, grading/excavation, drainage/utilities/subgrade construction, paving activities, and construction worker commuting patterns. Pollutant emissions would vary daily, depending on the level of activity, specific operations, and prevailing weather.

The SMAQMD's Road Construction Emissions Model (Version 6.3.2) was used to estimate construction-related ozone precursor (ROG and NO_x), CO, PM10, PM2.5, and C O_2 emissions. The estimate assumes that construction would begin in 2015 and last approximately 10 years. Construction of the all design options would include the use of water trucks and an assumed import and export of 500 cubic yards of soil per day. Table 4-10 summarizes the modeled construction emissions within the SMAQMD and EDCAPCD.

Based on Table 4-10, implementation of all optional project components would generate NO_x emissions in excess of the SMAQMD significance threshold. These emissions are primarily the result of diesel-powered construction equipment. In addition, the emissions of PM10 and PM2.5 shown in Table 4-10 do not include implementation of SMAQMD dust control measures and assume a daily disturbance of more than 15 acres. This is a potentially significant impact. Mitigation Measures AQ-1 and AQ-2 are required to reduce fugitive dust emissions, and Mitigation Measures AQ-3 and AQ-4 are required to reduce NO_x emissions. Mitigated emissions are presented below in Table 4-11. Implementation of Mitigation Measures AQ-1 through AQ-4 would reduce the impact to a less-than-significant level.

Revised Table 4-10. Summary of Unmitigated Construction Emissions (pounds per day)

Proposed Project and Optional Project Component	ROGs	NO_x	CO	PM10			PM2.5		
				Total	Exhaust	Dust	Total	Exhaust	Dust
Proposed Project with Reduced Access Roadway	24.10	189.39	138.90	743.29	7.89	735.40	160.00	7.04	152.96
Proposed Project with Deer Creek Causeway Option 1	24.18	189.49	139.54	709.51	7.91	701.60	152.98	7.05	145.93
Proposed Project with Deer Creek Causeway Option 2	24.18	189.49	139.68	721.51	7.91	713.60	155.48	7.05	148.43
Proposed Project with High Access Roadway	24.10	189.39	138.92	746.29	7.89	738.40	160.62	7.04	153.59
Proposed Project with Off-Corridor Multi-Use Path	25.14	190.69	153.77	785.15	8.20	776.96	168.77	7.16	161.61
Proposed Project with Kammerer Road Bypass	24.13	189.43	139.24	745.69	7.89	737.80	160.50	7.04	153.46
SMAQMD Threshold	–	*85*	–	–	–	–[a]	–	–	–[a]
EDCAPCD Threshold	*82*	*82*	–	–	–	–[b]	–	–	–[b]

[a] Exceedance of CAAQS or failure to implement emissions control practices and disturb more than 15 acres per day.

[b] Exceedance of CAAQS.

Revised Table 4-11. Summary of Mitigated Construction Emissions (pounds per day)

Proposed Project and Optional Project Component	ROGs	NO_x	CO	PM10			PM2.5		
				Total	Exhaust	Dust	Total	Exhaust	Dust
Proposed Project with Reduced Access Roadway	10.31	62.63	77.03	153.43	3.43	150.00	34.13	2.93	31.20
Proposed Project with Deer Creek Causeway Option 1	10.39	62.70	77.99	153.45	3.45	150.00	34.14	2.94	31.20
Proposed Project with Deer Creek Causeway Option 2	10.39	62.71	78.02	153.45	3.45	150.00	34.14	2.94	31.20
Proposed Project with High Access Roadway	10.31	62.63	77.03	153.43	3.43	150.00	34.13	2.93	31.20
Proposed Project with Off-Corridor Multi-Use Path	11.35	63.66	91.52	153.77	3.77	150.00	34.26	3.06	31.20
Proposed Project with Kammerer Road Bypass	10.34	62.65	77.36	153.44	3.44	150.00	34.13	2.93	31.20
SMAQMD Threshold	–	*85*	–	–	–	–[a]	–	–	–[a]
EDCAPCD Threshold	*82*	*82*	–	–	–	–[a]	–	–	–[a]

[a] Exceedance of CAAQS or failure to implement emissions control practices and disturb more than 15 acres per day.

Mitigation Measure AQ-1: Implement SMAQMD Basic and Enhanced Construction Emission Control Practices to Reduce Fugitive Dust

The JPA or local jurisdiction will require, as a standard or specification of their contract, the construction contractor(s) to implement basic and enhanced control measures to reduce construction-related fugitive dust. Although the following measures are outlined in the SMAQMD's CEQA guidelines, they are required for the entirety of the construction area, including the segment within the EDCAPCD. The JPA or local jurisdiction will ensure through contract provisions and specifications that the contractor adheres to the mitigation measures before and during construction and documents compliance with the adopted mitigation measures.

- Water all exposed surfaces two times daily. Exposed surfaces include (but are not limited to) soil piles, graded areas, unpaved parking areas, staging areas, and access roads.
- Cover or maintain at least 2 feet of freeboard space on haul trucks transporting soil, sand, or other loose material on the site. Any haul trucks that would be traveling along freeways or major roadways should be covered.
- Use wet power vacuum street sweepers to remove any visible trackout mud or dirt onto adjacent public roads at least once a day. Use of dry power sweeping is prohibited.
- Limit vehicle speeds on unpaved roads to 15 miles per hour.

- All roadway, driveway, sidewalk, and parking lot paving should be completed as soon as possible. In addition, building pads should be laid as soon as possible after grading unless seeding or soil binders are used.

Enhanced Control Measures – Disturbance Areas

- Water exposed soil with adequate frequency for continued moist soil. However, do not overwater to the extent that sediment flows off the site.
- Suspend excavation, grading, and/or demolition activity when wind speeds exceed 20 mph.
- Install wind breaks (e.g., plant trees, solid fencing) on windward side(s) of construction areas.
- Plant vegetative ground cover (fast-germinating native grass seed) in disturbed areas as soon as possible. Water appropriately until vegetation is established.

Enhanced Control Measures – Unpaved Roads (Entrained Road Dust)

- Install wheel washers for all exiting trucks, or wash off all trucks and equipment leaving the site.
- Treat site accesses to a distance of 100 feet from the paved road with a 6 to 12-inch layer of wood chips, mulch, or gravel to reduce generation of road dust and road dust carryout onto public roads.
- Post a publicly visible sign with the telephone number and person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The phone number of the District shall also be visible to ensure compliance.

Additional Control Measures – Off-Site Mitigation Fees Payable to the SMAQMD

- In the event that the SMAQMD basic and enhanced construction mitigation measures are not sufficient to reduce NOX emissions below the SMAQMD's construction NOX threshold, the remaining NOX emissions in excess of the SMAQMD's threshold would be offset by the JPA through a fee paid to the SMAQMD who will fund cost-effective projects that reduce NOX, in the project area, to the extent possible, and otherwise within the Sacramento air basin. The fee will be calculated using the SMAQMD's current rate of NOX per ton at the time of construction in addition to SMAQMD administration fees. Currently, the SMAQMD's off-site mitigation fee is $16,400 per ton of NOX, in addition to a 5% administration fee.

Mitigation Measure AQ-2: Limit Maximum Daily Disturbed Area to 15 Acres

The JPA or local jurisdiction will require, as a standard or specification of their contract, that the construction contractor(s) limit the maximum daily disturbed area to 15 acres or 1,800 centerline-feet (based on an assumed width of 360 feet) per day. Although this measure is outlined in the SMAQMD's CEQA guidelines, it is required for the entirety of the construction area, including the segment within the EDCAPCD. The JPA or local jurisdiction will ensure through contract provisions and specifications that the contractor adheres to the mitigation measures before and during construction and documents compliance with the adopted mitigation measures.

Mitigation Measure AQ-3: Implement SMAQMD Basic Construction Emission Control Practices to Reduce NO_x Emissions

The JPA or local jurisdiction will require, as a standard or specification of their contract, that the construction contractor(s) implement basic control measures to reduce NO_x emissions from diesel-powered construction equipment. Although the following measures are outlined in SMAQMD's CEQA guidelines, they will be required by the SMAQMD and EDCAPCD for the entirety of the construction area. The JPA or local jurisdiction will ensure through contract provisions and specifications that the contractor adheres to the mitigation measures before and during construction and documents compliance with the adopted mitigation measures.

- Minimize idling time either by shutting equipment off when not in use or limiting the time of idling to 3 minutes (5 minutes required by 13 CCR 2449[d][3], 2485). 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.

Mitigation Measure AQ-4: Implement SMAQMD Enhanced Construction Emission Control Practices to Reduce NO_x Emissions

The JPA or local jurisdiction will require, as a standard or specification of their contract, that the construction contractor(s) implement enhanced control measures to reduce NO_x emissions from diesel-powered construction equipment. The following measures are outlined in SMAQMD's CEQA guidelines and are required for the entirety of the construction area, including the segment within the EDCAPCD. The JPA or local jurisdiction will ensure through contract provisions and specifications that the contractor adheres to the mitigation measures before and during construction and documents compliance with the adopted mitigation measures.

- Provide a plan for approval by the SMAQMD demonstrating that the heavy-duty (50-horsepower or more) off-road vehicles to be used in the construction project, including owned, leased, and subcontractor vehicles, will achieve a project-wide fleet-average 20% NO_x reduction and 45% PM exhaust reduction compared to the most recent ARB fleet average. Acceptable options for reducing emissions may include use of late-model engines, low-emission diesel products, alternative fuels, engine-retrofit technology, after-treatment products, or other options as they become available.
- Ensure that emissions from all off-road diesel-powered equipment used on the project site do not exceed 40% opacity for more than 3 minutes in any 1 hour. Any equipment found to exceed 40% opacity (or Ringelmann 2.0[3]) will be repaired immediately. Non-compliant equipment will be documented and a summary provided periodically to the lead agency and air district. A visual survey of all in-operation equipment will be made at least periodically by the proponent agency(s), and a periodic summary of the visual survey results will be submitted throughout the duration of the proposed project, except that the summary will not be required for any 30-day period in which no construction activity occurs. The summary will include the quantity and type of vehicles surveyed, as well as the dates of each survey. The air districts or other officials may conduct periodic site inspections to determine

[3] Based on the Ringelmann scale, which measures the density of smoke in the air.

compliance. Nothing in this measure will supersede other air district or state rules or regulations.

Operational Emissions

Long-term air quality impacts are those associated with motor vehicles operating on the roadway network, predominantly those operating in the project vicinity. Emissions of ROGs, NO_x, CO, PM10, PM2.5, and CO_2 for existing (2008), open-to-traffic year (2025), and design-year (2035) conditions were evaluated using Caltrans' CT-EMFAC model and traffic data provided by the traffic engineers (Appendix B; Long pers. comm.). To determine the portion of emissions occurring within the SMAQMD and EDCAPCD, total emissions were multiplied by the ratio of roadway constructed within each district (Table 4-9).

Tables 4-12 and 4-13 summarize the modeled yearly emissions within the SMAQMD and EDCAPCD, respectively. The differences in emissions between baseline and with-project conditions represent emissions generated directly as a result of implementation of the proposed project and optional project components. Vehicular emission rates, in general, are anticipated to decline in future years because of continuing improvements in engine technology and the retirement of older, higher-emitting vehicles.

Based on Tables 4-12 and 4-13, implementation of the proposed project and optional project components would result in a net increase in all criteria pollutants within the SMAQMD under both existing (2008) and future (2025 and 2035) conditions. Within the EDCAPCD, implementation of the proposed project with the Reduced Access Roadway and High Access Roadway would result in slight increases in emissions, while implementation of the proposed project with the Deer Creek Causeway Options 1and 2 would have minor decreases.[4]

As discussed above, the significance conclusion is based on a comparison of emissions for the proposed project to the no project alternative under existing conditions (2008). Table 4-12 indicates that NO_x emissions in the SMAQMD are expected to exceed the district's threshold of significance under both the proposed project with the Reduced Access Roadway and the Deer Creek Causeway Option 1. Implementation the proposed project with the Deer Creek Causeway Option 1 will also exceed the district's threshold for ROG. While other design options were not modeled due to constraints associated with the available traffic data, the proposed project with Deer Creek Causeway Option 1 is expected to result in the highest emissions. This assumption is based on the analysis of future conditions, which indicates that the Deer Creek Causeway Option 1 has the highest traffic volumes and emissions in the SMAQMD. This approach further assumes that the ratio of emissions amongst the design options will remain constant between existing and future conditions, as design elements associated with the proposed project and optional project components are the same for existing and future conditions. Emissions for all other design options will therefore likely be lower than those expected under the proposed project with the Deer Creek Causeway Option 1.

[4] Scaling emissions by the ratio of constructed roadway in each air district affects the comparison of project-related emissions to the no project alternative for each optional project component. Because the percentage of roadway construction in the EDCAPCD is less under the proposed project with Deer Creek Causeway Options 1 and 2 compared to the No-Build Alternative (Table 4-8), scaled VMT and emissions are likewise less under the design options. The ratio of constructed roadway was used as a proxy for overall VMT in the SMAQMD and EDCAPCD as more specific traffic data were not available. Although this approach may generalize actual emissions within each district, it represents a good-faith effort based on the existing traffic data.

Table 4-12. Summary of Operational Emissions within the SMAQMD

Scenario	Yearly VMT	Pounds per Day[a]					
		ROGs	NO_x	CO	PM10	PM2.5	CO_2[a]
Existing (2008)[b]	2,952,395,521	4,555	10,850	65,283	337	311	1,183,167
2008 Proposed Project with Reduced Access Roadway[b]	3,003,765,035	4,577	11,045	66,195	339	313	1,197,463
2008 Proposed Project with Deer Creek Causeway Option 1[b]	3,031,417,394	4,626	11,210	66,896	342	317	1,211,169
2025 No-Project[b]	4,445,564,911	2,164	3,894	26,566	409	372	1,756,192
2025 Proposed Project with Reduced Access Roadway[b]	4,514,236,187	2,194	3,983	26,946	415	378	1,787,024
2025 Proposed Project with Deer Creek Causeway Option 1[b]	4,557,119,012	2,216	4,043	27,211	420	382	1,807,465
2025 Proposed Project with Deer Creek Causeway Option 2[b]	4,556,538,985	2,214	4,023	27,196	419	382	1,804,362
2025 Proposed Project with High Access Roadway[b]	4,512,638,000	2,193	3,981	26,938	415	378	1,785,994
2035 No-Project[b]	5,161,850,674	1,764	2,843	24,002	466	432	2,020,727
2035 Proposed Project with Reduced Access Roadway[b]	5,233,810,825	1,790	2,902	24,341	473	438	2,054,279
2035 Proposed Project with Deer Creek Causeway Option 1[b]	5,281,992,760	1,809	2,946	24,598	478	443	2,077,792
2035 Proposed Project with Deer Creek Causeway Option 2[b]	5,281,167,639	1,807	2,931	24,576	477	442	2,073,776
2035 Proposed Project with High Access Roadway[b]	5,231,063,100	1,791	2,901	24,335	473	438	2,054,475
Emissions Specific to the Optional Project Components							
2008 Proposed Project with Reduced Access Roadway	51,369,513	22	195	913	2	2	14,296
2008 Proposed Project with Deer Creek Causeway Option 1	79,021,872	71	361	1,613	5	5	28,002
2025 Proposed Project with Reduced Access Roadway	68,671,276	30	89	380	6	6	30,832
2025 Proposed Project with Deer Creek Causeway Option 1	111,554,100	52	149	645	11	10	51,273
2025 Proposed Project with Deer Creek Causeway Option 2	110,974,073	50	129	630	10	9	48,170
2025 Proposed Project with High Access Roadway	67,073,089	29	87	372	6	6	29,802
2035 Proposed Project with Reduced Access Roadway	71,960,151	26	59	339	7	6	33,552
2035 Proposed Project with Deer Creek Causeway Option 1	120,142,086	45	103	596	12	11	57,065
2035 Proposed Project with Deer Creek Causeway Option 2	119,316,965	43	88	574	11	10	53,049
2035 Proposed Project with High Access Roadway	69,212,426	27	58	333	7	7	33,748
SMAQMD Threshold	–	*65*	*65*	–	–	–	–

Note: Please refer to Appendix B for modeling procedures.

[a] CO_2 emissions are presented in metric tons per year.

[b] Represents emissions associated with traffic generated by both the project option and development in the study area.

[c] Represents emissions associated with just the project option, as calculated by the following equation: Proposed Project with Project Option minus No Project

Table 4-13. Summary of Operational Emissions within the EDCAPCD

		Pounds per Day[a]					
Scenario	Yearly VMT	ROGs	NO_x	CO	PM10	PM2.5	CO_2[a]
Existing (2008)[b]	290,390,039	448	1,067	6,421	33	31	116,373
2008 Proposed Project with Reduced Access Roadway[b]	295,263,010	450	1,086	6,507	33	31	117,708
2008 Proposed Project with Deer Creek Causeway Option 1[b]	277,628,992	424	1,027	6,127	31	29	110,924
2025 No Project [b]	437,254,344	213	383	2,613	40	37	172,735
2025 Proposed Project with Reduced Access Roadway[b]	443,738,758	216	391	2,649	41	37	175,660
2025 Proposed Project with Deer Creek Causeway Option 1[b]	417,358,678	203	370	2,492	38	35	165,535
2025 Proposed Project with Deer Creek Causeway Option 2[b]	416,219,920	202	367	2,484	38	35	164,821
2025 Proposed Project with High Access Roadway[b]	443,581,660	216	391	2,648	41	37	175,559
2035 No Project[b]	507,706,371	174	280	2,361	46	42	198,754
2035 Proposed Project with Reduced Access Roadway[b]	514,471,245	176	285	2,393	46	43	201,931
2035 Proposed Project with Deer Creek Causeway Option 1[b]	483,745,435	166	270	2,253	44	41	190,292
2035 Proposed Project with Deer Creek Causeway Option 2[b]	482,411,581	165	268	2,245	44	40	189,430
2035 Proposed Project with High Access Roadway[b]	514,201,150	176	285	2,392	47	43	201,950
Emissions Specific to the Optional Project Components[c]							
2008 Proposed Project with Reduced Access Roadway	4,872,972	2	18	86	0	0	1,335
2008 Proposed Project with Deer Creek Causeway Option 1	-12,761,047	-24	-40	-294	-2	-2	-5,450
2025 Proposed Project with Reduced Access Roadway	6,484,414	3	8	36	1	1	2,926
2025 Proposed Project with Deer Creek Causeway Option 1	-19,895,665	-10	-13	-121	-2	-2	-7,200
2025 Proposed Project with Deer Creek Causeway Option 2	-21,034,423	-11	-16	-129	-2	-2	-7,914
2025 Proposed Project with High Access Roadway	6,327,316	3	8	35	1	1	2,824
2035 Proposed Project with Reduced Access Roadway	6,764,874	2	6	32	1	1	3,177
2035 Proposed Project with Deer Creek Causeway Option 1	-23,960,936	-8	-10	-108	-2	-2	-8,461
2035 Proposed Project with Deer Creek Causeway Option 2	-25,294,790	-8	-12	-116	-2	-2	-9,323
2035 Proposed Project with High Access Roadway	6,494,779	3	6	31	1	1	3,197
ECAPCD Threshold	–	*82*	*82*	–	–	–	–

Note: Please refer to Appendix B for modeling procedures.

[a] CO_2 emissions are presented in metric tons per year.

[b] Represents emissions associated with traffic generated by both the project option and development in the study area.

[c] Represents emissions associated with just the project option, as calculated by the following equation: Proposed Project with Project Option minus No Project

Criteria pollutant emissions in the EDAPCD are not expected to exceed the district's significance thresholds. As discussed above, emissions under existing conditions were only modeled for the proposed project with the Reduced Access Roadway and the Deer Creek Causeway Option 1 due to constraints associated with the available traffic data. However, the proposed project with the Reduced Access Roadway is expected to result in the highest emissions as traffic volumes under future conditions indicate that this option would result in the highest volumes in the EDPACD. Emissions for all other design options will therefore likely be lower than those expected under the proposed project with the Reduced Access Roadway.

Emissions increases within the study area are attributable to increased VMT induced by construction of the new roadway. It should be noted that traffic patterns affected by the proposed project and optional project components will differ throughout the project corridor. As shown in Figures 16-8 through 16-11 in Chapter 16, the proposed project with all optional project components would decrease daily traffic volumes on many arterial/collector roadway segments and on portions of US 50, SR 99, and I-5. However, daily volumes are excepted to increase on the Connector (Kammerer Road, Grant Line Road, and the portion of White Rock Road east of Grant Line Road) and on most major roadways that provide access to the Connector.

Although Figures 16-8 through 16-11 depict changes in daily traffic volumes, it is likely that VMT along these roadways will show similar increases and decreases. However, because VMT data, which are required to quantify emissions, along these roadways are not available, a segment-by-segment emissions analysis is not possible.

However, to further evaluate the effects of the project and options on congestion and emissions, an additional analysis at link level was undertaken to estimate changes in VMT and associated fuel consumption in the project alignment area. The Synchro traffic simulation model was used to evaluate traffic operations along the proposed project alignment. The simulation model tracks individual vehicles on the proposed project alignment and their acceleration/deceleration and delay at signals, allowing fuel consumption to be estimated. As emissions are directly related to fuel consumption, one can infer effects to air quality emissions based on changes in fuel consumption associated with the proposed project and options. See Appendix B for a detailed description of the additional analysis. The additional Synchro analysis found that change in regional fuel consumption would be less than 0.06 percent for any of the project options along the proposed project alignment. Consequently, while Tables 4-12 and 4-13 show substantial increases in VMT and emissions associated with the proposed project and options, the results of the Synchro analysis, which provides a more complete analysis of the effects of congestion on network operation, indicates that the project and options may result in a smaller increase in VMT and emissions than those identified in Tables 4-12 and 4-13. While the results of the Synchro model and Tables 4-12 and 4-13 cannot be directly compared due to limitations inherent in the Synchro modeling analysis, it does provide a more complete snapshot of the congestion-relief benefits of the project and it's affect on fuel consumption and air quality emissions, and it is likely that the actual effects of the project to VMT and emissions lie in the middle of the Synchro results and those presented in Tables 4-12 and 4-13. The traffic data used in this analysis account for transit improvements approved by the JPA, including increased park-and-ride facilities, transit signal priority, and selected transit queue jumps on "high bus" routes. These features are commonly employed to reduce emissions from vehicle travel. Thus, there are no additional feasible mitigation measures that can be employed by the project to reduce NO_X and ROG emissions, as reduction features have already been accounted for in the traffic analysis. Moreover, given the mass amount of emissions identified in Table 4-13, it is unlikely that any additional mitigation would reduce emission below the SMAQMD's threshold. Thus, this impact is considered significant and unavoidable.

Carbon Monoxide Hot Spots

Existing (2008) and design-year (2035) project conditions were modeled to evaluate CO concentrations relative to the NAAQS and CAAQS (Table 4-14). Emissions of CO concentrations under design year conditions were modeled at the following six intersections: White Rock Road/Latrobe Road, White Rock Road/Off-Vehicle Road, Teichert (local road)/Grant Line Road, SR 99 northbound ramps/Grant Line Road, East Bidwell Road/Iron Point Road, and Scott Road/Easton Valley Parkway. These intersections were modeled because they were identified by the traffic engineers as having the greatest peak-hour traffic volumes and worst LOS/delay (Long pers. comm.). CO modeling under existing conditions was conducted at the intersection of East Bidwell Road and Iron Point Road only. This intersection was selected as the traffic data indicates that it is the only intersection that will experience higher delay and/or LOS with implementation of the project. Conditions at all other intersections will improve under the build condition.

Table 4-14 summarizes the results of the CO modeling and indicates that concentrations are not expected to contribute to any new localized violations of the 1- or 8-hour ambient standards. This impact is considered less than significant.

Impact AQ-3: Expose Sensitive Receptors to Substantial Pollutant Concentrations

Diesel Particulate Matter

DPM is the pollutant of primary concern with regard to cancer risks to sensitive receptors. DPM is emitted from diesel-powered construction equipment, as well as vehicles traveling on freeways and local roadways.

A number of site-specific factors are required to calculate DPM concentrations caused by construction activities that are beyond the scope of this program-level evaluation. For example, the schedule and location of operating equipment, as well as meteorological conditions, are necessary to accurately model pollutant dispersion and calculate relative concentrations downwind of the source of DPM. In addition, information on the location of specific receptors is required to perform a health risk assessment (HRA). Because a detailed construction schedule is currently unavailable, a reasonable quantitative analysis of health risks from construction is not possible. However, the state's Office of Environmental Health Hazard Assessment stresses that cancer health risks typically are associated with chronic exposures to DPM, and it recommends using a 70-year exposure period for the cancer risk analysis. Emissions for construction-related DPM will be temporary and cease once construction is complete. Moreover, they will be spread throughout the 35-mile project corridor during the 10-year construction period, rather than localized in a single area. It is unlikely that construction activities will result in elevated health risks. In addition, Mitigation Measures AQ-2 through AQ-4, as described above, will help to minimize concentrations of DPM at nearby sensitive receptors during construction. Therefore, this analysis focuses on potential long-term cancer risk to sensitive receptors adjacent to roadways within the air quality study area.

Health risks resulting from vehicle emissions in the air quality study area were evaluated using the CAL3HQCR dispersion model and guidance from the SMAQMD (Appendix B). Based on the screening

Table 4-14. Modeled CO Concentrations at Defined Receptor Locations for Exiting (2008 and Beyond) and Design-Year (2035) Conditions

		Existing (2008) Conditions[a]				Design Year (2035) Conditions									
		No Project		Proposed Project with High Access Roadway[b]		No Project		Proposed Project with Reduced Access Roadway		Proposed Project with Deer Creek Causeway Option 1		Proposed Project with Deer Creek Causeway Option 1		Proposed Project with High Access Roadway	
Intersection	Receptor ID	1-hour CO	8-hour CO	1-hour CO	8-hour CO	1-hour CO	8-hour CO	1-hour CO	8-hour CO	1-hour CO	8-hour CO	1-hour CO	8-hour CO	1-hour CO	8-hour CO
On Project Corridor															
White Rock Road and Latrobe Road	1	–	–	–	–	4.1	3.4	4.1	3.4	4.1	3.4	4.1	3.4	4.1	3.4
	2	–	–	–	–	4.2	3.4	4.2	3.4	4.2	3.4	4.2	3.4	4.2	3.4
	3	–	–	–	–	4.1	3.4	4.1	3.4	4.1	3.4	4.1	3.4	4.1	3.4
	4	–	–	–	–	4.2	3.4	4.2	3.4	4.2	3.4	4.2	3.4	4.2	3.4
White Rock Road and Off-Vehicle Road	5	–	–	–	–	4.2	3.4	4.4	3.6	4.4	3.6	4.4	3.6	4.4	3.6
	6	–	–	–	–	4.2	3.4	4.4	3.6	4.4	3.6	4.4	3.6	4.4	3.6
	7	–	–	–	–	4.2	3.4	4.4	3.6	4.4	3.6	4.4	3.6	4.4	3.6
	8	–	–	–	–	4.2	3.4	4.4	3.6	4.4	3.6	4.4	3.6	4.4	3.6
Teicher and Grant Line Road	9	–	–	–	–	4.0	3.3	4.2	3.4	4.2	3.4	4.2	3.4	4.2	3.4
	10	–	–	–	–	4.0	3.3	4.2	3.4	4.2	3.4	4.2	3.4	4.2	3.4
	11	–	–	–	–	4.0	3.3	4.2	3.4	4.2	3.4	4.2	3.4	4.2	3.4
	12	–	–	–	–	4.0	3.3	4.2	3.4	4.2	3.4	4.2	3.4	4.2	3.4
SR 99 Northbound and Grant Line Road	13	–	–	–	–	4.0	3.3	4.1	3.4	4.1	3.4	4.1	3.4	4.1	3.4
	14	–	–	–	–	4.1	3.4	4.2	3.4	4.2	3.4	4.2	3.4	4.2	3.4
	15	–	–	–	–	4.1	3.4	4.1	3.4	4.1	3.4	4.1	3.4	4.1	3.4
	16	–	–	–	–	4.2	3.4	4.2	3.4	4.2	3.4	4.2	3.4	4.2	3.4
Non- Project Corridor Intersections															
East Bidwell Road and Iron Point Road	17	8.4	6.0	8.5	6.0	4.3	3.5	4.3	3.5	4.3	3.5	4.3	3.5	4.3	3.5
	18	8.7	6.1	8.8	6.2	4.4	3.6	4.2	3.4	4.4	3.6	4.4	3.6	4.4	3.6
	19	8.4	6.0	8.5	6.0	4.3	3.5	4.3	3.5	4.3	3.5	4.3	3.5	4.3	3.5
	20	8.8	6.2	8.9	6.3	4.4	3.6	4.5	3.6	4.5	3.6	4.4	3.6	4.5	3.6
Scott Road and Easton Valley Parkway	21					4.2	3.4	4.2	3.4	4.2	3.4	4.2	3.4	4.2	3.4
	22					4.2	3.4	4.2	3.4	4.2	3.4	4.2	3.4	4.2	3.4
	23					4.4	3.6	4.4	3.6	4.4	3.6	4.4	3.6	4.4	3.6
	24					4.4	3.6	4.4	3.6	4.4	3.6	4.4	3.6	4.4	3.6

Note: Please refer to Appendix B for modeling procedures.

[a] Due to limited traffic data, concentrations were only modeled at the intersection of East Bidwell Road and Iron Point Road. This intersection was selected as the traffic data indicates that it is the only intersection that will experience higher delay and/or LOS with implementation of the project.

[b] The traffic data required to conduct a CO analysis was only available for the no project alternative and the design option with the highest average daily traffic (ADT). Based on ADT provided under future conditions, this option was assumed to be the High Access Roadway.

criterion[5] recommended by the SMAQMD, a site-specific HRA was conducted for existing (2008) and design-year conditions (2035) on the following segments:

- Sunrise Boulevard from Zinfandel Road to US 50,
- US 50 from Watt Avenue to Hazel Avenue, and
- SR 99 from Calvine Road to Sheldon Road.

Table 4-15 summarizes the results of the HRA. Only the maximum recorded DPM concentration and associated cancer risk are presented. It is important to note that the cancer risks presented in Table 4-15 are based on projected roadway traffic volumes expected to occur in 2035, vehicle emission rates over an exposure frequency of 350 days per year, and an exposure duration of 70 years, consistent with SMAQMD protocol. They do not reflect assumed changes in roadway traffic volumes or vehicle emission rates. It is anticipated that traffic rates will increase slightly each year because of increases in regional population over time and that vehicle emission rates will decrease slightly each year because of continuing improvements in engine technology, increases in emission standards, and retirement of older, higher-emitting vehicles. Therefore, it is anticipated that the results presented in this analysis represent the upper end of potential health risks that may result from exposure of sensitive receptors to roadway exhaust.

Health risks from are typically evaluated at a project level, as well as at a cumulative level. The project-level analysis evaluates the health risks associated with exposure to emissions generated directly by a project, while the cumulative evaluation evaluates health risks associated with exposure to emissions generated directly by a project as well as those already present in the existing ambient environment over a given time period. However, for the purposes of the project-level analysis required by CEQA, the point of significance is based on the potential added cancer risk attributed to implementation of the project under existing conditions (i.e., existing plus project – existing no project).

Based on Table 4-15, the proposed project with the High Access Roadway would result in no impact or a slightly decreased cancer risk to receptors adjacent to Sunrise Boulevard, US 50 and SR 99, relative to the no project alternative. While no other design options were modeled, traffic volumes are expected to be highest under the proposed project with the High Access Roadway (Refer to Chapter 16). Thus the proposed project with the High Access Roadway represents the greatest potential for increased cancer risk, as DPM concentrations associated with all other project options would be less than those presented for the proposed project with the High Access Roadway. Because projected cancer risk is expected to decrease with the project option, this impact is considered less than significant.

Although this impact is considered less-than-significant, implementation of the exposure reduction strategies outlined in Mitigation Measure AQ-5 is recommended given the relative uncertainty associated with the modeling assumptions used to estimate DPM concentrations (see Appendix B). Implementation of this measure will help reduce any potential increases in cancer risk along the project corridor.

[5] This criterion screen roadways based the number of vehicles per hour and locations of sensitive receptors. A site-specific HRA is required for all segments with a predicted cancer risk in excess of 281 cases per million. The SMAQMD selected the evaluation criterion of 281 cases per million "as the level of increased individual cancer risk corresponding to a 70% reduction from the highest risk calculated at 50 feet from the edge of the nearest travel lane to the nearest sensitive receptor for the highest peak traffic volume reported by Caltrans for Sacramento County" (Sacramento Metropolitan Air Quality Management District 2010).

Table 4-15. Maximum DPM Concentration and Cancer Risk under Design-Year Conditions (2035 and Beyond)

Alternative	Sunrise Blvd Peak VMT	Sunrise Blvd PM Concen-tration	Sunrise Blvd Cancer Risk[a]	US-50 Peak VMT	US-50 PM Concen-tration	US-50 Cancer Risk[a]	SR-99 Peak VMT	SR-99 PM Concen-tration	SR-99 Cancer Risk[a]
Existing Conditions (2008)[b]									
No Project	8,420	1.32	420	16,600	2.71	863	10,300	2.02	643
Proposed Project with High Access Roadway[c]	8,420	1.32	420	16,528	2.69	857	10,300	2.02	643
Design Conditions (2035)[b]									
No Project	5,726	0.58	185	23,281	2.10	669	13,133	1.46	465
Proposed Project with Reduced Access Roadway	7,280	0.74	236	22,822	2.06	656	13,133	1.46	465
Proposed Project with Deer Creek Causeway Option 1	9,308	0.95	303	22,708	2.05	653	13,047	1.41	449
Proposed Project with Deer Creek Causeway Option 2	9,337	0.95	303	22,708	2.05	653	13,047	1.41	449
Proposed Project with High Access Roadway	7,473	0.76	242	22,822	2.06	656	13,133	1.46	465
Project Contribution (under existing conditions)[d]									
2008 Proposed Project with High Access Roadway	0	0.00	0	-72	-0.02	-6	0	0.00	0

Note: Please refer to Appendix B for modeling procedures.

[a] Maximum values recorded at receptors located 50 feet to the north of US 50 and 25 feet to the east of SR 99.

[b] Represents emissions associated with traffic generated by both the project option and development in the study area.

[c] Based on traffic data presented in Chapter 16, the High Access Roadway has the highest ADT volumes and therefore, the represents the greatest potential to caused increased cancer risk. DPM concentrations associated with all other project options would be less than those presented for the High Access Roadway.

[d] Represents emissions associated with just the project option, as calculated by the following equation: Proposed Project with Project Option minus No Project

Mitigation Measure AQ-5: Implement Additional Exposure Reduction Strategies to Further Minimize Potential Health Risks

The JPA or local jurisdiction will implement strategies to reduce the potential for sensitive receptors along the project corridor to be exposed to DPM. Potential strategies include (but are not limited to) creating a buffer zone of at least 50 feet between the roadway and sensitive land uses (e.g., residences, parks, churches, and medical facilities), as well as planting additional vegetation along the project corridor (A laboratory study indicates that all forms of vegetation are effective in removing PM10, although the greatest removal rates are achieved with redwood and deodar cedar –[Sacramento Metropolitan Air Quality Management District 2010]). These strategies should be focused in areas where sensitive receptors are directly adjacent to the roadway. Selection of these species should be maximized to the extent feasible.

Naturally Occurring Asbestos

According to the California Geological Survey (CGS), only roadways constructed east of Folsom could potentially traverse areas with potential to contain NOA (California Geological Survey 2006). Given current development practices and the age of the roadway network[6], it is unlikely that construction activities would result in airborne impacts of asbestos. However, this impact is considered potentially significant. Implementation of Mitigation Measure AQ-6 is required to assess the potential for NOA in the project area and ensure that appropriate actions are taken if NOA is found.

Mitigation Measure AQ-6: Conduct a Geological Investigation for Naturally Occurring Asbestos and Implement an Asbestos Dust Mitigation Plan if Naturally Occurring Asbestos Is Found in the Project Area

The JPA or local jurisdiction will conduct a site-specific geological investigation for all construction areas with known potential to contain NOA. According to the CGS, this includes all portions of the construction area east of Folsom (California Geological Survey 2006). If NOA is identified in the project area, the JPA or local jurisdiction will submit an asbestos dust mitigation plan to the SMAQMD and/or EDCAPCD pursuant to the State of California's Asbestos Airborne Toxic Control Measure for Construction, Grading, Quarrying, and Surface Mining Operations. This plan shall be prepared prior to ground breaking by the JPA, local jurisdiction, or appointed consultant.

Impact AQ-4: Create Objectionable Odors Affecting a Substantial Number of People

The generation and severity of odors depend on a number of factors, including the nature, frequency, and intensity of the source; wind direction; and location of the receptor(s). Odors rarely cause physical harm, but can cause discomfort, leading to complaints to regulatory agencies. Typical facilities known to produce odors include landfills, wastewater treatment plants, manufacturing plants, and certain agricultural activities. The proposed project and optional project components would not result in the addition of a major odor-producing facility.

Diesel emissions from construction equipment and volatile organic compounds (VOCs) from paving activities may create odors during construction. These odors would be temporary and localized, and they would cease once construction activities have been completed. Therefore, it is not anticipated that construction or operation of the proposed project options would create objectionable odors. This impact is considered less than significant.

4.3.4 Impacts of the Off-Corridor Multi-Use Path Alternative

Impact AQ-1: Conflict with or Obstruct Implementation of an Applicable Air Quality Management Plan

Implementation of the Off-Corridor Multi-Use Path Option would not increase use of motor vehicles or contribute to population and/.or employment growth. It would therefore not conflict with the goals of applicable air quality management plans. There would be no impact.

Impact AQ-2: Violate Any Air Quality Standard or Contribute Substantially to an Existing or Projected Air Quality Violation

As shown in Table 4-10, the Off-Corridor Multi-Use Path Option would result in unmitigated construction emissions that exceed SMAQMD's thresholds. The impact would be significant.

[6] Roadways that were constructed prior to current regulations that restrict the use of asbestos containing construction materials have a greater potential of containing the compound.

Implementation of Mitigation Measures AQ-1 through AQ-4 are required to reduce emissions to less-than-significant.

Operational emissions associated with the Off-Corridor Multi-Use Path Option were not estimated because the traffic analysis (Chapter 16, "Traffic") found that this option would have no discernable impacts on the transportation network and did not identify any differences in the operational data. Implementation of this optional project component would not increase use of motor vehicles. Therefore, there is no impact.

Impact AQ-3: Expose Sensitive Receptors to Substantial Pollutant Concentrations

Emissions of construction-related DPM will be temporary and cease once construction is complete. It is unlikely that construction activities will result in elevated health risks for sensitive receptors along the off-corridor multi-use path. Operational emissions associated with the Off-Corridor Multi-Use Path Option were not estimated because the traffic analysis (Chapter 16) found that this option would have no discernable impacts on the transportation network. Implementation of this optional project component would not increase use of motor vehicles. Therefore, there would be no impact.

Impact AQ-4: Create Objectionable Odors Affecting a Substantial Number of People

Diesel emissions from construction equipment and VOCs from paving activities may create odors during construction. These odors would be temporary and localized, and they would cease once construction activities have been completed. Therefore, it is not anticipated that construction or operation of the Off-Corridor Multi-Use Path Option would create objectionable odors. This impact is considered less than significant.

4.3.5 Impacts of the Project Options

4.3.5.1 Kammerer Road Bypass Option

Impact AQ-1: Conflict with or Obstruct Implementation of an Applicable Air Quality Management Plan

An extension of Kammerer Road from Bruceville Road to I-5 has been identified in local and regional planning documents by Sacramento County, the City of Elk Grove, and SACOG. The Kammerer Road Bypass Option was developed by Sacramento County and the City of Elk Grove to avoid impacts on properties along the project alignment. Moreover, this optional project component is not likely to result in population or employment growth that exceeds growth estimates included in the SMAQMD air quality plans or generate emissions that exceed the emissions budget identified in the air quality plans. This impact is considered less than significant.

Impact AQ-2: Violate Any Air Quality Standard or Contribute Substantially to an Existing or Projected Air Quality Violation

As shown in Table 4-10, the Kammerer Road Bypass Option would result in unmitigated construction emissions that exceed SMAQMD's thresholds. The impact would be significant. Implementation of Mitigation Measures AQ-1 through AQ-4 would reduce the impact to a less-than-significant level.

Operational emissions associated with the Kammerer Road Bypass were not estimated because the traffic analysis (Chapter 16) found that this option would have no discernable impacts on the transportation network compared to the Proposed Project. Because the traffic analysis did not identify any differences in the operational data considered for the proposed project along this segment, a quantitative assessment of emissions could not be performed. As set forth in Section 4.3.3 above, this impact is considered significant. As described above, there is no feasible mitigation to reduce this impact to a less-than-significant level.

Impact AQ-3: Expose Sensitive Receptors to Substantial Pollutant Concentrations

Emissions of construction-related DPM will be temporary and cease once construction is complete. It is unlikely that construction activities will result in elevated health risks for sensitive receptors along Kammerer Road.

Operational emissions associated with the Kammerer Road Bypass Option were not estimated because the traffic analysis (Chapter 16) found that this option would have no discernable impacts on the transportation network. The analysis did not identify any differences in the operational data considered for the proposed project along this segment. Because traffic conditions under the proposed project with the High Access Roadway, which represents the design option with the greatest potential for increased concern risk, would not result in significant health risks, this impact is likewise considered less-than-significant. Implementation of Mitigation Measure AQ-5, as described above, is recommended to reduce any potential increases in cancer risk along other project corridor segments.

Impact AQ-4: Create Objectionable Odors Affecting a Substantial Number of People

Diesel emissions from construction equipment and VOCs from paving activities may create odors during construction. These odors would be temporary and localized, and they would cease once construction activities have been completed. Therefore, it is not anticipated that construction or operation of the Kammerer Road Bypass Option would create objectionable odors. This impact is considered less than significant.

4.3.5.2 Deer Creek Causeway Options

Impact AQ-1: Conflict with or Obstruct Implementation of an Applicable Air Quality Management Plan

Implementation of Deer Creek Causeway Options 1 and 2 is not consistent with the Elk Grove General Plan, which calls for widening Grant Line Road through Sheldon when needed to accommodate future increases in traffic. However, these optional project components are not likely to result in population or employment growth that exceeds growth estimates included in the SMAQMD air quality plans or generate emissions that exceed the emissions budget identified in the air quality plans. This impact is considered less than significant.

Impact AQ-2: Violate Any Air Quality Standard or Contribute Substantially to an Existing or Projected Air Quality Violation

Deer Creek Causeway Options 1 and 2 would create a new road alignment requiring grubbing/land clearing, grading/excavation, drainage/utilities/subgrade construction, paving activities, and construction worker commuting trips. As shown in Table 4-10, construction emissions would exceed SMAQMD thresholds. The impact would be significant. As described above, implementation of Mitigation Measures AQ-1 through AQ-4 would reduce the impact to a less-than-significant level.

Deer Creek Causeway Options 1 and 2 would create a new road alignment, adding additional traffic lanes to the project corridor. As shown in Table 4-14, CO concentrations are not expected to contribute to any new localized violations of the 1- or 8-hour ambient standards. However, as shown in Table 4-12, these optional project components would result in a net increase in all criteria pollutants within the SMAQMD and exceed the district's thresholds. The impact is considered significant. As described above, there is no feasible mitigation to reduce this impact to a less-than-significant level.

Impact AQ-3: Expose Sensitive Receptors to Substantial Pollutant Concentrations

As shown in Table 4-15, implementation of the proposed project with the High Access Roadway would result in no impact or a slightly decreased cancer risk to receptors adjacent to Sunrise Boulevard, US 50 and SR 99, relative to the no project alternative. Because the High Access Roadway represents the design option with highest ADT, cancer risks under the Deer Creek Causeway Options 1 and 2 would be less than those modeled for the High Access Roadway, as the Deer Creek Causeway Options 1 and 2 have less traffic than the High Access Roadway. However, implementation of exposure reduction strategies outlined in Mitigation Measure AQ-5 is recommended to reduce any potential increase in cancer risk along other project corridor segments. NOA is not known to occur in the location of these optional project components. This impact is considered less than significant.

Impact AQ-4: Create Objectionable Odors Affecting a Substantial Number of People

Diesel emissions from construction equipment and VOCs from paving activities may create odors during construction. These odors would be temporary and localized, and they would cease once construction activities have been completed. Therefore, it is not anticipated that construction or operation of Deer Creek Causeway Options 1 and 2 would create objectionable odors. This impact is considered less than significant.

4.3.5.3 Reduced Access Roadway Option

Impact AQ-1: Conflict with or Obstruct Implementation of an Applicable Air Quality Management Plan

Implementation of the Reduced Access Roadway Option is not consistent with the Elk Grove General Plan, which calls for widening Grant Line Road through Sheldon when needed to accommodate future increases in traffic. However, this option is not likely to result in population or employment growth that exceed growth estimates included in the SMAQMD air quality plans or generate emissions that exceed the emissions budget identified in the air quality plans. This impact is considered less than significant.

Impact AQ-2: Violate Any Air Quality Standard or Contribute Substantially to an Existing or Projected Air Quality Violation

The Reduced Access Roadway Option could require grubbing/land clearing, grading/excavation, drainage/utilities/subgrade construction, paving activities, and construction worker commuting trips. As shown in Table 4-10, construction emissions would exceed SMAQMD thresholds. The impact would be significant. As described above, implementation of Mitigation Measures AQ-1 through AQ-4 would reduce the impact to a less -than significant level.

The Reduced Access Roadway Option could add to local circulation. As shown in Table 4-14, CO concentrations are not expected to contribute to any new localized violations of the 1- or 8-hour ambient standards. However, as shown in Table 4-12, this optional project component would result in a net increase in all criteria pollutants within the SMAQMD and exceed the district's thresholds. The impact would be considered significant. As described above, there is no feasible mitigation to reduce this impact to a less-than-significant level.

Impact AQ-3: Expose Sensitive Receptors to Substantial Pollutant Concentrations

As shown in Table 4-15, the High Access Roadway Option would result in no impact or a slightly decreased cancer risk to receptors adjacent to Sunrise Boulevard, US 50 and SR 99, relative to the no project alternative. However, implementation of exposure reduction strategies outlined in Mitigation Measure AQ-5 is recommended to reduce any potential increase in cancer risk along the other project corridor segments. NOA is not known to occur in the area. This impact is considered less than significant.

Impact AQ-4: Create Objectionable Odors Affecting a Substantial Number of People

Diesel emissions from construction equipment and VOCs from paving activities may create odors during construction. These odors would be temporary and localized, and they would cease once construction activities have been completed. Therefore, it is not anticipated that construction or operation of the Reduced Access Roadway Option would create objectionable odors. This impact is considered less than significant.

4.3.5.4 High Access Roadway Option

Impact AQ-1: Conflict with or Obstruct Implementation of an Applicable Air Quality Management Plan

Implementation of the High Access Roadway Option is consistent with the Elk Grove General Plan, which calls for widening Grant Line Road through Sheldon when needed to accommodate future increases in traffic. There would be no impact.

Impact AQ-2: Violate Any Air Quality Standard or Contribute Substantially to an Existing or Projected Air Quality Violation

The High Access Roadway Option could require grubbing/land clearing, grading/excavation, drainage/utilities/subgrade construction, paving activities, and construction worker commuting trips. As shown in Table 4-10, construction emissions would exceed SMAQMD thresholds. The impact would be significant. As described above, Mitigation Measures AQ-1 through AQ-4 would reduce the impact to a less-than-significant level.

The High Access Roadway Option could add to local circulation. As shown in Table 4-14, CO concentrations are not expected to contribute to any new localized violations of the 1- or 8-hour ambient standards. However, as shown in Table 4-12, this option would result in a net increase in all criteria pollutants within the SMAQMD and exceed the district's thresholds. The impact would be considered significant. As described above, there is no feasible mitigation to reduce this impact to a less-than-significant level.

Impact AQ-3: Expose Sensitive Receptors to Substantial Pollutant Concentrations

As shown in Table 4-15, implementation of the proposed project with the High Access Roadway Option would result in no impact or a slightly decreased cancer risk to receptors adjacent to Sunrise Boulevard, US 50 and SR 99, relative to the no project alternative. Because the High Access Roadway represents the design option with highest ADT, cancer risks under the Deer Creek Causeway Options 1 and 2 would be less than those modeled for the High Access Roadway, as the Deer Creek Causeway Options 1 and 2 have less traffic than the High Access Roadway. However, implementation of exposure reduction strategies outlined in Mitigation Measure AQ-5 is recommended to reduce any potential increase in cancer risk along other project corridor segments. NOA is not known to occur in the area. This impact is considered less than significant.

Impact AQ-4: Create Objectionable Odors Affecting a Substantial Number of People

Diesel emissions from construction equipment and VOCs from paving activities may create odors during construction. These odors would be temporary and localized, and they would cease once construction activities have been completed. Therefore, it is not anticipated that construction operation of the High Access Roadway Option would create objectionable odors. This impact is considered less than significant.

Chapter 5
Biological Resources

5.1 Introduction

This chapter describes the biological resources within the project area (environmental setting) and the federal, state, and local laws and regulations protecting these resources (regulatory setting). It also identifies and evaluates the impacts that may result from project implementation and mitigation measures to reduce these impacts where necessary. The following sources were reviewed to prepare this chapter:

- A California Natural Diversity Database (CNDDB) records search for Sacramento County (California Natural Diversity Database 2010)
- A U.S. Fish and Wildlife Service (USFWS) list of endangered species, threatened species, and species proposed for listing for Sacramento County (U.S. Fish and Wildlife Service 2010)
- The California Native Plant Society's (CNPS's) 2010 online *Inventory of Rare and Endangered Plants of California* (California Native Plant Society 2010)
- The draft SSHCP (Sacramento County 2010a)
- Draft SSHCP GIS data (Sacramento County 2009)
- Aerial imagery of the project area (National Agriculture Imagery Program 2009)
- Published and unpublished literature and ICF file information

5.2 Environmental Setting

For direct impacts, the biological study area encompasses the project corridor and a surrounding 400-foot–wide buffer. For indirect impacts, it includes an additional 200-foot-wide buffer around the direct impact study area. Therefore, the total biological study area for most of the project area is an 800-foot-wide corridor centered on the project alignment. A narrower study area was assumed for the Off-Corridor Multi-Use Path Alternative (50 feet wide following the trail centerline). The biological study area was developed in coordination with the project's engineering and design team to ensure that the footprint for all project-related disturbances would be included.

5.2.1 Existing Conditions

This section provides a general overview of the environmental and natural resources occurring within the project area, which includes the location and climate of the project area, the land cover and biological communities, special-status species, jurisdictional waters of the United States, and other biologically sensitive.

5.2.1.1 Overview of Project Area

The western portion of the project area lies on the relatively flat alluvial plains of the Sacramento Valley; the easternmost portion occurs in the rolling topography of the lower Sierra Nevada foothills. Elevation area ranges from 12 to 725 feet above mean sea level.

The project area climate is generally described as Mediterranean, with hot, dry summers and cool, moist winters. The total average rainfall in Sacramento is 20 inches (National Weather Service 2010).

The project area is located within three major watersheds: the American, Cosumnes, and Sacramento Rivers. Chapter 10 provides an in-depth discussion of the surface waters in the project area.

5.2.1.2 Land Cover and Biological Communities

Land cover and associated biological communities in the project area were evaluated in GIS by overlaying the 400- and 800-foot-wide corridors over existing land cover data developed for the draft SSHCP. The existing land cover data were developed in various phases by Sacramento County staff and its consultants through photo interpretation, field verification, and GIS digitizing. Appendix E of the draft SSCHP further details the methods used to develop the land cover data.

The land cover data were reviewed and updated by ICF staff using the 2009 National Agricultural Imagery Program (NAIP) aerial imagery for Sacramento and El Dorado Counties. In some cases, biological community classifications were modified to a coarser scale to fit the scale of mapping conducted by ICF staff for the portions of the project area that occur in El Dorado County. For example, areas mapped as valley oak riparian woodland were reclassified as riparian woodland to fit the scale of mapping done for the previously unmapped portions of the project area. Appendix I provides detailed maps of the land cover and biological communities in the 400- and 800-foot corridors, as well as the 50-foot corridor along the off-corridor multi-use path.

Descriptions of the land cover and biological community acreages in the biological study area are presented below. Table 5-1 identifies acreages in the 400-foot-wide direct impact corridor for the proposed project and the optional components. Table 5-2 identifies the additional acreages in the indirect impact corridor (i.e., between the 400-foot corridor and the 800-foot corridor). A 50-foot corridor was established for evaluating areas along the off-corridor multi-use path. It should be noted that the numbers presented in the table have been rounded for purposes of presentation and that the subtotals and totals reflect the acreage totals obtained from the GIS analysis, not the sum of the individual numbers as presented.

Under the High Access Roadway Option, Grant Line Road would be widened from four to six lanes on the segment through Sheldon from Bond Road to Calvine Road, which is consistent with the Elk Grove General Plan (City of Elk Grove 2009).

Revised Table 5-1. Summary of Land Cover and Biological Communities in the 400-Foot Corridor (Areas of Potential Direct Impacts)

			Optional Project Component Resource Acreage				
Land Cover and Biological Communities	Project Corridor Resource Acreage	Off-Corridor Multi-Use Path (50 feet wide)	Kammerer Road Bypass	Deer Creek Causeway Option 1	Deer Creek Causeway Option 2	Sheldon Reduced Access Roadway	Sheldon High Access Roadway
Uplands							
Annual grassland	833.1	119.8	22.2	28.4	26.8	1.0	0.2
Blue oak woodland	0	15.8	0	1.3	0	0	0
Riparian woodland	7.7	22.3	0	28.0	11.0	0	0
Uplands Subtotal	**840.8**	**157.8**	**22.2**	**57.7**	**37.8**	**1.0**	**0.2**
Wetlands and Waters							
Seasonal wetland	0.6	0.2	0	0.8	0.8	0	0
Swale	5.2	0.3	0.1	0	0	0	0
Vernal pool	11.2	0.3	0.1	0	0	0	0
Freshwater marsh	6.3	1.4	0.7	0.4	0.5	0	0
Stream	4.3	5.2	0.1	1.0	0.5	0	0
Seasonal pond	6.0	0.1	0	0.1	0.1	0	0
Open water	1.5	0.5	0	0.4	0.3	0	0
Wetlands and Waters Subtotal	**35.1**	**8.0**	**1**	**2.5**	**2.2**	**0**	**0**
Agricultural							
Irrigated pasture	92.50	0	26.1	51.3	4.0	0	0
Cropland	183.7	6.2	54.0	120.3	161.2	0.5	0.5
Vineyard	35.1	0	0	167.3	146.8	2.2	2.2
Orchard	10.6	0	0	0	0	0	0
Agricultural Subtotal	**321.9**	**6.2**	**80.1**	**338.9**	**312**	**2.7**	**2.7**
Developed							
Major roads	137.7	8.3	0.3	0	0.6	0	0
Landscaped	0	5.6	0	0	0	0	0
Low-density development	201.8	1.3	5.3	6.4	12.0	4.8	4.9
High-density development	70.4	17.4	0	0	0	0	0
Dredge tailings	0.3	0	0	0	0	0	0
Disturbed	5.9	6.0	0	0	0	0	0
Aqueduct	0.7	34.2	0	0	0	0	0
Developed Subtotal	**416.8**	**72.7**	**5.6**	**6.4**	**12.6**	**4.8**	**4.9**
Total Acreage	**1,614.6**	**244.7**	**131.1**	**405.5**	**364.6**	**8.5**	**7.8**

Table 5-2. Summary of Land Cover and Biological Communities between the 400- and 800-Foot Corridors (Areas of Potential Indirect Impacts)

Land Cover and Biological Communities	Project Corridor Resource Acreage	Optional Project Component Resource Acreage				
		Kammerer Road Bypass	Deer Creek Causeway Option 1	Deer Creek Causeway Option 2	Sheldon Reduced Access Roadway	Sheldon High Access Roadway
Uplands						
Annual grassland	1,714.3	95.3	83.0	103.0	42.7	42.2
Blue oak woodland	13.2	0	4.3	0	0	0
Riparian woodland	23.3	0	77.5	47.7	1.7	1.2
Uplands Subtotal	**1,750.8**	**95.3**	**164.8**	**150.6**	**44.4**	**43.4**
Wetlands and Waters						
Seasonal wetland	0.6	1.7	0.1	0.1	0	0
Swale	16.9	0.1	1.1	1.1	0.9	0.8
Vernal pool	31.2	0.3	0.2	0.6	0.2	0.3
Freshwater marsh	6.7	9.6	0.2	0.2	0	0
Stream	13.9	5.0	4.3	3.2	0.6	0.7
Seasonal pond	9.4	0	3.9	2.7	2.0	2.4
Open water	4.8	0.5	0.1	0.1	0.6	0.8
Wetlands and Waters Subtotal	**83.4**	**17.3**	**9.9**	**8.1**	**4.3**	**5.0**
Agricultural						
Irrigated pasture	152.6	108.9	67.9	10.0	0.6	0.6
Cropland	356.4	124.2	253.6	262.9	9.5	9.2
Vineyard	52.98	0	267.1	245.0	25.6	22.2
Orchard	21.2	0	0	0	0	0
Agricultural Subtotal	**583.2**	**233.1**	**588.5**	**517.8**	**35.6**	**32.0**
Developed						
Major roads	17.4	2.5	0.5	0.2	0.8	1.0
Landscaped	0	0	0	0	0	0
Low-density development	295.4	15.1	37.1	21.5	184.7	183.8
High-density development	200.0	0	9.4	3.8	0	0
Dredge tailings	24.1	0	0	0	0	0
Disturbed	46.3	0	0	0	0	0
Aqueduct	2.2	0	0	0	0	0
Developed Subtotal	**585.4**	**17.6**	**47.0**	**25.5**	**185.5**	**185.0**
Total Acreage	**3,002.8**	**363.3**	**810.1**	**702.1**	**269.8**	**265.2**

Land cover and biological community types are described below, including a brief discussion of each area's suitability as habitat for special-status species (Table 5-3).

Uplands

Annual Grassland

Annual grassland is one of the most common vegetation communities in the project area, which is reflected in the amount of acreage in the project corridor, as shown in Appendix I. This community is

Common Name/ *Scientific Name*	Status[a] Fed/State/Rare Plant Rank	Distribution	Habitat Association	Potential for Occurrence in the Study Area
Plants				
San Joaquin spearscale *Atriplex joaquiniana*	–/–/1B.2	Eastern San Francisco Bay Area, west edge of Central Valley from Glenn County to Fresno County	Alkali meadow, alkali grassland, saltbush scrub	None—outside of known range of the species and there is no suitable habitat in the study area
Bristly sedge *Carex comosa*	–/–/2.1	Scattered occurrences throughout California	Lake margins	None—outside of known range of the species and there is no suitable habitat in the study area
Succulent owl's clover *Castilleja campestris* ssp. *succulenta*	T/E/1B.2	Eastern edge of San Joaquin Valley and adjacent foothills, from Stanislaus County to Fresno County	Vernal pools	None—outside of known range of the species
Bolander's water-hemlock *Cicuta maculata* var. *bolanderi*	–/–/2.1	Suisun Bay, Point Reyes	Freshwater or brackish marshes	None—outside of known range of the species and there is no suitable habitat in the study area
Brandegee's clarkia *Clarkia biloba* ssp. *brandegeeae*	–/–/1B.2	Northern Sierra Nevada foothills from Butte County to El Dorado County	Chaparral, oak woodland, from 970 to 2,900 feet	Moderate—known from study area but typically occurs at higher elevations than study area
Soft bird's-beak *Cordylanthus mollis* ssp. *mollis*	E/R/1B.2	San Francisco Bay	Tidal salt marsh	None—outside of known range of the species and there is no suitable habitat in the study area
Dwarf downingia *Downingia pusilla*	–/–/2.2	Central Valley from Tehama to Fresno Counties, northern San Francisco Bay Area, southern South Coast Ranges	Vernal pools	High—species known to occur near, and suitable habitat exists in, the study area
Ione buckwheat *Eriogonum apricum* var. *apricum*	E/E/1B.1	Endemic to western Amador County	Gravelly openings in Ione chaparral, at 260 to 490 feet	None—outside known range of the species and there is no suitable habitat in the study area
Tuolumne button-celery *Eryngium pinnatisectum*	–/–/1B.2	Sierra Nevada Foothills from Sacramento County to Tuolumne County	Vernal pools, seeps, and streambanks in oak woodland, lower montane coniferous forest, at 820 to 1,475 feet	Moderate—outside of known range of the species but there is suitable habitat in the study area
Stinkbells *Fritillaria agrestis*	–/–/4.2	Outer North Coast Ranges, Sierra Nevada Foothills, Central Valley, central western California	Grasslands, foothill woodlands, and open grassy areas in chaparral, between 30 and 5,100 feet	High—species known to occur near the study area and suitable habitat exists in the study area
Boggs Lake hedge-hyssop *Gratiola heterosepala*	–/E/1B.2	From Oregon south to northern Sacramento County	Vernal pools and swales	High—species known to occur near the study area and suitable habitat exists in the study area

Common Name/ *Scientific Name*	Status[a] Fed/State/Rare Plant Rank	Distribution	Habitat Association	Potential for Occurrence in the Study Area
Wooly rose-mallow *Hibiscus lasiocarpos* var. *occidentalis*	–/–/2.2	Scattered small locations in central California, from Butte to San Joaquin County	Freshwater marsh along rivers and sloughs	None—outside of known range of the species and there is no suitable habitat in the study area
Carquinez goldenbush *Isocoma arguta*	–/–/1B.1	Solano and Contra Costa Counties	Annual grassland on alkaline soils	None—outside of known range of the species and there is no suitable habitat in the study area
Northern California black walnut *Juglans hindsii*	–/–/1B.2	Last two native stands in Napa and Contra Costa Counties	Riparian forest, riparian woodland	None—may be individual trees, but no native stands in study area
Ahart's dwarf rush *Juncus leiospermus* var. *ahartii*	–/–/1B.1	East edge of Sacramento Valley from Butte County to Sacramento County	Vernal pools, from 100 to 330 feet	High—species known to occur near, and suitable habitat exists in, the study area
Delta tule pea *Lathyrus jepsonii* var. *jepsonii*	–/–/1B.2	Central Valley from Sacramento County to Fresno County	Marshes and swamps (freshwater and brackish)	None—outside known range of species and there is no suitable habitat in the study area
Legenere *Legenere limosa*	–/–/1B.1	Central Valley	Vernal pools, below 2,880 feet	High—species known to occur near, and suitable habitat exists in, the study area
Mason's lilaeopsis *Lilaeopsis masonii*	–/R/1B.1	Sacramento/San Joaquin River Delta	Freshwater or brackish marsh, in tidal zone	None—outside known range of species and there is no suitable habitat in the study area
Delta mudwort *Limosella subulata*	–/–/2.1	Contra Costa, Sacramento, San Joaquin, and Solano Counties	Marshes and swamps	None—outside known range of the species and there is no suitable habitat in the study area
Pincushion navarretia *Navarretia myersii* ssp. *myersii*	–/–/1B.1	Central Valley, from Placer County to Merced County	Vernal pools, at 65 to 1,080 feet	High—species known to occur near, and suitable habitat exists in, the study area
Antioch Dunes evening primrose *Oenothera deltoides* ssp. *howellii*	E/E/1B.1	Contra Costa County	Inland dunes	None—outside known range of the species and there is no suitable habitat in the study area
Slender Orcutt grass *Orcuttia tenuis*	T/E/1B.1	Sierra Nevada and Cascade Range foothills, from Siskiyou County to Sacramento County	Vernal pools, from 100 to 5,700 feet	High—species known to occur near, and suitable habitat exists in, the study area

Common Name/ *Scientific Name*	Status[a] Fed/State/Rare Plant Rank	Distribution	Habitat Association	Potential for Occurrence in the Study Area
Sacramento Orcutt grass *Orcuttia viscida*	E/E/1B.1	Sacramento County	Vernal pools, 100 to 330 feet	High—species known to occur near, and suitable habitat exists in, the study area
Sanford's arrowhead *Sagittaria sanfordii*	–/–/1B.2	Scattered locations in Central Valley and Coast Ranges	Freshwater marsh, sloughs, canals, and other slow-moving water habitats	High—species known to occur near, and suitable habitat exists in, the study area
Side-flowering skullcap *Scutellaria lateriflora*	–/–/2.2	Inyo and San Joaquin Counties	Meadows (mesic), marshes and swamps	None—outside known range of species and there is no suitable habitat in the study area
Suisun March aster *Symphyotrichum lentum*	–/–/1B.2	Sacramento-San Joaquin Delta, Suisun Marsh, Suisun Bay	Brackish and freshwater marsh	None—outside known range of species and there is no suitable habitat in the study area
Invertebrates				
Conservancy fairy shrimp *Branchinecta conservatio*	E/–	Limited to eight populations in Butte, Tehama, Glenn, Yolo, Solano, Merced, Stanislaus, and Ventura Counties	Large, cool-water pools with moderately turbid water	Low—suitable habitat exists in the study area; however, study area is outside known species range
Vernal pool fairy shrimp *Branchinecta lynchi*	T/–	Central Valley, central and southern Coast Ranges from Tehama to Santa Barbara Counties; isolated populations in Riverside County	Common in vernal pools; also found in sandstone rock outcrop pools	High—species known to occur in the study area
Valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	T/–	Streamside habitats below 3,000 feet throughout the Central Valley	Riparian and oak savanna habitats with elderberry shrubs (host plant)	High—species known to occur near the study area and suitable habitat exists in the study area
Delta green ground beetle *Elaphrus viridis*	T/–	Known to occur in the greater Jepson Prairie area in south-central Solano County	Typically in grassland-playa vernal pool complexes	None—outside species known range
Vernal pool tadpole shrimp *Lepidurus packardi*	E/–	Central Valley of California from Shasta to Tulare Counties	Vernal pools and ephemeral stock ponds	High—species known to occur in the study area

Common Name/ *Scientific Name*	Status[a] Fed/State/Rare Plant Rank	Distribution	Habitat Association	Potential for Occurrence in the Study Area
Fish				
Green sturgeon *Acipenser medirostris*	T/SSC	Known to spawn in the Sacramento River and Klamath River Basin	An anadromous fish that spawns in deep pools or "holes" in large, turbulent, freshwater river mainstems; early life stages may remain in freshwater for up to 2 years	None—no suitable habitat in the study area
Sacramento Perch *Archoplites interruptus*	–/SSC	Historically occurred throughout the Central Valley, in Clear Lake, and the Pajaro and Salinas Rivers; now occur in a few locations in their native range and have been introduced into several reservoirs and associated streams	Formerly inhabited sloughs, slow-moving rivers, and lakes but now found mostly in reservoirs and farm ponds	None—no suitable habitat in the study area
Delta smelt *Hypomesus transpacificus*	T/T	Found only from Suisun Bay upstream through the Delta in Contra Costa, San Joaquin, Sacramento, Solano, and Yolo Counties	Found in euryhaline waters of the Delta; spawn in tidally influenced backwater sloughs and channel edgewaters	None—outside known range of the species and no suitable habitat in the study area
Central Valley steelhead *Oncorhynchus mykiss*	T/–	Sacramento and San Joaquin River and their tributaries	Anadromous fish that spawns and spends a portion of its life in inland streams, typically maturing in the open ocean	None—there are downstream barriers to these fish that keep them from dispersing into the study area; furthermore, the streams in the study area do not represent suitable spawning habitat
Central Valley spring-run Chinook salmon *Oncorhynchus tshawytscha*	T/T	Sacramento and San Joaquin River and their tributaries.	Anadromous fish that spawns and spends a portion of its life in inland streams, typically maturing in the open ocean	None—there are downstream barriers to these fish that keep them from dispersing into the study area; furthermore, the streams in the study area do not represent suitable spawning habitat
Winter-run Chinook salmon *Oncorhynchus tshawytscha*	E/E	Sacramento and San Joaquin River and their tributaries.	Anadromous fish that spawns and spends a portion of its life in inland streams, typically maturing in the open ocean	None—there are downstream barriers to these fish that keep them from dispersing into the study area; furthermore, the streams in the study area do not represent suitable spawning habitat
Sacramento splittail *Pogonichthys macrolepidus*	–/SSC	Endemic to California, mainly to sloughs, lakes, and rivers of the Central Valley.	Adapted for living in estuarine waters with fluctuating conditions; prefer slow-moving sections of rivers and sloughs; move upstream during winter and spring months to forage and spawn	None—no suitable habitat exists in the study area

Common Name/ *Scientific Name*	Status[a] Fed/State/Rare Plant Rank	Distribution	Habitat Association	Potential for Occurrence in the Study Area
Amphibians				
California tiger salamander *Ambystoma californiense*	T/SSC	Central Valley, including Sierra Nevada foothills, up to approximately 1,000 feet; coastal region from Sonoma to Santa Barbara Counties up to approximately 3,000 feet	Small ponds, lakes, or vernal pools in grasslands and oak woodlands for larvae; rodent burrows, rock crevices, or fallen logs for cover for adults	Low—suitable habitat exists in the study area; however, the species has never been documented in Sacramento County north of the Cosumnes River
California red-legged frog *Rana draytonii*	T/SSC	Historic range extended along the coast from the vicinity of Point Reyes National Seashore in Marin County, and inland from Shasta County south to Baja California; current known distribution is along the coast from Marin County south to Los Angeles County (with inland populations in San Bernardino and Riverside Counties), the inner Coast Ranges from Tehama to eastern San Luis Obispo Counties, and isolated populations in the Sierra Nevada from Butte to Tuolumne Counties	Permanent and semipermanent aquatic habitats, such as creeks and coldwater ponds, with emergent and submergent vegetation; may aestivate in rodent burrows or cracks during dry periods	Low—study area is outside of the known range of the species
Western spadefoot *Spea hammondii*	–/SSC	Central Valley and adjacent foothills up to 4,500 feet, in the Coast Ranges from Point Conception in Santa Barbara County south to the Mexican border	Grasslands and valley-foothill hardwood woodlands with nearby shallow, temporary winter pools for breeding	High—species is known to occur in the study area
Reptiles				
Western pond turtle *Actinemys marmorata*	–/SSC	From the Oregon border of Del Norte and Siskiyou Counties, south along the coast to San Francisco Bay, inland through the Sacramento Valley, and on the western slope of the Sierra Nevada	Ponds, marshes, rivers, streams, and irrigation canals with muddy or rocky bottoms and with watercress, cattails, water lilies, or other aquatic vegetation in woodlands, grasslands, and open forests	Moderate—species is known to occur in the region; however, suitable habitat is limited to artificial ponds far from similar perennial waters
Giant garter snake *Thamnophis gigas*	T/T	Central Valley from Fresno north to the Gridley/Sutter Buttes area; has been extirpated from areas south of Fresno	Sloughs, canals, and other small waterways where there is a prey base of small fish and amphibians; requires grassy banks and emergent vegetation for basking and areas of high ground protected from flooding during winter	High—species is known to occur near the westernmost portion of the study area; also, suitable habitat exists in the western most portion

Common Name/ *Scientific Name*	Status[a] Fed/State/Rare Plant Rank	Distribution	Habitat Association	Potential for Occurrence in the Study Area
Birds				
Tricolored blackbird *Agelaius tricolor* (nesting colony)	–/SSC	Throughout the Central Valley and in coastal areas from Sonoma County south	Nests near fresh water, preferably in emergent wetlands with tall, dense cattails or tules, but also thickets of willow, blackberry, wild rose, and tall herbs; feeds in grassland and cropland habitats	High—species is known to occur in the study area and suitable habitat exists in the study area
Grasshopper sparrow *Ammodramus savannarum* (nesting)	–/SSC	Summer resident and breeder in foothills and lowlands west of the Cascade-Sierra Nevada crest	Occurs in dry, dense grasslands, especially those with a variety of grasses and tall forbs and scattered shrubs for singing perches; nests in slight depressions in dense grasslands	Moderate—species is known to nest in the region and suitable habitat exists in the study area
Golden eagle *Aquila chrysaetos* (nesting and wintering)	–/FP	Resident in foothills and mountains throughout California; uncommon nonbreeding visitor to lowlands such as the Central Valley	Nests on cliffs and escarpments or in tall trees overlooking open country; forages in annual grasslands, chaparral, and oak woodlands with plentiful medium- and large-sized mammals	Low—no suitable nesting habitat exists in or near the study area; species may forage in the study area during winter
Burrowing owl *Athene cunicularia* (burrow sites)	–/SSC	Lowlands throughout California, including the Central Valley, northeastern plateau, southeastern deserts, and coastal areas; rare along south coast	Level, open, dry, heavily grazed or low-stature grassland or desert vegetation with available burrows	High—species is known to occur in the study area and suitable habitat exists in the study area
Swainson's hawk *Buteo swainsoni* (nesting)	–/T	Lower Sacramento and San Joaquin Valleys, Klamath Basin, and Butte Valley; the state's highest nesting densities occur near Davis and Woodland, Yolo County	Nests in oaks or cottonwoods in or near riparian habitats and eucalyptus trees near foraging habitat; forages in grasslands, irrigated pastures, and grain fields	High—species is known to occur in the study area and suitable habitat exists in the study area.
Northern harrier *Circus cyaneus*	–/SSC	Occurs throughout most of California	Nest and forage in open, treeless habitats, including marshes, wet meadows, and annual and perennial grasslands	High—species is known to occur in the study area
Western yellow-billed cuckoo *Coccyzus americanus occidentalis* (nesting)	C/E	Nests along the upper Sacramento, lower Feather, south fork of the Kern, Amargosa, Santa Ana, and Colorado Rivers	Wide, dense riparian forests with a thick understory of willows for nesting; sites with a dominant cottonwood overstory are preferred for foraging; may avoid valley-oak riparian habitats where scrub jays are abundant	None—outside the species known range and no suitable habitat exists in the study area
White-tailed kite *Elanus leucurus*	–/FP	Lowland areas west of Sierra Nevada from the head of the Sacramento Valley south, including coastal valleys and foothills to western San Diego County at the Mexico border	Low foothills or valley areas with valley or live oaks, riparian areas, and marshes near open grasslands for foraging	High—known to occur in the study area and suitable foraging and nesting habitat exists in the study area
Saltmarsh common yellowthroat *Geothylpis trichas sinuosa*	–/SSC	Resident and summer visitor in San Francisco Bay	Inhabits brackish and freshwater marshes	None—study area is outside the known range for this species

Common Name/ *Scientific Name*	Status[a] Fed/State/Rare Plant Rank	Distribution	Habitat Association	Potential for Occurrence in the Study Area
Greater sandhill crane *Grus Canadensis tabida*	–/T	Winters in Sacramento and San Joaquin valleys from Tehama to Kings County. Breeds in Modoc, Lassen, Plumas, and Sierra Counties.	Winters in perennial grassland habitat, moist croplands with rice or corn stubble, open emergent wetlands. Requires moist fields or shallow waters for night roosts.	Moderate—species is known to occur in the region. Habitats between I-5 and SR 99 south of Kammerer offer some foraging habitat for this species, but very limited roosting habitat. Not known to extensively use this area. More common to the south around Lodi and Galt.
California black rail *Latterallus jamaicensis coturniculus*	–/T	Primarily found along the San Francisco Bay and Delta and coastal estuaries, but also known to nest inland on the western slope of the Sierra Nevada foothills from northern Butte County to western Placer County	Nests in tidal and freshwater emergent marshes	None—study area is outside the known range for this species
Suisun song sparrow *Melospiza melodia maxillaries*	–/SSC	Found along the Carquinez Strait and Suisun Bay in the Bay-Delta.	Tidal marshes with dense vegetation	None—study area is outside the known range for this species
Purple martin *Progne subis*	–/SSC	Coastal mountains south to San Luis Obispo County, west slope of the Sierra Nevada, and northern Sierra and Cascade ranges; absent from the Central Valley except in Sacramento; isolated, local populations in southern California.	Nests in abandoned woodpecker holes in oaks, cottonwoods, and other deciduous trees in a variety of wooded and riparian habitats; also nests in vertical drainage holes under elevated freeways and highway bridges	None—study area is outside the known range for this species and no suitable habitat exists
Bank swallow *Riparia riparia*	–/T	Occurs along the Sacramento River from Tehama County to Sacramento County, along the Feather and lower American Rivers, in the Owens Valley, and in the plains east of the Cascade Range in Modoc, Lassen, and northern Siskiyou Counties; small populations near the coast from San Francisco County to Monterey County	Nests in bluffs or banks, usually adjacent to water, where the soil consists of sand or sandy loam	None—study area is outside the known range of this species and no suitable habitat exists
Yellow-headed blackbird *Xanthocephalus xanthocephalus*	–/SSC	Breeds east of the Cascade Range and Sierra Nevada in the Central Valley, Imperial Valley, and Colorado River valleys	Nesting colonies located in large, dense emergent wetlands, often consisting of tules, cattails, or other tall plants along the borders of lakes or ponds; nests and roosts are over deep water; winters in southwest United States and Mexico	Low—species is known to occur in the region and may forage in agricultural areas in the study area; species typically nests in large emergent wetlands over deep water, which are not present in the study area

Common Name/ *Scientific Name*	Status[a] Fed/State/Rare Plant Rank	Distribution	Habitat Association	Potential for Occurrence in the Study Area
Mammals				
Pallid bat *Antrozous pallidus*	–/SSC	Throughout California, primarily at lower and mid-elevations	Variety of habitats from desert to coniferous forest; most closely associated with oak, yellow pine, redwood, and giant sequoia habitats in northern California; prefers rocky outcrops, cliffs, and crevices with access to open habitats for foraging; uses caves, crevices, mines, and hollow trees for roosting	Moderate—species known to occur in the region, but there is limited roosting habitat
Western red bat *Lasiurus blossevillii*	–/SSC	Occurs mostly west of the Sierra Nevada/Cascade crest and deserts	Roosts in forests and woodlands from sea level up through mixed conifer forests; roosts solitarily in trees, though nursery colonies are occasionally found; forages over grasslands, shrublands, open woodlands and forests, and croplands	Moderate—woodland habitats may be occupied by this species; there are no known occurrences in or near the study area
American badger *Taxidae taxus*	–/SSC	Statewide except for the northwestern corner in Del Norte County and parts of Humboldt and Siskiyou Counties	Typically in drier open stages of most shrub, forest, and herbaceous habitats with dry, friable soils	High—species is known to occur in the region and suitable habitat exists in the study area

[a] Status Explanations:

Federal

E = listed as endangered under ESA.
T = listed as threatened under ESA.
C = candidate for listing under ESA.
– = no listing.

State

E = listed as endangered under CESA.
T = listed as threatened under CESA.
R = stated-listed rare species.
SSC = species of special concern in California.
FP = fully protected.
– = no listing.

Rare Plant Rank

1B = List 1B species: rare, threatened, or endangered in California and elsewhere.
2 = List 2 species: rare, threatened, or endangered in California, but more common elsewhere.
4 = List 4 species: Plants of limited distribution.
0.1 = Seriously endangered in California.
0.2 = Fairly endangered in California.

dominated by nonnative annual grasses and herbaceous species, with concentrations of native vegetation typically occurring around vernal pools. Dominant grassland species include soft chess (*Bromus hordeaceous*), ripgut brome (*Bromus diandrus*), foxtail barley (*Hordeum murinum*), wild oat (*Avena fatua*), clover (*Trifolium* spp.), popcorn flower (*Plagiobothrys* spp.), and filaree (*Erodium* spp.). Annual grasslands also contain seasonal wetlands, including vernal pools (see "Wetlands and Waters" below).

Most of the annual grasslands in the project area are used for cattle grazing. They provide important habitat for several common and special-status wildlife species, including western spadefoot toad (*Spea hammondii*), giant garter snake (*Thamnophis gigas*) (wintering upland habitat), grasshopper sparrow (*Ammodramus savannarum*), burrowing owl (*Athene cunicularia*), Swainson's hawk (*Buteo swainsoni*) (foraging habitat), red-tailed hawk (*Buteo jamaicensis*), white-tailed kite (*Elanus leucurus*), northern harrier (*Circus cyaneus*), and American badger (*Taxidae taxus*).

Blue Oak Woodland

Blue oak woodlands occur in the northeastern portion of the project area, as shown in Appendix I. These areas are dominated by blue oaks (*Q. douglasii*) with open canopies and an understory dominated by annual grasses. Blue oak woodlands provide nesting habitat for common bird species.

Riparian Woodland

Riparian woodlands occur in association with intermittent streams, perennial streams, and artificial ponds, and within dredge tailings in the northern portion of the project area, as shown in Appendix I. Riparian woodlands in the project area include mixed riparian woodlands dominated by valley oaks (*Quercus lobata*), willows (*Salix* spp.), and cottonwoods (*Populus fremontii*). The dredge tailing riparian areas are dominated primarily by cottonwoods that are able to tap into willow groundwater and small ponded areas among the tailings. Riparian woodlands provide habitat for common and special-status wildlife species, including valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), bats, and nesting birds such as Swainson's hawk and white-tailed kite.

Wetlands and Waters

As noted above, annual grasslands in the project area support wetland habitats, including seasonal wetlands, vernal pools, freshwater marsh, streams, open water, and seasonal ponds, which are described below

Seasonal Wetland

Seasonal wetlands mapped in the project area are shown in Appendix I and are differentiated from vernal pools in that they are typically inundated for shorter periods and are more often saturated than inundated during the wet season. Vegetation is typically dominated by common wetland generalist species such as Italian ryegrass (*Lolium multiflorum*), Mediterranean barley (*H. marinum* ssp. *gussoneanum*), and toad rush (*Juncus bufonius*).

Seasonal wetlands typically do not provide unique habitats for special-status species, but they play an important role in annual grasslands by contributing to the diversity of vegetation and providing habitat for various insect species and foraging diversity for mammal species such as Botta's pocket gopher (*Thomomys bottae*) and California ground squirrel (*Spermophilus beecheyi*).

Vernal Pool

Vernal pools are seasonal wetlands characterized by unique assemblages of specialized endemic plants and wildlife. They typically become inundated during late fall rains and remain so through the wet winter into early spring. Vernal pools in the project area are typically dominated by coyote thistle (*Eryngium castrense*), Carter's buttercup (*Ranunculus bonariensis*), goldfields (*Lasthenia* spp.), downingias (*Downingia* spp.), and popcorn flowers.

The locations of vernal pools in the project area are shown in Appendix I, and they provide habitat for various special-status species, including dwarf downingia (*Downingia pusilla*), Boggs Lake hedge-hyssop (*Gratiola heterosepala*), Ahart's dwarf rush (*Juncus leiospermus* var. *ahartii*), legenere (*Legenere limosa*), pincushion navarretia (*Navarretia myersii* ssp. *myersii*), slender Orcutt grass (*Orcuttia tenuis*), and Sacramento Orcutt grass (*O. viscida*). These wetlands also provide habitat for special-status wildlife species, including vernal pool fairy shrimp (*Branchinecta lynchi*), vernal pool tadpole shrimp (*Lepidurus packardi*), and western spadefoot toad.

Freshwater Marsh

Freshwater marsh in the project area typically occurs in association with artificial ponds, irrigation canals, roadside ditches, and areas receiving urban and agricultural runoff (Appendix I). Freshwater marsh is typically dominated by emergent perennial vegetation such as tule (*Schoenoplectus acutus*), cattails (*Typha* spp.), spikerush (*Eleocharis macrostachya*), nutsedge (*Cyperus* spp.), rushes (*Juncus* spp.), and sedges (*Carex* spp.).

Freshwater marshes in the project area provide habitat for common amphibians, reptiles, and birds, including Pacific tree frogs (*Pseudacris regilla*), western toads (*Bufo boreas*), garter snakes, ducks, geese, and various nesting birds. These areas also provide habitat for special-status species, including Sanford's arrowhead (*Sagittaria sanfordii*), giant garter snake, and tricolored blackbird (*Agelaius tricolor*).

Stream

Several streams pass through the project area (Appendix I). In the eastern half, streams are typically ephemeral to intermittent and flow during winter and early spring. In the western portion, streams are perennial and flow from winter to at least late summer. Many of the streams have extended periods of flow from agricultural and urban runoff, and many of the wetter streams (intermittent and perennial) support riparian vegetation that is vital to wildlife in the region.

Streams in the project area provide habitat for many common wildlife species, including Pacific tree frogs, garter snakes (giant garter snakes may occupy slower moving perennial streams), western pond turtle, and nonnative and native fish species. The Sacramento, Cosumnes, and American Rivers provide habitat for Central Valley steelhead (*Oncorhynchus mykiss*) and Chinook salmon (*O. tshawytscha*); however, project area streams do not provide such habitat because of downstream barriers, warm waters, and limited flow to support these species, even though they are tributary to the aforementioned rivers.

Open Water and Seasonal Pond

Areas of open water occur throughout the project area, and include stock ponds in rural areas (both perennial and seasonal) and detention basins in developed areas (Appendix I). Nearly all of these features are artificial impoundments that have been constructed to retain water for livestock watering, serve as ornamental features on rural residences, or are integrated into developed areas for stormwater detention. These features typically become inundated in early winter as they capture runoff from both natural and developed landscapes and remain so into late spring/early summer (seasonal ponds) or late summer/fall (open water).

Areas of open water provide habitat for common wildlife species, including Pacific tree frogs, western toads, garter snakes (giant garter snakes may occupy the more perennial features within the western portion of the project area), western pond turtle, ducks and geese, and common fish species. The seasonal impoundments would provide habitat for Pacific tree frogs, western toads, and western spadefoot toads, as well as vernal pool fairy shrimp and vernal pool tadpole shrimp in some of the ponds that dry in late spring.

Agricultural

Agricultural lands are common in the western portion of the project area (Appendix I). In addition to the grazed annual grasslands, the project area includes areas of irrigated pasture, cropland (row and field crops), vineyards, and orchards. Some of these areas are important for wildlife species that actively forage in these fields, occupy the perimeters of these areas, and utilize the irrigation canals as habitat.

Irrigated Pasture

Irrigated pasture occurs throughout the western portion of the project area. Irrigated pasture is dominated by perennial grasses and herbs selected for cattle grazing, and is typically flood-irrigated during late spring, summer, and early fall.

Irrigated pasture provides important foraging habitat for various birds and raptors, including burrowing owl, Swainson's hawk, white-tailed kite, and northern harrier. These areas may also be used during winter as upland refugia for giant garter snakes where suitable aquatic habitat occurs nearby. In some instances, irrigated pastures in the project area may be subject to regulation under the federal Clean Water Act (CWA) if they meet the definition of jurisdictional wetlands.

Cropland

Croplands occur in the western portion of the study area and consist of row and field crops. Dominant row crops include corn, sunflower, tomatoes, melons, and peppers. Dominant field crops include alfalfa, grass hay, and various grain crops.

Croplands do not provide much in terms of occupied habitat, except on the edges of fields that are subject to less disturbance associated with cultivating, disking, and harvesting. However, croplands, especially field crops, provide suitable foraging habitat for common and special-status wildlife species, including Swainson's hawk, burrowing owl, tricolored blackbird, and American badger.

Vineyard

Vineyards occur in the southwestern portion of the project area. Vineyards are relatively permanent crops that provide limited habitat value for wildlife. Birds may forage on grapes in summer; however, most vineyards have hazing programs to scare off wildlife (e.g., metallic streamers, air cannons).

Orchard

There are a few areas of orchard in the project area. These typically consist of fruit trees. Orchards provide cover and some foraging opportunities for birds and mammals, but no nesting habitat for birds because there is frequent disturbance.

Developed

As described below, development occurs throughout the project area (Appendix I). Historically, this has meant farm residences and associated farm outbuildings, which were later replaced by rural residences (i.e., low-density development) consisting mostly of 2- to 10-acre parcels with small pastures for horse and cattle grazing. More recently, portions of the project area have been further developed into suburban subdivisions and commercial and industrial properties (i.e., high density development).

Major Roads

Major roads consist of the larger, main thoroughfares in the project area and include areas of pavement and associated shoulders. They do not provide habitat for plants and wildlife, although they may be used by wildlife for dispersal.

Landscaped Areas

There a few large areas within the project area that are planted exclusively in landscape vegetation, which includes community parks, sports fields, and ornamental landscaping associated with commercial properties. These areas provide little to no habitat for wildlife, although these areas could be occupied by common bird species adapted to human disturbance.

Low-Density Development

Low-density development mapped in the project area consists mostly of 2- to 10-acre parcels with residences and outbuildings that have associated small irrigated pastures or dry annual grassland pastures for livestock grazing (also known as rural residences). For example, the area along Grant Line Road between Sheldon and Calvine Roads would be considered low-density development.

Low-density development in the project area has elements of natural habitat, such as annual grasslands, vernal pools, seasonal wetlands, or oak trees that may still provide habitat for rare plants and may still be used by wildlife. Therefore, although they are subject to greater human disturbance, these areas still have some degree of habitat value for species such as vernal pool fairy shrimp, vernal pool tadpole shrimp, burrowing owl, grasshopper sparrow, white-tailed kite, and Swainson’s hawk.

High-Density Development

High-density development occurs throughout the project area and consists of urban or suburban residential, commercial, and industrial properties. These areas have been entirely converted to homes, roads, and landscaping, with natural habitat elements limited to narrow riparian areas along streams. For example, the area along Grant Line Road between SR 99 and Waterman Road would be considered high-density development. These areas provide little to no habitat for wildlife, although landscaped areas could be occupied by common bird species adapted to human disturbance.

Dredge Tailings

Dredge tailings are found in the northeastern portion of the project area. These tailings are the result of gold-dredging operations and consist of windrows of gravel, cobbles, boulders, sand, and silt. As noted above, many of these areas have elements of riparian vegetation that are dominated by cottonwoods.

The dredge tailing areas provide some habitat value for wildlife. Many common and special-status species may occupy and forage in these areas, including burrowing owl, Swainson's hawk, white-tailed kite, northern harrier, and American badger.

Disturbed

Disturbed areas are found throughout the project area. These are areas that have been subject to recent or ongoing disturbance, resulting in minimal vegetative cover that is most often dominated by weedy species and a predominance of bare soil. Disturbed areas may provide habitat for common wildlife, and in some cases special-status wildlife may use them for foraging or dispersal.

Aqueducts

The Folsom South Canal crosses several portions of the project area. This aqueduct delivers water from the American River to areas south of the project area. This aqueduct is concrete lined and has steep sided, concrete banks, which provide little to no habitat for aquatic and terrestrial

5.2.1.3 Special-Status Species

Special-status species are plants and animals that are legally protected under the federal Endangered Species Act (ESA), California Endangered Species Act (CESA), or other such regulations, as well as species considered sufficiently rare by the scientific community to quality for such listing. For the purposes of this document, special-status species are those that meet any of the criteria listed below.

- species listed or proposed for listing as threatened or endangered under ESA (50 Code of Federal Regulations [CFR] 17.12 [listed plants], 50 CFR 17.11 [listed animals], and various notices in the FR [proposed species]);
- candidate species for federal listing;
- species listed or proposed for listing by the State of California as threatened or endangered under CESA (14 CCR 670.5);
- animals fully protected in California (California Fish and Game Code [FGC] 3511 [birds], 4700 [mammals], and 5050 [amphibians and reptiles]);
- Plants listed as rare under the California Native Plant Protection Act (FGC 1900 et seq.);
- animal species of special concern to the California Department of Fish and Game (DFG); and
- plants that meet the definitions of rare or endangered under CEQA (State CEQA Guidelines Section 15380[b–d]), which may include:
  - plants ranked as rare, threatened, or endangered in California (California Rare Plant Rank 1B and 2);

   - plants that may warrant consideration on the basis of local significance or recent biological information (State CEQA Guidelines Section 15380[d]), that may include some California Rare Plant Rank 3 and 4 (plants about which more information is needed to determine their status and plants of limited distribution); and
   - some species included on the CNDDB's *Special Plants, Bryophytes, and Lichens List* (current list available: http://www.dfg.ca.gov/biogeodata).

The list of special-status animal species considered for this Program EIR was developed on the basis of queries of the CNDDB for special-status species occurrences in Sacramento County and the USFWS species list for Sacramento County. Table 5-3 provides the common and scientific names, regulatory status, distribution, habitat descriptions, and potential for occurrence in the study area for each species. The criteria listed below were used to determine each species' potential for occurrence.

- **High:** Species is known to occur on or near the site (based on CNDDB records or professional expertise specific to the site or species), and there is suitable habitat on site.
- **Moderate:** Species is known to occur on or near the site (based on CNDDB records), but there is marginal habitat on site; or species is not known to occur in the vicinity, but suitable habitat is present.
- **Low:** Species is not known to occur in the vicinity of the site (based on CNDDB records), or the habitat on site is not suitable for the species.
- **None:** Species was surveyed for during the appropriate season with negative results, or the study area is outside the known range of the species.

5.2.1.4 Waters of the United States

Wetlands and other waters in the project area were mapped from aerial photographs in 2001 for the SSHCP. An ICF biologist reviewed this data in GIS, comparing the wetlands and other waters to the 2009 NAIP aerial imagery. Edits were only made where development or other land use changes have obviously removed the previously mapped wetland and water features. For the portion of the project area in El Dorado County, wetlands and waters were identified on the 2009 NAIP aerial imagery and digitized using GIS.

Wetlands

Wetlands identified in the SSHCP occur throughout out the project area. Wetlands were identified from aerial photographs and mapped using GIS. Wetlands identified in the SSHCP data include vernal pools, seasonal wetlands, and freshwater marsh. These wetland types are described above in Section 5.2.2.1.

Other Waters

Other waters identified in the SSHCP occur throughout the project area, and include several ephemeral, intermittent, and perennial streams as well as open waters (ponds and detention basins). Other waters were identified from aerial photographs and mapped using GIS. These other waters are described in Section 5.2.2.1.

5.2.1.5 Other Biologically Sensitive Areas

Critical Habitat

Critical habitat for federally listed species (see Section 5.3.1.1 for a definition of critical habitat) occurs throughout project area (Figure 5-1). No critical habitat occurs within the study areas of the proposed project or its options.

Mather Core Recovery Area

The proposed project passes through the Mather Core Area (mostly on either side of Grant Line Road from Sunrise to White Rock Road), which is identified in the USFWS's December 2005 *Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon* (Recovery Plan) as important to the recovery of several listed vernal pool species, including slender Orcutt grass, Sacramento Orcutt grass, vernal pool fairy shrimp, and vernal pool tadpole shrimp. Recovery plan "core areas" are lands that were selected by the USFWS because they contain habitat for the species in question and whose protection and appropriate management have been determined to be important to the recovery of those species (i.e., a recovered species is able to be removed from the endangered species list). The Mather Core Area has been identified as a Priority 1 area, which means an action must be taken to prevent extinction or to prevent a species from declining irreversibly in the foreseeable future (USFWS 2005). The Recovery Plan states that the Mather Core Area was designated Priority 1 due to the presence of Sacramento Orcutt grass and the high number of rare species in the area (USFWS 2005). In the recovery plan, the USFWS set a goal of preserving 85% of the vernal pool fairy shrimp habitat in the Mather Core Area and 95% of the vernal pool tadpole shrimp, slender Orcutt grass, and Sacramento Orcutt grass habitat in the Mather Core Area.

Priority 1 and 2 core areas are typically those areas excluded from critical habitat for economic reasons. Though they do not have the same legal mandate for protection under the Endangered Species Act as critical habitat, the USFWS has determined that these areas are necessary for recovery of listed vernal pool species.

Conservation Areas

Several conservation areas occur in the project area (Figure 5-1) and include mitigation banks, private lands with conservation easements, and publicly owned lands managed for natural resources. Figure 5-1 depicts several conservation areas occurring within the study corridors of the proposed project and its options. Table 5-4 provides a summary of the acreages of conservation areas in the study areas.

Table 5-4. Summary of Conservation Area Acreages in the Assessment Corridors

	Acres of Conservation Area within 400-foot Corridor[a]	Acres of Conservation Area between 400 and 800-foot Corridors[a]
Project Alternatives:		
Proposed Project	123.2	112.5
Multi-Use Path Alternative (area within 50-foot buffer)	174.2	NA
Project Options:		
Kammerer Road Bypass	0	0
Deer Creek Causeway Option 1	37.7	39.6
Deer Creek Causeway Option 2	39.0	41.5
Sheldon Reduced Access Roadway	4.3	5.7
Sheldon High Access Roadway	4.1	5.5

[a] Except for the multi-use path, where a 50-foot buffer was used.

5.2.2 Regulatory Setting

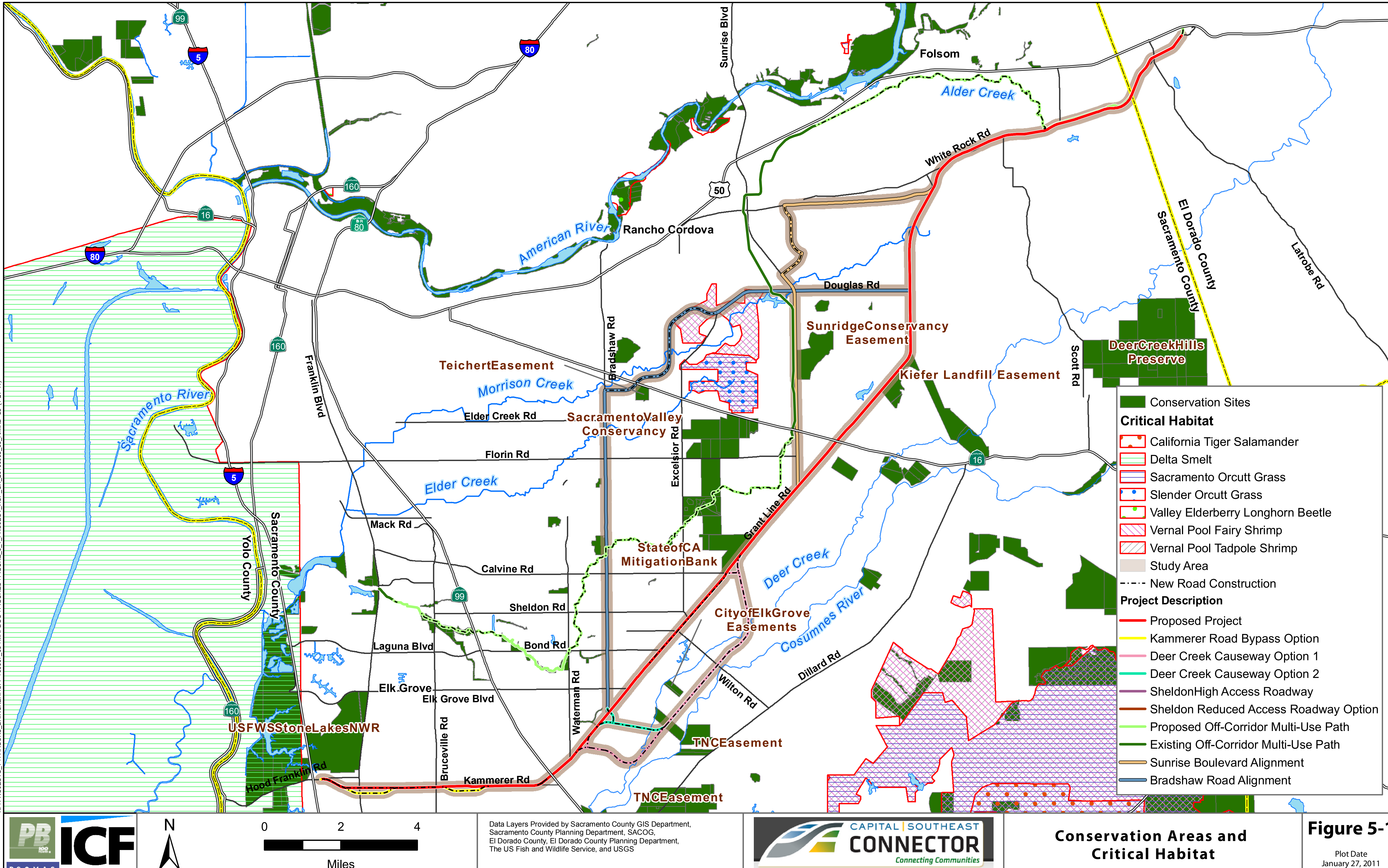
The biological resources in the project area are subject to regulation under several federal, state, and local regulations. A discussion of these regulations is provided below.

5.2.2.1 Federal

Federal Endangered Species Act

USFWS has jurisdiction over plants, wildlife, and non-anadromous fish species listed as threatened or endangered under the ESA. Section 9 of the ESA protects listed species from *take*, which is broadly defined as actions to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct." For actions involving a federal agency in which a listed species could be affected, the federal agency must consult with USFWS in accordance with Section 7 of the ESA. The federal agency prepares a biological assessment (BA) disclosing the effects of the action on federally listed species or their habitat. On the basis of the information presented in the BA, USFWS issues a biological opinion (BO) and, if the project does not jeopardize the continued existence of the listed species, issues an incidental take permit (ITP).

For actions involving a non-federal entity, such as states, counties, local governments, and private landowners, in which a listed species could be affected, the non-federal agency must seek an ITP from the USFWS pursuant to Section 10 of the ESA. The application for an ITP includes the preparation of a habitat conservation plan (HCP), which identifies impacts on listed species and their habitat and identifies measures to avoid, minimize, and mitigate these impacts. HCPs are also used by local governments as a planning tool that provides a regional approach to balancing development against conservation and protection of habitat, open space, and agricultural lands. These types of HCPs typically establish reserve systems that conserve habitat that will be managed and monitored to achieve the biological goals and objectives for those species covered under the plan while the USFWS issues ITPs for activities covered by the plan. The proposed project occurs within the boundaries of the proposed SSHCP and is included as a covered project in that document and the JPA is an SSHCP participant through an implementation agreement.



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Data Layers Provided by Sacramento County GIS Department, Sacramento County Planning Department, SACOG, El Dorado County, El Dorado County Planning Department, The US Fish and Wildlife Service, and USGS

CAPITAL SOUTHEAST CONNECTOR Connecting Communities

Conservation Areas and Critical Habitat

Figure 5-1

Plot Date
January 27, 2011

Critical Habitat

The ESA requires the federal government to designate critical habitat for any species it lists under the ESA. Critical habitat is defined as:

- specific areas with the geographical area occupied by the species at the time of list, if they contain physical or biological features essential to conservation, and those features may require special management consideration or protection; and
- specific areas outside the geographical area occupied by the species if the agency determines that the area itself is essential for conservation.

Critical habitat may include an area that is not currently occupied by the species but that will be needed for its recovery. Critical habitat is not a refuge or sanctuary for the species. Federal agencies are required to ensure that their activities do not destroy or adversely modify critical habitat to the point that it will no longer aid in the species' recovery. If critical habitat is not currently occupied by the species but is needed for the species recovery it is still protected against destruction or adverse modification.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) (16 United States Code [USC] 703) enacts the provisions of treaties between the United States, Great Britain, Mexico, Japan, and the Soviet Union and authorizes the U.S. Secretary of the Interior to protect and regulate the taking of migratory birds. It establishes seasons and bag limits for hunted species and protects migratory birds, their occupied nests, and their eggs (16 USC 703, 50 CFR 21, 50 CFR 10). Most actions that result in taking or in permanent or temporary possession of a protected species constitute violations of the MBTA. Examples of permitted actions that do not violate the MBTA are the possession of a hunting license to pursue specific game birds, legitimate research activities, display in zoological gardens, bird-banding, and similar activities. USFWS is responsible for overseeing compliance with the MBTA, and the U.S. Department of Agriculture's Animal Damage Control Officer makes recommendations on related animal protection issues.

Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (16 USC 668–668[d]) prohibits the take or possession of bald or golden eagles, either alive or dead, or any part, nest, or egg thereof. Take and possession may be allowed by approval of the Secretary of the Interior if it is compatible with the preservation of either species for scientific or exhibition purposes of public museums, scientific societies, and zoological parks, or for religious purposes of Indian tribes. Similarly, if take is necessary for the protection of wildlife or of agricultural or other interests in any particular locality, the Secretary may authorize the taking of such eagles pursuant to regulations. Take includes to pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, or disturb. *Disturb* means to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, (1) injury; (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior; or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior.

Clean Water Act

The federal Clean Water Act (CWA) was enacted as an amendment to the federal Water Pollution Control Act of 1972, which outlined the basic structure for regulating discharges of pollutants to waters of the United States. The CWA serves as the primary federal law protecting the quality of the nation's surface waters, including lakes, rivers, and coastal wetlands.

The CWA empowers the EPA to set national water quality standards and effluent limitations and includes programs addressing both *point-source* and *nonpoint-source* pollution. Point-source pollution is pollution that originates or enters surface waters at a single, discrete location, such as an outfall structure or an excavation or construction site. Nonpoint-source pollution originates over a broader area and includes urban contaminants in stormwater runoff and sediment loading from upstream areas. The CWA operates on the principle that all discharges into the nation's waters are unlawful unless specifically authorized by a permit; permit review is the CWA's primary regulatory tool. EPA has delegated to the U.S. Army Corps of Engineers (USACE) the authority to administer provisions of the CWA. The following sections address specific sections of the CWA.

Section 404—Permits for Fill Placement in Waters and Wetlands

CWA Section 404 regulates the discharge of dredged and fill materials into waters of the United States. Waters of the United States refers to oceans, bays, rivers, streams, lakes, ponds, and wetlands, including any or all of the following.

- areas within the ordinary high water mark of a stream, including nonperennial streams with a defined bed and bank and any stream channel that conveys natural runoff, even if it has been realigned; and
- seasonal and perennial wetlands, including coastal wetlands

On January 9, 2001, the U.S. Supreme Court made a decision in *Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers* (SWANCC) [121 S.CT. 675, 2001] that affected USACE jurisdiction in isolated waters. Based on SWANCC, USACE no longer has jurisdiction or regulates isolated wetlands (i.e., wetlands that have no hydrologic connection with a water of the United States).

Applicants must obtain a permit from USACE for all discharges of dredged or fill material into waters of the United States, including adjacent wetlands, before proceeding with a proposed activity. USACE may issue either an individual permit evaluated on a case-by-case basis or a general permit evaluated at a program level for a series of related activities. General permits are preauthorized and are issued to cover multiple instances of similar activities expected to cause only minimal adverse environmental effects. Nationwide permits (NWPs) are a type of general permit issued to cover particular fill activities. Each NWP specifies particular conditions that must be met for the NWP to apply to a particular project.

Compliance with CWA Section 404 requires compliance with several other environmental laws and regulations. USACE cannot issue an individual permit or verify the use of a general permit until the requirements of NEPA, ESA, and the National Historic Preservation Act have been met. Moreover, USACE cannot issue or verify any permit until a water quality certification or a waiver of certification has been issued pursuant to CWA Section 401.

According to the U.S. EPA, based on the estimated impacts to waters of the U.S., this project will likely require individual Clean Water Act permits from the USACE during project-level implementation. Requirements for these permits will include compensatory mitigation for project impacts, including impacts to vernal pools which occur within the Mather Core Recovery Area. In the recent Record of Decision for the Sunridge Properties project, the USACE recognized the significant cumulative loss of vernal pools within the Mather Core Recovery Area and determined that all compensatory mitigation for future unavoidable impacts to vernal pool wetlands within the Core Recovery Area shall be accomplished within the Core Recovery Area. The U.S. EPA opines that compensatory mitigation for this project is likely to require a minimum replacement (preservation) ratio of 2:1 for direct impacts to vernal pools, with additional mitigation required for indirect impacts.

The U.S. EPA notes that compensation/preservation land within the Mather Core Recovery Area is becoming limited as projects are approved in the area and that there are currently no approved or proposed mitigation banks within the Mather Core Recovery Area.

Section 401—Water Quality Certification

Under CWA Section 401, applicants for a federal license or permit to conduct activities that may result in the discharge of a pollutant into waters of the United States must obtain certification from the state in which the discharge would originate or, if appropriate, from the interstate water pollution control agency with jurisdiction over affected waters at the point where the discharge would originate. Therefore, all projects that have a federal component and may affect state water quality (including projects that require federal agency approval, such as issuance of a Section 404 permit) must also comply with CWA Section 401. The proposed project falls within the jurisdiction of the Central Valley Regional Water Quality Control Board (RWQCB), which is responsible for reviewing and approving Section 401 permits.

5.2.2.2 State

California Endangered Species Act

California implemented CESA in 1984. The act prohibits the take of endangered and threatened species; however, habitat destruction is not included in the state’s definition of take. 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 harassment. DFG administers the act and authorizes take through either Section 2080.1 (for species listed under ESA and CESA) or Section 2081 agreements (except for species designated as fully protected). Regarding rare plant species, CESA defers to the California Native Plant Protection Act, which prohibits importing rare and endangered plants into California, taking rare and endangered plants, and selling rare and endangered plants.

California Fish and Game Code

Fully Protected Species

The FGC provides protection from take for a variety of species, referred to as *fully protected species*. Section 5050 lists fully protected amphibians and reptiles, Section 3515 lists fully protected fish, Section 3511 lists fully protected birds, and Section 4700 lists fully protected mammals. The FGC defines take as “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.” Except for scientific research, all take of fully protected species is prohibited, and DFG cannot issue take permits for fully protected species.

Sections 1600–1616 (Lake and Streambed Alteration)

DFG regulates activities that would interfere with the natural flow of, or substantially alter the channel, bed, or bank of any lake, river, or stream. Such activities are regulated under FGC 1600–1616 and require a streambed alteration agreement. Requirements to protect the integrity of biological resources and water quality are often conditions of streambed alteration agreements. Conditions that DFG may impose include avoidance or minimization of vegetation removal, use of standard erosion control measures, limitations on the use of heavy equipment, limitations on work periods to avoid impacts on fisheries and wildlife resources, and requirements to restore degraded sites or compensate for permanent habitat losses.

Sections 3503 and 3503.5 (Protection of Birds and Raptors)

FGC 3503 prohibits the killing of birds or the destruction of bird nests. Section 3503.5 prohibits the killing of raptor species or the destruction of raptor nests. Typical violations include destruction of active bird and raptor nests as a result of tree removal and failure of nesting attempts (loss of eggs or young) as a result of disturbance of nesting pairs caused by nearby human activity. Consultation with DFG would be required if nesting birds would be affected by construction activities.

Porter-Cologne Water Quality Act

California Water Code 13260 requires "any person discharging waste, or proposing to discharge waste, within any region that could affect the waters of the state to file a report of discharge (an application for waste discharge requirements)." The Porter-Cologne Water Quality Act (Porter-Cologne) defines *waters of the state* as "any surface water or groundwater, including saline waters, within the boundaries of the state." The SWANCC ruling described above has no bearing on the Porter-Cologne definition. While all waters of the United States that are within the borders of California are also waters of the state, the converse is not true; in other words, waters of the United States is a subset of waters of the state. Thus, California retains authority to regulate discharges of waste into any waters of the state, regardless of whether USACE has concurrent jurisdiction under Section 404 of the CWA. Specifically, the RWQCB would take jurisdiction over any wetlands or waters that were deemed to not be the jurisdiction of the USACE within the proposed project. In these cases, the applicant would seek the aforementioned waste discharge permit for fill of waters of the state from the RWQCB as opposed to Section 404 and 401 permits.

Invasive Species

An *invasive species* is defined as one that is (1) nonnative (or alien) to the ecosystem under consideration and (2) whose introduction causes or is likely to cause economic or environmental harm to human health.

The California Department of Food and Agriculture (CDFA) maintains a list of noxious weeds and advises the County Agricultural Commissioners as to the action to take regarding each noxious weed species. A-rated weeds are subject to eradication, containment, rejection, or other holding action at the state/county level. B-rated weeds are subject to eradication, containment, control, or other holding action at the discretion of the County Agricultural Commissioner. C-rated weeds are subject to action to retard their spread outside of nurseries at the discretion of the County Agricultural Commissioner.

5.2.2.3 Local

Sacramento County

Sacramento County General Plan

The 2011 Sacramento County General Plan includes several polices that have been developed to protect sensitive biological resources. These policies were developed to meet the County's goals and objectives in protecting sensitive biological resources within the County.

The Sacramento County General Plan addresses the need to provide a framework for conservation of open spaces while identifying areas that will likely be developed as the Sacramento urban area expands. The Open Space Element of the 2011 Sacramento County General Plan states that "maintaining intact habitat, productive soils, mineral resource availability as open space is essential to resource conservation." The Open Space Element includes protections of both rural and urban open space, both of which provide protections for sensitive plants and wildlife.

The Conservation Element of the Sacramento County General Plan (2011), establish goals and objectives for the protection, enhancement, and restoration of sensitive biological resources in the County. The Conservation Element includes specific policies and implementation measures to help meet these goals and objectives. Policies CO-58 through CO-149, and their associated implementation measures, apply to sensitive biological resources in both rural and urbanized portions of the County. These policies were developed for the protection of sensitive plants and wildlife, sensitive wetland and aquatic habitat, and sensitive terrestrial habitats, including landmark, heritage trees, and urban trees.

El Dorado County

The Conservation and Open Space Element of the El Dorado County General Plan (2004) sets forth objectives, goals, and policies to conserve and improve El Dorado County's existing natural resources and open space, including agricultural and forest soils, mineral deposits, water and native plants, fish, wildlife species, and habitat; and preserve resources of significant, biological, ecological, historical, or cultural importance. Goal 7.4 (Wildlife and Vegetation Resources) identifies species objectives for the protection of biological resources within the county.

City of Elk Grove

The Elk Grove General Plan, adopted in 2003, recognizes that lands in and around Elk Grove provide habitat to many native plant and animal species as well as open space and agricultural uses. The City's Conservation and Air Quality Element provides policies and programs intended to reduce impacts on plants and animals that will result from the loss of habitat because of development. Although development of many areas currently used as habitat by native plants and animals is viewed as an unavoidable result of urbanization, numerous policies have been incorporated to ensure that impacts on native species are reduced or mitigated. General Plan Policy CAQ-9 recognizes the value of vernal pools and wetlands and establishes a no net loss policy for these recourses. Policy CAQ-11 aims at the preservation of habitat for special-status plant and animal species, and policy CAQ-10 specifically addresses the adoption of a habitat conservation plan for rare, threatened, or endangered species. General Plan policies CAQ17 through CAQ-24 are aimed at protecting natural drainage and stream corridors and their associated vegetation and wildlife through preservation, buffers, and design standards. Other policies aimed at protecting habitat and open space include PTO 18, which deals with retention of natural drainage courses, and SA-15, which prohibits development in the 100-year floodplain.

City of Rancho Cordova

The Rancho Cordova General Plan, adopted June 26, 2006, establishes the City's policy framework for the preservation of natural resources. While policies and programs within various elements will guide the community form and generally conserve natural resources, the General Plan provisions most relevant to the project area are presented within the Natural Resources Element, the stated purpose of which is to "foster the preservation of Rancho Cordova's many valuable natural resources, including wildlife, habitat, water resources, soils and mineral resources."

The Natural Resources Element recognizes and complies with the complex and interrelated regulatory framework established to preserve resources, including federal (NEPA, ESA, Vernal Pool Recovery Act, CWA) and state (CEQA, CESA, FGC) regulations.

City of Folsom

The City or Folsom General Plan, adopted in 1993, establishes the City's policy framework for the preservation of open space and natural resources. The policies in the General Plan relative to natural resources in the project area are found in the Open Space and Conservation Element. The open space segment of the Element "identifies the community's open space resources and establishes policy for their preservation, maintenance, and/or use." The conservation segment of the Element "identifies the community's resources and establishes policy for their conservation, development, and/or utilization."

This element recognizes and complies with the regulatory framework established to protect open space and natural resources, including federal (NEPA, ESA, CWA) and state (CEQA and CESA).

South Sacramento Habitat Conservation Plan

The SSHCP is currently in preparation. The SSHCP area encompasses 345,000 acres in southern Sacramento County.

Although the SSHCP has not been approved and an implementation date has not been identified, its intent is to provide a regional approach to balancing development against conservation and protection of habitat, open space, and agricultural lands in the plan area.

The SSHCP would be implemented through an agreement between state/federal resource agencies [anticipated to be the USFWS, DFG, USACE, and the State Water Resources Control Board (SWRCB)] and the plan participants (currently identified as Sacramento County, City of Elk Grove, City of Rancho Cordova, and the JPA). The SSHCP would protect 30 species of plants and wildlife including 10 that are listed as threatened or endangered under ESA or CESA. The SSHCP also protects vernal pool, wetland, and stream habitats that are subject to the federal CWA and Porter-Cologne. The SSHCP seeks a programmatic Streambed Alteration Agreement under FGC 1600 et seq.

The primary mechanism for conservation established under the SSHCP is the reserve system, which would conserve habitat that would be managed and monitored to achieve the biological goals and objectives for the covered species. In exchange for this habitat conservation, USFWS and DFG would issue ITPs authorizing covered activities. The entities that receive coverage under the ITP can take specified species incidental to otherwise legal activities.

The SSHCP conservation strategy would be fulfilled through take avoidance, minimization, and compensation measures, including land and easement dedications and per-acre fees imposed on covered activities based on their impacts on habitat and resulting take. Fees would be used to purchase land for the reserve system, thereby providing large-scale habitat preservation and habitat restoration. Supplementary monies would be sought from grants or other funding sources to acquire preserve lands that will contribute to the recovery of covered species, but which are not required as mitigation for covered activities.

5.3 Impact and Mitigation Discussion

5.3.1 Thresholds of Significance

An impact is considered significant under CEQA if it would result in any of the following environmental effects, which are based on State CEQA Guidelines Appendix G (14 CCR 15000 et seq.):

- have a substantial adverse effect, either directly or through habitat modification, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations or by DFG or USFWS;
- have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by DFG or USFWS;
- have a substantial adverse effect on federally protected wetlands, as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, and coastal wetlands etc.) through direct removal, filling, hydrological interruption, or other means;
- interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or
- conflict with the provisions of an adopted HCP, natural communities conservation plan, or other approved local, regional, or state HCP.

5.3.2 Approach and Methodology

The potential for biological resources within the project area to be affected was evaluated by comparing the resources mapped within the direct and indirect corridors (Tables 5-1 and 5-2) to the habitat requirements for special-status species, and the presence or absence of sensitive biological communities within the corridors (e.g., wetlands and riparian woodland). It is important to note that generally, the maximum right-of-way width for the Connector segments would be no more than 200 feet. However, for program-level planning purposes, this analysis includes a wider direct impact corridor for biological resources (400 feet) and an additional 200 feet on either side of the 400-foot-wide corridor for indirect impacts. This conservative estimate will allow the JPA to select the corridor at the program EIR stage, and then narrow the alignment (i.e., the “project-level footprint”) at later stages. Using a 400-foot direct impact area will also allow the JPA or the member agencies to adjust the project-level segments to avoid direct or indirect impacts of sensitive species or habitat as the alignments are refined.

The proposed project has the potential to directly and indirectly affect biological resources within the project area. The mitigation measures described for potential impacts on sensitive biological resources have not been developed through formal consultation or coordination with resource agencies (e.g., DFG, USFWS, NMFS, USACE). As part of subsequent, project-level environmental analysis, agencies must be contacted as part of the environmental compliance process to determine specific compensatory mitigation for impacts on wetlands, state- and federally listed species, and riparian habitats. Additional mitigation measures may also be necessary as part of a 1600 Lake or Streambed Alteration Agreement. If the SSHCP has been implemented at the time of project-level design and environmental review, the JPA or agencies would comply with the requirements of the plan.

Biological resources could be directly or indirectly affected by the following project activities:

- Stream dewatering or installation of temporary water-diversion structures during construction of bridges or other transportation facilities over riverine systems
- Direct loss of habitat associated with roadway widening, new transportation facilities, interchange improvements, or off-corridor multi-use path construction
- Temporary stockpiling of soil or construction materials and sidecasting of soil and other construction wastes
- Removal of riparian vegetation along waterways during improvement or construction of bridges
- Removal of vegetation during construction of temporary staging areas and access roads
- Soil compaction
- Alteration of topography and hydrology adjacent to wetland areas
- Generation of dust by construction equipment
- Water runoff from the construction area
- Herbicide application and removal of vegetation as part of road maintenance
- Degradation of water quality in wetlands and waterways, resulting from road runoff containing petroleum products

5.3.3 Impacts of the Proposed Project

Impact BIO-1: Potential Loss of Special-Status Plant Species

Construction and staging activities could directly or indirectly affect populations of special-status plants (see Table 5-3 for a list of special-status plants potentially occurring within the project area). Improvements and modifications within existing rights-of way would have less potential to affect special-status plants relative to project activities in undisturbed areas. Impacts on special-status plants could result in a reduction in local population size, lowered reproductive success, or habitat fragmentation. The impact would be considered significant.

If the SSHCP has been implemented and the Capital SouthEast Connector Project is a covered project, the JPA or agencies would comply with the requirements of the plan to address this impact.

If the SSHCP has not been adopted, Mitigation Measures BIO-1, BIO-2a, and BIO-2b would be required to reduce the impact to less than significant.

Mitigation Measure BIO-1: Conduct an Environmental Awareness Training Program for Construction Crews

Before any work occurs in the project area, a qualified biologist will conduct a mandatory environmental awareness training program for all construction personnel working on the project. The training program will notify construction personnel of the sensitive biological resources occurring within the project area, their legal status, and penalties for not complying with the conditions of any permits issued for the project.

The education program will emphasize the need to protect water quality, wetlands, and habitat for special-status species. A biological monitor approved by the resource agencies will ensure that construction personnel adhere to the guidelines and restrictions of all approved environmental documents, permits, and other agreements.

Mitigation Measure BIO-2a: Avoid or Minimize Impacts on Special-Status Plant Populations

As part of the environmental review process for individual projects, the JPA or implementing agency will retain a qualified botanist to document the presence or absence of special-status plants before project implementation. The following steps will be implemented on a project-by-project basis to document special-status plants:

- **Review Existing Information**. The botanist will review existing information to develop a list of special-status plants that could grow in the specific project area. Sources of information consulted will include DFG's CNDDB, previously prepared environmental documents, city and county general plans, HCPs and natural communities conservation plans (NCCPs), and the CNPS electronic inventory.
- **Coordinate with Agencies**. The botanist will coordinate with the appropriate agencies (DFG, USFWS) to discuss botanical resource issues and determine the appropriate level of surveys necessary to document special-status plants.
- **Conduct Field Studies**. The botanist will evaluate existing habitat conditions for each project and determine what level of botanical surveys may be required. The type of botanical survey will depend on species richness, habitat type and quality, and the probability of special-status species occurring in a particular habitat type. Depending on these factors and the proposed construction activity, one or more of the following levels of survey may be required:
  - **Habitat Assessment.** A habitat assessment will be conducted to determine whether suitable habitat is present. This type of assessment can be conducted at any time of year and is used to assess and characterize habitat conditions and determine whether return surveys are necessary. If no suitable habitat is present, no additional surveys will be required.
  - **Floristic Protocol-Level Surveys**. Floristic surveys that follow the *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (California Department of Fish and Game 2009) will be conducted in areas that possess natural vegetation, have known occurrences of special-status plants, or that

have habitat potentially supporting special-status plants. These survey protocols require that all species be identified to the level necessary to determine whether they qualify as special-status plants or are plant species with unusual or significant range extensions. The protocols also require that field surveys be conducted when special-status plants that could occur in the area are evident and identifiable. To account for different special-status plant identification periods, one or more series of field surveys may be required in spring and summer months.

- **Implement Avoidance and Minimization Measures.** Special-status plant populations identified during the field surveys will be mapped and documented, and the following measures implemented to avoid and minimize impacts on special-status plants:
  - Redesign or modify the project to avoid or minimize direct and indirect impacts on special-status plants.
  - Avoid or minimize construction impacts on special-status plants near the project site by installing environmentally sensitive area fencing (orange construction barrier fencing) around special-status plant populations at least 20 feet from the edge of the population. Wider buffer zone widths set by site-specific conditions and permit requirements, such as those for seasonal wetlands and vernal pools that are considered special-status shrimp habitat, will take precedence over this requirement. The location of the fencing will be marked in the field with stakes and flagging and shown on construction drawings. Construction specifications will contain clear language that prohibits construction-related activities, vehicle operation, material and equipment storage, and other surface-disturbing activities within the fenced environmentally sensitive area.

Mitigation Measure BIO-2b: Compensate for Impacts on Special-Status Plant Species

If impacts on pincushion navarretia, dwarf downingia, Boggs Lake hedge hyssop, legenere, and Sanford's arrowhead cannot be avoided (Ahart's dwarf rush, Sacramento Orcutt grass, and slender Orcutt grass must be avoided), the JPA or implementing agency will compensate for the loss of plants and their habitat by contributing to the conservation and recovery of the affected species. For each special-status plant occurrence impacted, one occurrence of the same species of a similar or greater size will be preserved (to compensate for temporal habitat loss). For each project with impacts on special-status plants, a mitigation and monitoring plan will be prepared that describes how the loss of special-status plant species will be compensated for. The mitigation and monitoring plan will be reviewed and approved by DFG and USFWS. The plan shall contain, but is not limited to, the following performance standards:

- Habitat restoration or establishment, where appropriate and feasible, will be used in conjunction with translocating the affected population.
- As directed by Policy CO-60 in the Sacramento County General Plan (2011), for segments of the Connector in Sacramento County, mitigation will be directed to lands identified on the Open Space Vision Diagram and associated component maps identified in the Open Space Element of the Plan or areas specifically identified in the SSHCP, when adopted.
- Habitat will be restored or newly established (on or off site) at a minimum ratio of 1:1 (1 acre restored for each acre impacted). Within the Mather Core Recovery Area, habitat will be preserved at a minimum ratio of 2:1 from lands within the Core Recovery Area.

- The mitigation site will be monitored the first year after the mitigation is implemented and every 5 years thereafter, until the mitigation is considered to be successful. Mitigation will be considered successful if the translocated population is determined to be stable and contains at least 60% of the number of plants present in the original occurrence. If the population falls below 60% of the original number of plants, then remediation measures will be initiated.

Because this mitigation measure would be experimental and the outcome unpredictable, the impact cannot be reduced to a less-than-significant level.

Because special-status species in the project area are state or federally listed or occur in wetlands, each project would have to comply with state and federal laws and regulations governing these resources, and obtain the applicable take or fill permits. These permits may include specific requirements, including compensation measures and ratios, which will take precedence over the measures and ratios specified in the previous paragraph.

Impact BIO-2: Potential Introduction or Spread of Invasive Plant Species

Construction of the project could introduce or spread invasive plant species into currently uninfested areas, possibly resulting in the displacement of special-status plant species and degradation of habitat for special-status wildlife. Plants or seeds may be dispersed on construction equipment if the appropriate measures are not implemented. The introduction or spread of invasive plant species could result in a substantial reduction or elimination of species diversity or abundance. If the SSHCP has been implemented and the Capital SouthEast Connector Project is a covered project, the JPA or agencies would comply with the requirements of the plan to address this impact. If the SSHCP has not been adopted, Mitigation Measure BIO-3 would be required to reduce the impact to less than significant.

Mitigation Measure BIO-3: Avoid and Minimize the Introduction and Spread of Invasive Plant Species

As part of project-level environmental review, the implementing agency will retain a qualified botanist to address invasive plant species impacts. The botanist will determine whether invasive plant introduction or spread are for a potential impact of the project and whether they could displace native plants and natural habitats or affect the quality of forage on rangelands or cropland productivity. If the botanist determines that invasive plants are a potential impact, the project proponent will review the County Agricultural Commission’s noxious weed list, California Department of Food and Agriculture’s A, B, and C lists of noxious weeds, and California Invasive Plant Council’s list of pest plants of ecological concern including the most current “watch list.” These lists will be used to identify invasive plants that will be targeted during field surveys by the botanist. One or more field surveys will be undertaken by qualified botanists to examine the project area. Surveys will focus on target weed species that are considered locally important for documentation and control purposes.

If invasive plant infestations are located during the field surveys, they will be mapped and documented in the CEQA and NEPA documentation, as applicable, and the implementing agency will implement the following measures into their project plans and specifications:

- Use certified, weed-free, imported erosion-control materials (or rice straw in upland areas).

- Coordinate with the applicable County Agricultural Commissioner and land management agencies to ensure that the appropriate best management practices (BMPs) are implemented.
- Educate construction supervisors and managers on weed identification and the importance of controlling and preventing the spread of noxious weeds.
- Clean equipment at designated wash stations after leaving noxious weed infestation areas.

Impact BIO-3: Potential Loss and Disturbance of Riparian Woodlands

Construction of the project could result in the indirect disturbance of up to 23.3 acres. There are 7.7 acres of riparian woodlands within the area of potential direct effects. Actual project impacts are not know, but will likely only affect a portion of these woodlands. Any impacts to riparian woodlands could result in long-term degradation of a sensitive plant community, fragmentation or isolation of an important wildlife habitat, and disruption of natural wildlife movement corridors. Sacramento General Plan (2011) Policy CO-58 states that there will be no net loss of riparian woodland within the County. If the SSHCP has been implemented and the Capital SouthEast Connector Project is a covered project, the JPA or member jurisdictions would comply with the requirements of the plan to address this impact. If the SSHCP has not been adopted, Mitigation MeasuresBIO-1 (described above), BIO-4a, and BIO-4b (described below) would be required to reduce the impact to less than significant.

Mitigation Measure BIO-4a: Avoid and Minimize Potential Impacts on Riparian Woodlands

The implementing agency will retain a qualified biologist to document the location and type of riparian communities that occur in the site-specific project area and could be affected by their project. This information will be mapped and documented as part of CEQA and NEPA documentation, as applicable. Where the Connector runs through Sacramento County, the implementation agency will insure that projects are consistent with County General Plan Policies C0-87 through C0-92 and associated implementation measures, which address the need to protect, enhance, and restore riparian habitat in the County. The implementing agency will avoid or minimize impacts on riparian communities by implementing the following measures:

- Redesign or modify the project to avoid direct and indirect impacts on riparian communities, if feasible.
- Protect riparian communities near the project site by installing environmentally sensitive area fencing at least 20 feet from the edge of the riparian vegetation. Depending on site-specific conditions, this buffer may be narrower or wider than 20 feet (e.g., where adjacent structures or resources prohibit staking out 20 feet or where certain resources warrant wider buffers, as determined by a biologist). The location of the fencing will be marked in the field with stakes and flagging and shown on construction drawings. Construction specifications will contain clear language that prohibits construction-related activities, vehicle operation, material and equipment storage, and other surface-disturbing activities within the fenced environmentally sensitive area.
- Minimize the potential for long-term loss of riparian vegetation by trimming vegetation rather than removing the entire shrub. Shrub vegetation will be cut at least 1 foot above ground level to leave the root systems intact and allow for more rapid regeneration of the

species. Cutting will be limited to a minimum area necessary within the construction zone. This type of removal will be allowed only for shrub species (all trees will be avoided) in areas that do not provide habitat for sensitive species. To protect migratory birds, no woody riparian vegetation will be removed between January 1 and August 31.

Mitigation Measure BIO-4b: Compensate for the Loss of Riparian Community

If riparian vegetation is removed as part of a specific project, the responsible implementing agency will compensate for the loss of riparian vegetation. Compensation will be provided at a minimum 1:1 ratio for restoration and 2:1 preservation, and may be a combination of onsite restoration/creation, offsite restoration, or mitigation credits. If mitigation is completed on or off site by the JPA or implementing agency, they will develop a restoration and monitoring plan that describes how riparian habitat will be enhanced or recreated and monitored. At a minimum, the restoration and monitoring plan will include clear goals and objectives, success criteria, specifics on restoration/creation (plant palette, soils, irrigation, etc.), specific monitoring periods and reporting guidelines, and a maintenance plan. In general, any riparian restoration or creation will be monitored for a minimum of 5 years and will be considered successful when at least 75% of all plantings have become successfully established. For areas of the Connector that run through Sacramento County, restoration and preservation actions will be consistent with General Plan Policy CO-58, which states that there will be not net loss of riparian woodland in the County, and Policy CO-60, which states that mitigation will be directed to lands identified on the Open Space Vision Diagram and associated component maps identified in the Open Space Element of the Plan.

Impact BIO-4: Potential Loss or Alteration of Waters of the United States and Waters of the State

Construction of the project could result in impacts on waters of the United States and waters of the state (streams and isolated wetlands). Although specific wetland delineations and mapping of waters the state have not yet been conducted for the project because it has not been designed in sufficient detail to identify a specific footprint. In general, typical habitats that would generally be considered under the jurisdiction of the USACE or the RWQCB would include up to 35 acres of streams, swales, seasonal wetlands, vernal pools, freshwater marshes, seasonal ponds, open waters, and irrigated pastures (92.5 acres) and aqueducts (0.7 acre). Tables 5-1 and 5-2 list the total acres of these habitats that occur within the potential direct project corridor route and within the area of potential indirect impact, respectively. These features could be affected directly or indirectly through fill, hydrological alteration (including dewatering), alteration of streambed and stream banks, and other construction-related activities, resulting in long-term degradation of a sensitive plant community, fragmentation or isolation of an important wildlife habitat, and disruption of natural wildlife movement corridors. If the SSHCP has been implemented and the Connector Project remains a covered project, the JPA or agencies would comply with the requirements of the plan to address this impact. If the SSHCP has not been adopted, Mitigation Measures BIO-1 (described above), BIO-5a, and BIO-5b (described below) would be required to reduce the level of impact. Because of the current limitations on available wetland mitigation credits (considering the SSHCP has not yet been adopted and the availability of compensation lands within the Mather Core Recovery Area is uncertain) in the watersheds within the project area, permanent impacts to wetlands would be considered a significant and unavoidable impact.

The Connector segments are not expected to be designed and proposed for permitting within the next few years. Future development projects affecting waters of the U.S. within the Mather Core Recovery Area may precede the segments in the permitting process. Those projects will consume a portion of the currently available mitigation land. For that reason, specific potential mitigation sites that will be available to the segments cannot be identified. Therefore, because detailed information about the availability of compensation lands and the evolving requirements of the USACE cannot be known at this time, the following mitigation measure commits the implementing agencies to mitigation and sets out performance standards, but cannot reasonably provide detailed mitigation. The details will be developed at the time the segments begin the permitting process.

Mitigation Measure BIO-5a: Avoid and Minimize Disturbance of Waters of the United States and Waters of the State

The implementing agency for a specific project in the project area will retain a qualified wetlands biologist to identify areas that could qualify as waters of the United States and waters of the state, including jurisdictional and isolated wetlands. USACE jurisdictional wetlands will be delineated using the methods outlined in the USACE 1987 Wetlands Delineation Manual and the Arid West Manual, or succeeding guidance. This information will be mapped and documented as part of the future CEQA documentation, as applicable, and in wetland delineation reports and permitting.

Implementing agencies will avoid and minimize impacts on wetlands and other waters by implementing the following measures:

- Redesign or modify the project to avoid direct and indirect impacts on wetland habitats, including water quality run-off, if feasible.
- Protect wetland habitats that occur near the project site by installing environmentally sensitive area fencing at least 20 feet from the edge of the wetland. Depending on site-specific conditions and permit requirements, this buffer may be wider than 20 feet (e.g., 250 feet for seasonal wetlands and vernal pools that are considered special-status shrimp habitat). The location of the fencing will be marked in the field with stakes and flagging and shown on construction drawings. Construction specifications will contain clear language that prohibits construction-related activities, vehicle operation, material and equipment storage, and other surface-disturbing activities within the fenced environmentally sensitive area.
- Avoid installation activities in saturated or ponded wetlands during the wet season (spring and winter) to the maximum extent possible. Where such activities are unavoidable, protective practices, such as use of padding or vehicles with balloon tires, will be used.
- Where determined necessary by resource specialists, use geotextile cushions and other materials (e.g., timber pads, prefabricated equipment pads, or geotextile fabric) in saturated conditions to minimize damage to the substrate and vegetation.
- Stabilize exposed slopes and streambanks immediately on completion of installation activities. Other waters of the United States and waters of the state will be restored in a manner that encourages vegetation to reestablish to its pre-project condition and reduces the effects of erosion on the drainage system.
- In highly erodible stream systems, stabilize banks using a nonvegetative material that will bind the soil initially and break down within a few years. If the project engineers determine

that more aggressive erosion control treatments are needed, use geotextile mats, excelsior blankets, or other soil stabilization products.

- During construction, remove trees, shrubs, debris, or soils that are inadvertently deposited below the ordinary high-water mark of drainages in a manner that minimizes disturbance of the drainage bed and bank.

These measures will be incorporated into contract specifications and implemented by the construction contractor. In addition, the implementing agency will ensure that the contractor incorporates all state and federal permit conditions into construction specifications.

Mitigation Measure BIO-5b: Compensate for the Loss of Wetlands and Waters

If wetlands and waters are filled or disturbed as part a specific project, the implementing agency will compensate for the loss of wetland and waters to ensure there is no net loss of habitat functions and values. The compensation will be at a minimum 1:1 restoration ratio and a 1:1 preservation ratio with the mitigation being met by purchasing credits at a USACE-approved mitigation bank or other USACE-approved mitigation site. For those segments of the project within the Mather Core Recovery Area, the conservation/preservation ratio for direct impacts to waters of the U.S. will be a minimum of 2:1, with additional compensation for indirect impacts at a minimum ratio of 1:1. The implementing agency will prepare a comprehensive mitigation plan containing the following components: specifications for the conservation/preservation lands; the locations of the compensation lands, provisions for the management and maintenance of those lands in perpetuity by either the implementing agency or other entity, and the instruments by which long-term management and maintenance will be assured. As directed by Policy CO-60 in the Sacramento County General Plan (2011), for segments of the Connector in Sacramento County, mitigation will be directed to lands identified on the Open Space Vision Diagram and associated component maps identified in the Open Space Element of the Plan.

Impact BIO-5: Potential Loss or Disturbance of Special-Status Wildlife Species and Their Habitat

Construction of the project could result in the direct loss or indirect disturbance of special-status wildlife or their habitats, which are known to occur or could occur in the study area (see Table 5-3 for a list of potentially occurring species). Table 5-1 lists the acreage of habitat that could be lost along the proposed corridor route and Figure 5-1 lists the potential acreage affected from indirect impacts. Appendix I shows the habitats affected along the proposed project route. Impacts on special-status wildlife or their habitat could result in a substantial reduction in local population size, lowered reproductive success, or habitat fragmentation. Significant impacts on special-status wildlife may include, but are not limited to:

- direct mortality from the collapse of underground burrows, resulting from soil compaction;
- direct mortality resulting from the movement of equipment and vehicles through the project area;
- increased mortality caused by higher numbers of automobiles on new or widened roads in wildlife migration corridors;
- loss of breeding and foraging habitat resulting from the filling of up to 35 acres of seasonal or perennial wetlands;

- loss of breeding, foraging, and refuge habitat resulting from the permanent removal of riparian vegetation ;
- abandoned eggs or young and subsequent nest failure for special-status nesting birds, including raptors, as a result of construction-related noise;
- indirect impacts on conservation areas that occur adjacent to future road expansions (up to 123.2 acres of conservation lands occur within the proposed project's 400-foot wide corridor and an additional 112.5 acres occur in the area between 400 and 800 feet (Table 5-4 and Figure 5-1);
- loss of suitable foraging habitat for special-status raptor species; and
- loss and interruption of migration corridors resulting from the construction of permanent structures or features.

If the SSHCP has been implemented and the Connector Project remains a covered project, the JPA or agencies would comply with the requirements of the plan to address this impact. If the SSHCP has not been adopted, Mitigation Measures BIO-1 (described above), BIO-6a, and BIO-6b (described below) would be required to reduce the impact to less than significant for all wildlife species addressed, except vernal pool fairy shrimp and vernal pool tadpole shrimp. Because of limited vernal pool fairy shrimp and vernal pool tadpole shrimp mitigation/compensation credits (considering the SSHCP has not yet been adopted) in the project region, especially for impacts occurring within the Mather Core Recovery Area, permanent impacts to vernal pool fairy shrimp and vernal pool tadpole shrimp habitat would be considered a significant and unavoidable impact.

It is clear that vernal pools fairy shrimp and vernal pool tadpole shrimp mitigation/compensation credits are very limited in the region and that for impacts occurring within the Mather Core Recovery Area (mostly along Grant Line Road from Sunrise to White Rock Road) there may not be credits available within the Mather Core Recovery Area at the time of project implementation to mitigate for these impacts. The USACE's Sunridge Properties Record of Decision states that future losses to vernal pool wetlands in the Mather Corps Recovery Area must be compensated within the Core Recovery Area. If insufficient credits are available, the project will be re-designed to avoid vernal pools fairy shrimp and vernal pool tadpole shrimp habitat.

Mitigation Measure BIO-6a: Avoid and Minimize Impacts on Special-Status Wildlife Species

As part of project-level environmental review, implementing agencies will retain a qualified wildlife biologist to document the presence or absence of suitable habitat for special-status wildlife in the specific project area and vicinity. The following steps will be implemented to document special-status wildlife and their habitats for each project:

- **Review Existing Information.** The wildlife biologist will review existing information to develop a list of special-status wildlife species that could occur in the project area. The following information will be reviewed as part of this process: the USFWS special-status species list for the project region, a review of records in the CNDDB, previously prepared environmental documents, city and county general plans, HCPs and NCCPs (if there are any), and USFWS issued biological opinions for previous projects.
- **Coordinate with State and Federal Agencies.** The wildlife biologist will coordinate with the appropriate agencies (DFG and USFWS) to discuss wildlife resource issues in the project

area and determine the appropriate level of surveys necessary to document special-status wildlife and their habitats.

- **Conduct Field Studies.** The wildlife biologist will evaluate existing habitat conditions and determine what level of biological surveys may be required. The type of survey required will depend on habitat type and quality and the probability of special-status species occurring in a particular habitat type. Depending on the existing conditions in the project area and the proposed construction activity, one or more of the following levels of survey may be required:
  - **Habitat Assessment.** A habitat assessment determines whether suitable habitat is present. This type of assessment can be conducted at any time of year and is used to assess and characterize habitat conditions and to determine whether return surveys are necessary. If no suitable habitat is present, no additional surveys will be required.
  - **Species-Focused Surveys.** Species-focused surveys (or target species surveys) will be conducted if suitable habitat is present for special-status wildlife and if they are necessary to determine the presence or absence of a species in the project area. The surveys will focus on special-status wildlife species that have the potential to occur in the region. The surveys will be conducted during a period when the target species are present or active.
  - **Protocol-Level Wildlife Surveys.** The project proponent will comply with protocols and guidelines issued by responsible agencies for certain special-status species. USFWS and DFG have issued survey protocols and guidelines for several special-status wildlife species that could occur in the project region, including (but not limited to) the valley elderberry longhorn beetle, vernal pool branchiopods, giant garter snake, western burrowing owl, Swainson's hawk, and nesting birds. The protocols and guidelines may require that surveys be conducted during a particular time of year or time of day when the species is present and active. Many survey protocols require that only a USFWS- or DFG-approved biologist perform the surveys. The project proponent will coordinate with the appropriate state or federal agency biologist before the initiation of protocol-level surveys to ensure that the survey results will be valid. Because some species can be difficult to detect or observe, multiple field techniques may be used during a survey period and additional surveys may be required in subsequent seasons or years as outlined in the protocol or guidelines for each species.

Special-status wildlife or suitable habitat identified during the field surveys will be mapped and documented as part of the CEQA and NEPA documentation, as applicable. The implementing agencies will implement a combination of the following mitigation measures to avoid and minimize significant impacts on special-status wildlife and their habitats:

- Redesign or modify the project to avoid direct and indirect impacts on special-status wildlife or their habitats, including interruption of migration corridors, if feasible.
- Protect special-status wildlife and their habitat near the project site by installing environmentally sensitive area fencing around habitat features, such as vernal pools, seasonal wetlands, burrows, and nest trees. The environmentally sensitive area fencing or staking will be installed at a minimum distance from the edge of the resource as determined through coordination with state and federal agency biologists (USFWS and DFG). The location of the fencing will be marked in the field with stakes and flagging and shown on

construction drawings. Construction specifications will contain clear language that prohibits construction-related activities, vehicle operation, material and equipment storage, and other surface-disturbing activities within the fenced environmentally sensitive area.

- When feasible restrict construction-related activities near sensitive resources to the nonbreeding season or other periods of activity for special-status wildlife species that could occur in the project area. Typical timing restrictions include, but are not limited to:
  - Valley elderberry long horn beetle – February 15 to November 1 (time period where shrub transplanting can't occur).
  - Giant garter snake inactive period – October 1 to May 1
  - Western spadefoot toad reproductive period – generally January 1 to May 1
  - Swainson's hawk nesting season – generally February 1 to August 31
  - Burrowing owl nesting – generally February 1 to August 31
  - Other nesting migratory birds and raptors – generally January 1 to August 31
- Conduct biological construction monitoring of project areas where work occurs in proximity to sensitive wildlife or their habitat. The JPA or implementing agency will hire a qualified wildlife biologist approved by USFWS and DFG to monitor construction activities to ensure that no wildlife is harmed during construction and no wildlife habitat outside of the project area is unintentionally affected by project construction.

Mitigation Measure BIO-6b: Compensate for Impacts on Special-Status Wildlife Species

If all or portions of Mitigation Measure BIO-6a are not feasible and site-specific construction activities would result in significant impacts on special-status wildlife species, compensation for the loss of habitat will be implemented to reduce the impact to a less-than-significant level. Impacted habitat will be mitigated off site at an agency approved mitigation bank. The minimum replacement ratios and typical mitigation for wildlife habitat that could be impacted by the proposed project are presented in Table 5-5. As directed by Policy CO-60 in the Sacramento County General Plan (2011), for segments of the Connector in Sacramento County, mitigation will be directed to lands identified on the Open Space Vision Diagram and associated component maps identified in the Open Space Element of the Plan. If the SSHCP has been implemented and the Capital SouthEast Connector Project is a covered project, the JPA or member jurisdictions would comply with the requirements of the plan to address this impact.

Revised Table 5-5. Minimum Replacement Ratios and Typical Mitigation for Wildlife Habitat

Species	Preservation	Creation/Restoration
Vernal pool fairy shrimp and vernal pool tadpole (would mitigate for other vernal pool species)	Minimum of 2:1 (1:1 for indirect impacts)	1:1
Valley elderberry longhorn beetle	Transplant directly affected shrubs	Plant seedlings and associated riparian at stem placement ratios from 1:1 to 8:1, depending on stem size and shrub location
Giant garter snake	Preserve replacement habitat	From 1:1 to 3:1 depending on nature of impact
Burrowing owl	6.5 acres of foraging habitat for each pair relocated on site; 9.75 to 19.5 acres per pair for offsite relocation	Create artificial burrows if necessary
Swainson's hawk	Preserve foraging habitat from 0.5:1 to 1.5:1	NA

Impact BIO-6: Conflict with Local Policies or Ordinances Protecting Biological Resources

Construction of the project could result in conflicts with local policies or ordinances that protect locally significant biological resources. The proposed project is currently in line with the proposed draft SSHCP, and is a covered project in that plan. Implementation of Mitigation Measure BIO-7 would reduce this impact to a less-than-significant level.

Mitigation Measure BIO-7: Review Local City and County Policies, Ordinances, and Conservation Plans and Comply with Requirements

As part of project-level environmental review, implementing agencies will ensure that projects comply with the most recent general plans, policies, ordinances, and conservation plans (including any HCPs, NCCPs, and other local, regional, and state plans). Review of these documents and compliance with their requirements will be demonstrated in project-level environmental documentation. Implementing agencies will ensure that projects comply with all policies, ordinances, and plans that exist at the time of project-level review, regardless of whether they existed during the program-level analysis.

Impact BIO-7: Removal or Disturbance of Protected Trees

Construction activities for the project could result in removal of protected trees. Potential impacts could result from direct removal of trees and indirect activities associated with trenching, parking construction equipment under the trees, or stockpiling construction materials in the tree root zone (defined by the tree canopy). Some woodland communities and species, especially oaks, have declined from their historic extent and the disturbance or potential removal of woodlands and individual trees would be considered a significant impact. Implementation of Mitigation Measures BIO-1 (described above), BIO-8a, and BIO-8b (described below) would reduce this impact to a less-than-significant level. Within Sacramento County, the project will also be consistent with the objectives and policies for the protection of landmark and heritage trees (CO-138 to CO-141) identified in the Sacramento County General Plan (2011).

Mitigation Measure BIO-8a: Avoid and Minimize Impacts on Protected Trees

As part of project-level environmental review, proponents of specific projects that may result in removal of protected woodland communities and individual trees will review local plans, policies, and ordinances related to their protection and comply with local agency requirements.

If avoidance is required by the local planning jurisdiction and determined to be feasible, implementing agencies will install orange construction barrier fencing to identify environmentally sensitive areas around protected trees (the minimum size of tree to be protected will be determined by the local ordinance). If avoidance is not feasible then Mitigation Measure BIO-8b will be implemented (see discussion below).

Before construction, a qualified biologist will work with the project engineer to identify the locations for the barrier fencing, and will place stakes around the sensitive resource sites to indicate these locations. The fencing will be installed before construction activities are initiated and will be maintained throughout the construction period. The following paragraph will be included in the construction specifications:

> The Contractor's attention is directed to the areas designated as "environmentally sensitive areas." These areas are protected, and no entry by the Contractor for any purpose will be allowed unless specifically authorized in writing by the <jurisdiction name here>. The Contractor will take measures to ensure that Contractor's forces do not enter or disturb these areas, including giving written notice to employees and subcontractors.

Temporary fences around the environmentally sensitive areas will be installed as the first order of work. Temporary fences will be furnished, constructed, maintained, and removed as shown on the plans, as specified in the special provisions, and as directed by the project engineer. The fencing will be commercial-quality woven polypropylene, orange in color, and at least 4 feet high (Tensor Polygrid or equivalent). The fencing will be tightly strung on posts with a maximum 10-foot spacing.

Mitigation Measure BIO-8b Compensate for Impacts on Protected Trees

If impacts on protected trees cannot be avoided, then the implementing agency will compensate for impacts on protected trees. For portions of the project in Sacramento County, the following policies from the Sacramento County General Plan (2011) regarding landmark and heritage tree protections will be implemented:

- CO-138 – *Protect and preserve non-oak native trees along riparian areas if used by Swainson's hawk, as well as landmark and native oak trees measuring a minimum of 6 inches in diameter or 10 inches aggregate for multi-trunk trees at 4.5 feet above ground.*
- CO-139 – *Native trees other than oak, which cannot be protected through development, shall be replaced with in-kind species in accordance with established tree planting specifications, the combined diameter of which shall equal the combined diameter of the trees removed.*
- CO-140 – *For projects involving native oak woodlands, oak savannah or mixed riparian areas, ensure mitigation through either of the following methods:*
    - *An adopted habitat conservation plan.*

- *Ensure not net loss of canopy area through a combination of the following: (1) preserving the main, central portions of consolidated and isolated groves constituting the existing canopy and (2) provide an area on-site to mitigate any canopy lost. Native oak mitigation area must be a contiguous area on-site which is equal to the size of canopy area lost and shall be adjacent to existing oak canopy to ensure opportunities for regeneration.*
- *Removal of native oaks shall be compensated with native oak species with a minimum of a one to one dbh replacement.*
- *A provision for a comparable on-site area for the propagation of oak trees may substitute for replacement tree planting requirements at the discretion of the County Tree Coordinator when removal of a mature oak tree is necessary.*
- *If the project site is not capable of supporting all the required replacement trees, a sum equivalent to the replacement cost of the number of trees than cannot be accommodated may be paid to the County's Tree Preservation Fund or another appropriate tree preservation fund.*
- *If on-site mitigation is not possible given site limitation, off-site mitigation may be considered. Such a mitigation area must meet all of the following criteria to preserve, enhance, and maintain a natural woodland habitat in perpetuity, preferably by transfer of title to an appropriate public entity. Protected woodland habitat could be use as a suitable site for replacement tree plantings required by ordinances or other mitigation.*
    - *Equal or greater in are to the total are that is included within a radius of 30 feet of the dripline of all trees to be removed;*
    - *Adjacent to protected stream corridor or other preserved natural area;*
    - *Supports a significant number of native broadleaf trees; and*
    - *Offers good potential for continued regeneration of an integrated woodland community.*

- CO-141 – *In 15 years the native oak canopy within on-site mitigation area shall be 50 percent canopy coverage for valley oak and 30 percent canopy coverage for blue oak and other native oaks.*

For areas outside of Sacramento County jurisdiction, at a minimum, for every tree impacted one existing tree will be preserved and one new tree will be planted. Compensation for impacted trees will be done at a minimum of the following:

- planting replacement trees within project right-of-ways at 1:1, or
- preserving (1:1) and planting replacement trees (1:1) at agency-approved offsite locations.

All replacement tree plantings will consist of seedlings or saplings, depending on tree species and site conditions, and will be monitored for viability for a minimum of 5 years. Trees will be planted with protective structures to avoid and minimize damage from pests and weeds. During the monitoring period the implementing agency or a designated entity will provide supplemental watering of replacement trees, as needed, for at least the first two growing seasons, hand weed the planted area as needed, assess the health of replacement trees, replace dead or diseased trees as needed, and, at the end of the monitoring period, ensure that protective structures and irrigation systems are removed from the replacement area.

5.3.4 Impacts of the Off-Corridor Multi-Use Path Alternative

Impact BIO-1: Potential Loss of Special-Status Plant Species

Construction and staging activities could directly or indirectly impact populations of special-status plants. Impacts on special-status plants could result in a reduction in local population size, lowered reproductive success, or habitat fragmentation. This would be considered a significant impact. Implementation of Mitigation Measures BIO-1, BIO-2a, and BIO-2b would reduce this impact to a less-than-significant level.

Impact BIO-2: Potential Introduction or Spread of Invasive Plant Species

Construction of this alternative could introduce or spread invasive plant species into currently uninfested areas. This would be considered a significant impact. Implementation of Mitigation Measure BIO-3 would reduce this impact to a less-than-significant level.

Impact BIO-3: Potential Disturbance or Conversion of Riparian Woodlands

Construction of this alternative could result in the direct conversion of up to 22.3 acres of riparian woodland. This would be considered a significant impact. Implementation of Mitigation Measures BIO-1, BIO-4a, and BIO-4b would reduce this impact to a less-than-significant level.

Impact BIO-4: Potential Loss or Alteration of Waters of the United States and Waters of the State

Construction of this alternative could result in impacts on waters of the United States and waters of the state (streams and isolated wetlands). Although specific wetland delineations and mapping of other waters of the US and the state have not yet been conducted for the project, typical habitats that would generally be considered under the jurisdiction of the USACE or the RWQCB would include up to 8.0 acres of streams, swales, seasonal wetlands, vernal pools, freshwater marshes, seasonal ponds, open waters and aqueducts (34.2 acres). Appendix I shows where the off-corridor trail crosses these habitats and Table 5-1 lists the total acres of these habitats that occur within the potential direct project corridor route and within the area of potential indirect impact, respectively. This would be considered a significant impact. Implementation of Mitigation Measures BIO-1, BIO-5a, and BIO-5b would reduce the level of impact. Because of the current limitations on available wetland mitigation credits (considering the SSHCP has not yet been adopted) in the watersheds within the project area, permanent impacts to wetlands would be considered a significant and unavoidable impact.

Impact BIO-5: Potential Loss or Disturbance of Special-Status Wildlife Species and Their Habitat

Construction of this alternative could result in the direct loss or indirect disturbance of special-status wildlife or their habitats. Implementation of Mitigation Measures BIO-1, BIO-6a, and BIO-6b would reduce these impacts to a less-than-significant level for all wildlife species addressed, except vernal pool fairy shrimp and vernal pool tadpole shrimp. Because of the current limitations on available vernal pool fairy shrimp and vernal pool tadpole shrimp mitigation credits (considering the SSHCP has not yet been adopted) in the project region, permanent impacts to vernal pool fairy shrimp and vernal pool tadpole shrimp habitat would be considered a significant and unavoidable impact.

Impact BIO-6: Conflict with Local Policies or Ordinances Protecting Biological Resources

Construction of this alternative could result in conflicts with local policies or ordinances that protect locally significant biological resources. This would be considered a significant impact. Implementation of Mitigation Measure BIO-7 would reduce this impact to a less-than-significant level.

Impact BIO-7: Removal or Disturbance of Protected Trees

Construction activities for this alternative could result in removal of protected trees. This would be considered a significant impact. Implementation of Mitigation Measures BIO-1, BIO-8a, and BIO-8b would reduce this impact to a less-than-significant level.

5.3.5 Impacts of the Project Options

5.3.5.1 Kammerer Road Bypass Option

Overall, implementation of the Kammerer Road Bypass Option would not reduce or avoid any of the impacts of the proposed project and would introduce new impacts on biological resources where it runs outside of existing roads (developed lands). This option would add additional impacts on wetlands and potential habitat for special-status species by introducing a segment of new road to the south of the existing Kammerer Road.

Impact BIO-1: Potential Loss of Special-Status Plant Species

Implementation of this option would not reduce or avoid potential impacts on special-status plants and would potentially introduce new impacts. Construction of this option would affect more potential habitat for special-status plants than the proposed project in the equivalent segment of corridor. The impact would be slightly worsened and would remain significant. If the SSHCP has been implemented and the Capital SouthEast Connector Project is a covered project, the JPA or agencies will comply with the requirements of the plan to address this impact. If the SSHCP has not been adopted, Mitigation Measures BIO-1, BIO-2a, and BIO-2b would be required to reduce the impact to less than significant.

Impact BIO-2: Potential Introduction or Spread of Invasive Plant Species

Implementation of this option would not reduce or avoid the potential impact of invasive plant introduction and would potentially introduce new impacts. Construction of this option would have a greater potential to introduce invasive species to adjacent uninfested areas because it would disturb more existing annual grassland in this area relative to the equivalent portion of the proposed project. Implementation of Mitigation Measure BIO-3 would reduce this impact to a less-than-significant level.

Impact BIO-3: Potential Disturbance or Conversion of Riparian Woodlands

As shown in Appendix I, Map Sheets 1-3 and Table 5-1 and 5-2, the Kammerer Road Bypass Option would not cross through or near riparian woodland habitat, and therefore would not result in direct or indirect impacts on riparian woodlands, nor would the equivalent portion of the proposed project; therefore, implementation of this option would not reduce or avoid any impacts of the proposed project on riparian woodlands.

Impact BIO-4: Potential Loss or Alteration of Waters of the United States and Waters of the State

Construction of this option would not reduce or avoid impacts of the proposed project on waters of the United States and waters of the state (streams and isolated wetlands) and would likely introduce new impacts on wetlands. As shown in Appendix I, Map Sheets 1-3, the proposed bypass option traverses more habitats with potential to be classified as waters of the US or state than the equivalent section of the proposed project. Implementation of Mitigation Measures BIO-1, BIO-5a, and BIO-5b would reduce the level of impact. Because of the current limitations on available wetland mitigation credits (considering the SSHCP has not yet been adopted) in the watersheds within the project area, permanent impacts to wetlands would be considered a significant and unavoidable impact.

Impact BIO-5: Potential Loss or Disturbance of Special-Status Wildlife Species and Their Habitat

Construction of this option would not reduce or avoid direct loss or indirect disturbance of special-status wildlife or their habitats and would likely introduce new impacts on wildlife (Appendix I, Map Sheet 1). This option would introduce a potential for direct impacts to 0.1 acre of vernal pools. Implementation of Mitigation Measures BIO-1, BIO-6a, and BIO-6b would reduce the impact to a less-than-significant level for all wildlife species addressed, except vernal pool fairy shrimp and vernal pool tadpole shrimp. Because of the current limitations on available vernal pool fairy shrimp and vernal pool tadpole shrimp mitigation credits (considering the SSHCP has not yet been adopted) in the project region, permanent impacts to vernal pool fairy shrimp and vernal pool tadpole shrimp habitat would be considered a significant and unavoidable impact.

Impact BIO-6: Conflict with Local Policies or Ordinances Protecting Biological Resources

Implementation of this option would have a similar impact to that described above for the project. Mitigation Measure BIO-7 would reduce this impact to a less-than-significant level.

Impact BIO-7: Removal or Disturbance of Protected Trees

Construction of this option would not reduce or avoid direct loss or indirect impacts on protected trees and would likely introduce new impacts on protected trees. Implementation of Mitigation Measures BIO-1, BIO-8a, and BIO-8b would reduce this impact to a less-than-significant level.

5.3.5.2 Deer Creek Causeway Option 1

Overall, implementation of Deer Creek Causeway Option 1 would not reduce or avoid biological impacts of the proposed project and would introduce new impacts on biological resources. This option would add additional impacts on wetlands, riparian habitat, and potential habitat for special-status species by introducing a segment of new road to the southeast of the Sheldon area that currently has natural vegetation and agricultural lands.

Impact BIO-1: Potential Loss of Special-Status Plant Species

Construction of this option would not reduce or avoid impacts of the proposed project on special-status plants and would likely introduce new impacts because, as shown in Table 5-1, this option would result in the direct conversion of an additional 57.7 acres of uplands habitat, 2.5 acres of wetland and other waters habitat, and 338.9 acres of agricultural habitat, all of which have the potential to support special-status plants. This would be considered a significant impact. Implementation of Mitigation Measures BIO-1, BIO-2a, and BIO-2b would reduce this impact to a less-than-significant level.

Impact BIO-2: Potential Introduction or Spread of Invasive Plant Species

Construction of this option would not reduce or avoid impacts of the proposed project in terms of the potential for introduction or spread of invasive plant species and would likely introduce new impacts. This would be considered a significant impact. Implementation of Mitigation Measure BIO-3 would reduce this impact to a less-than-significant level.

Impact BIO-3: Potential Loss and Disturbance of Riparian Woodlands

Construction of this option would not reduce or avoid impacts of the proposed project on riparian woodland. There are 28.0 acres of riparian woodland within the area of potential direct effects. Actual project impacts are not know, but will likely only affect a portion of these woodlands. Impacts to riparian woodland would be considered a significant impact. Implementation of Mitigation Measures BIO-1, BIO-4a, and BIO-4b would reduce this impact to a less-than-significant level.

Impact BIO-4: Potential Loss or Alteration of Waters of the United States and Waters of the State

Construction of this option would not reduce or avoid impacts of the proposed project on waters of the United States and waters of the state (streams and isolated wetlands) and would likely introduce new impacts on wetlands. There are 2.5 acres of wetlands and waters within the area of potential direct effects that could be under the jurisdiction of the USACE or RWQCB. Impacts to wetlands and waters would be considered a significant impact. Implementation of Mitigation Measures BIO-1, BIO-5a, and BIO-5b would reduce the level of impact. Because of the current limitations on available wetland mitigation credits (considering the SSHCP has not yet been adopted) in the watersheds within the project area, permanent impacts to wetlands would be considered a significant and unavoidable impact.

Impact BIO-5: Potential Loss or Disturbance of Special-Status Wildlife Species and Their Habitat

Construction of this option would not reduce or avoid direct loss or indirect disturbance of special-status wildlife or their habitats and would likely introduce new impacts on wildlife. This would be considered a significant impact. Implementation of Mitigation Measures BIO-1, BIO-6a, and BIO-6b would reduce these impacts to a less-than-significant level for all wildlife species addressed, except vernal pool fairy shrimp and vernal pool tadpole shrimp. Because of the current limitations on available vernal pool fairy shrimp and vernal pool tadpole shrimp mitigation credits (considering the SSHCP has not yet been adopted) in the project region, permanent impacts to vernal pool fairy shrimp and vernal pool tadpole shrimp habitat would be considered a significant and unavoidable impact.

Impact BIO-6: Conflict with Local Policies or Ordinances Protecting Biological Resources

Construction of this option could result in conflicts with local policies or ordinances that protect locally significant biological resources. This would be considered a significant impact.

Implementation of Mitigation Measure BIO-7 would reduce this impact to a less-than-significant level.

Impact BIO-7: Removal or Disturbance of Protected Trees

Construction of this option would not reduce or avoid direct loss or indirect impacts on protected trees and would likely introduce new impacts on protected trees. This would be considered a significant impact. Implementation of Mitigation Measures BIO-1, BIO-8a, and BIO-8b would reduce these impacts to a less-than-significant level.

5.3.5.3 Deer Creek Causeway Option 2

Overall, implementation of Deer Creek Causeway Option 2 would not reduce or avoid any impacts of the proposed project and would introduce new impacts on biological resources. This option would add additional impacts on wetlands, riparian habitat, and potential habitat for special-status species by introducing a segment of new road to the southeast of Grant Line Road in an area that currently has natural vegetation and agricultural lands.

Impact BIO-1: Potential Loss of Special-Status Plant Species

Construction of this option would not reduce or avoid impacts of the proposed project on special-status plants and would likely introduce new impacts because, as shown in Table 5-1, this option would result in the direct conversion of an additional 37.8 acres of uplands habitat, 2.2 acres of wetland and other waters habitat, and 312 acres of agricultural habitat, all of which have the potential to support special-status plants. This would be considered a significant impact. Implementation of Mitigation Measures BIO-1, BIO-2a, and BIO-2b would reduce this impact to a less-than-significant level.

Impact BIO-2: Potential Introduction or Spread of Invasive Plant Species

Construction of this option would not reduce or avoid impacts of the proposed project on the potential for introduction or spread of invasive plant species and would likely introduce new impacts. Implementation of Mitigation Measure BIO-3 would reduce this impact to a less-than-significant level.

Impact BIO-3: Potential Loss and Disturbance of Riparian Woodlands

Construction of this option would not reduce or avoid impacts of the proposed project on riparian woodland. There are 11.0 acres of riparian woodland within the area of potential direct effects (Table 5-1). Actual project impacts are not know, but will likely only affect a portion of these woodlands. Impacts to riparian woodland would be considered a significant impact. Implementation of Mitigation Measures BIO-1, BIO-4a, and BIO-4b would reduce this impact to a less-than-significant level.

Impact BIO-4: Potential Loss or Alteration of Waters of the United States and Waters of the State

Construction of this option would not reduce or avoid impacts of the proposed project on waters of the United States and waters of the state (streams and isolated wetlands) and would likely introduce new impacts on wetlands. There are 2.2 acres wetlands and waters within the area of potential direct effects that could be under the jurisdiction of the USACE or RWQCB. This would be considered a significant impact. Implementation of Mitigation Measures BIO-1, BIO-5a, and BIO-5b would reduce this impact to a less-than-significant level.

Impact BIO-5: Potential Loss or Disturbance of Special-Status Wildlife Species and Their Habitat

Construction of this option would not reduce or avoid direct loss or indirect disturbance of special-status wildlife or their habitats and would likely introduce new impacts on wildlife. This would be considered a significant impact. Implementation of Mitigation Measures BIO-1, BIO-6a, and BIO-6b would reduce these impacts to a less-than-significant level for all wildlife species addressed, except vernal pool fairy shrimp and vernal pool tadpole shrimp. Because of the current limitations on available vernal pool fairy shrimp and vernal pool tadpole shrimp mitigation credits (considering the SSHCP has not yet been adopted) in the project region, permanent impacts to vernal pool fairy shrimp and vernal pool tadpole shrimp habitat would be considered a significant and unavoidable impact.

Impact BIO-6: Conflict with Local Policies or Ordinances Protecting Biological Resources

Construction of this option could result in conflicts with local policies or ordinances that protect locally significant biological resources. This would be considered a significant impact. Implementation of Mitigation Measure BIO-7 would reduce this impact to a less-than-significant level.

Impact BIO-7: Removal or Disturbance of Protected Trees

Construction of this option would not reduce or avoid direct loss or indirect impacts on protected trees and would likely introduce new impacts on protected trees. This would be considered a significant impact. Implementation of Mitigation Measures BIO-1, BIO-8a, and BIO-8b would reduce these impacts to a less-than-significant level.

5.3.5.4 Sheldon Reduced Access Roadway Option

Overall, implementation of the Sheldon Reduced Access Roadway Option would not reduce or avoid any impacts of the proposed project and would introduce new impacts on biological resources. This option would add additional impacts on wetlands and potential habitat for special-status species by introducing a segment of new road to the southeast of Grant Line Road.

Impact BIO-1: Potential Loss of Special-Status Plant Species

Construction of this option would not reduce or avoid impacts of the proposed project on special-status plants and would likely introduce new impacts. This would be considered a significant impact. Implementation of Mitigation Measures BIO-1, BIO-2a, and BIO-2b would reduce this impact to a less-than-significant level.

Impact BIO-2: Potential Introduction or Spread of Invasive Plant Species

Construction of this option would not reduce or avoid impacts of the proposed project on the potential for introduction or spread of invasive plant species and would likely introduce new impacts. This would be considered a significant impact. Implementation of Mitigation Measure BIO-3 would reduce this impact to a less-than-significant level.

Impact BIO-3: Potential Disturbance of Riparian Woodlands

As shown in Table 5-1 and Appendix I, construction of this option would not result in direct impacts on riparian woodlands. However, depending on the ultimate option selected, the alignment could result in indirect disturbance of up to 1.7 acres of riparian woodland habitat. This would be considered a significant impact. Implementation of Mitigation Measures BIO-1, BIO-4a, and BIO-4b would reduce this impact to a less-than-significant level.

Impact BIO-4: Potential Loss or Alteration of Waters of the United States and Waters of the State

Construction of this option would not reduce or avoid impacts of the proposed project on waters of the United States and waters of the state (streams and isolated wetlands) and would likely introduce new impacts on wetlands. There are 0 acre wetlands and open waters within the area of potential direct effects that could be under the jurisdiction of the USACE or RWQCB; however, depending on the ultimate option selected, the alignment could result in indirect disturbance of up to 4.3 acres of wetlands and open waters. Impacts to wetland and waters would be considered a significant impact. Implementation of Mitigation Measures BIO-1, BIO-5a, and BIO-5b would reduce the level of impact. Because of the current limitations on available wetland mitigation credits (considering the SSHCP has not yet been adopted) in the watersheds within the project area, permanent impacts to wetlands would be considered a significant and unavoidable impact.

Impact BIO-5: Potential Loss or Disturbance of Special-Status Wildlife Species and Their Habitat

Construction of this option would not reduce or avoid direct loss or indirect disturbance of special-status wildlife or their habitats and would likely introduce new impacts on wildlife (Appendix I). This would be considered a significant impact. Implementation of Mitigation Measures BIO-1, BIO-6a, and BIO-6b would reduce this impact to a less-than-significant level for all wildlife species addressed, except vernal pool fairy shrimp and vernal pool tadpole shrimp. Because of the current limitations on available vernal pool fairy shrimp and vernal pool tadpole shrimp mitigation credits (considering the SSHCP has not yet been adopted) in the project region, permanent impacts to vernal pool fairy shrimp and vernal pool tadpole shrimp habitat would be considered a significant and unavoidable impact.

Impact BIO-6: Conflict with Local Policies or Ordinances Protecting Biological Resources

Construction of this option could result in conflicts with local policies or ordinances that protect locally sensitive biological resources. This would be considered a significant impact. Implementation of Mitigation Measure BIO-7 would reduce this impact to a less-than-significant level.

Impact BIO-7: Removal or Disturbance of Protected Trees

Construction of this option would not reduce or avoid direct loss or indirect impacts on protected trees and would likely introduce new impacts on protected trees. This would be considered a significant impact. Implementation of Mitigation Measures BIO-1, BIO-8a, and BIO-8b would reduce this impact to a less-than-significant level.

5.3.5.5 High Access Roadway Option

Overall, implementation of the High Access Roadway Option would not reduce or avoid any impacts of the proposed project corridors along Grant Line Road between Bond and Calvine Roads and would introduce new impacts on biological resources. This option would add additional impacts on wetlands and potential habitat for special-status species by widening the roadway pursuant to City of Elk Grove adopted plans to 4-6 lanes.

Impact BIO-1: Potential Loss of Special-Status Plant Species

Construction of this option would not reduce or avoid impacts of the proposed project on special-status plants and would likely introduce new impacts related to widening the roadway under the City's adopted plans. This would be considered a significant impact. Implementation of Mitigation Measures BIO-1, BIO-2a, and BIO-2b would reduce this impact to a less-than-significant level.

Impact BIO-2: Potential Introduction or Spread of Invasive Plant Species

Construction of this option would not reduce or avoid impacts of the proposed project on the potential for introduction or spread of invasive plant species and would likely introduce new impacts. This would be considered a significant impact. Implementation of Mitigation Measure BIO-3 would reduce this impact to a less-than-significant level.

Impact BIO-3: Potential Loss and Disturbance of Riparian Woodlands

As shown in Table 5-1 and Appendix I, construction of this option would not result in direct impacts on riparian woodlands. However, depending on the ultimate option selected, the alignment could result in indirect disturbance of up to 1.2 acres of riparian woodland habitat. This would be considered a significant impact. Implementation of Mitigation Measures BIO-1, BIO-4a, and BIO-4b would reduce this impact to a less-than-significant level.

Impact BIO-4: Potential Loss or Alteration of Waters of the United States and Waters of the State

Construction of this option would not reduce or avoid impacts of the proposed project on waters of the United States and waters of the state (streams and isolated wetlands) and would likely introduce new impacts on wetlands. There are 0 acre of wetlands and waters within the area of potential direct effects that could be under the jurisdiction of the USACE or RWQCB; however, depending on the ultimate option selected, the alignment could result in indirect disturbance of up to 5.0 acres of wetlands and open waters. Impacts to wetlands and waters would be considered a significant impact. Implementation of Mitigation Measures BIO-1, BIO-5a, and BIO-5b would reduce the level of impact. Because of the current limitations on available wetland mitigation credits (considering the SSHCP has not yet been adopted) in the watersheds within the project area, permanent impacts to wetlands would be considered a significant and unavoidable impact.

Impact BIO-5: Potential Loss or Disturbance of Special-Status Wildlife Species and Their Habitat

Construction of this option would not reduce or avoid direct loss or indirect disturbance of special-status wildlife or their habitats and would likely introduce new impacts on wildlife (Appendix I). This would be considered a significant impact. Implementation of Mitigation Measures BIO-1, BIO-

6a, and BIO-6b would reduce this impact to a less-than-significant level for all wildlife species addressed, except vernal pool fairy shrimp and vernal pool tadpole shrimp. Because of the current limitations on available vernal pool fairy shrimp and vernal pool tadpole shrimp mitigation credits (considering the SSHCP has not yet been adopted) in the project region, permanent impacts to vernal pool fairy shrimp and vernal pool tadpole shrimp habitat would be considered a significant and unavoidable impact.

Impact BIO-6: Conflict with Local Policies or Ordinances Protecting Biological Resources

Construction of this option could result in conflicts with local policies or ordinances that protect locally sensitive biological resources. Implementation of Mitigation Measure BIO-7 would reduce this impact to a less-than-significant level.

Impact BIO-7: Removal or Disturbance of Protected Trees

Construction of this option would not reduce or avoid direct loss or indirect impacts on protected trees and would likely introduce new impacts on protected trees. Implementation of Mitigation Measures BIO-1, BIO-8a, and BIO-8b would reduce this impact to a less-than-significant level.

Chapter 6
Cultural Resources

6.1 Introduction

This chapter describes the existing conditions of the environmental setting for the project area. This chapter also describes the federal, state, and local regulations that determine mitigation requirements, identifies impacts on cultural resources that may result from implementation of the proposed project, and identifies mitigation measures to reduce impacts where necessary. In addition to sources listed in Section 6.3.2.1, the following sources of information were reviewed to prepare this chapter:

- Sacramento County General Plan (Sacramento County 2011)
- El Dorado County General Plan (El Dorado County 2004)
- Elk Grove General Plan (City of Elk Grove 2009)
- Folsom General Plan (City of Folsom 1993)
- Rancho Cordova General Plan (City of Rancho Cordova 2006a)

6.1.1 Concepts and Terminology for Evaluation of Cultural Resources

The following definitions are common terms used to discuss the regulatory requirements and treatment of cultural resources:

Cultural resources is a term used to describe several different types of properties: prehistoric and historical archaeological sites; architectural properties such as buildings, bridges, and other infrastructure; and resources of importance to Native Americans.

Historical resource is a CEQA term that includes buildings, sites, structures, objects, or districts, each of which may have historical, prehistoric, architectural, archaeological, cultural, or scientific importance and is eligible for listing or is listed in the California Register of Historical Resources (CRHR).

6.2 Environmental Setting

This section provides a regional overview of existing cultural resources in the project vicinity. For the purposes of this analysis, the study area for cultural resources consisted of the project corridor and 0.25-mile-wide buffer area on both sides.

6.2.1 Existing Conditions

6.2.1.1 Prehistory

Much of the current understanding of the project area prehistory stems from work that was done in the region in the 1930s by Sacramento Junior College (Moratto 2004).

Although the region may have been inhabited by humans as early as 10,000 years ago, the evidence for early human use is likely buried by deep alluvial sediments that accumulated during the late Holocene epoch. The economy of this early period is generally thought to be based on the exploitation of large game. Although rare, archaeological remains of this early period have been identified in and around the Central Valley and the Sierra Nevada foothills (Treganza and Heizer 1953; Johnson 1967; Peak and Associates 1981). Johnson (1967:283–284) presents evidence for some use of the Mokelumne River area, under what is now Camanche Reservoir, during the late Pleistocene. Archaeologists found a number of lithic cores and a flake that are associated with Pleistocene gravels. These archaeological remains have been grouped into what is called the Farmington Complex, which is characterized by core tools and large, reworked percussion flakes (Treganza and Heizer 1953:28). Later periods are better understood because of more abundant representation in the archaeological record.

The taxonomic framework of the Central Valley and surrounding area, including the proposed project area, has been described in terms of archaeological patterns (Moratto 2004). A pattern is a general mode of life archaeologically characterized by technology, particular artifacts, economic systems, trade, burial practices, and other aspects of culture. Fredrickson (1973) identified three general patterns of resource use for the time period between 2500 BC and AD 1500, specifically the Windmiller, Berkeley, and Augustine Patterns.

The Windmiller Pattern (2500 BC to 1000 BC) shows evidence of a mixed economy of game procurement and use of wild plant foods. The archaeological record contains numerous projectile points with a wide range of faunal remains. Hunting was not limited to terrestrial animals, as is evidenced by the Windmiller toolkit, which included fishing hooks and spears. The remains of sturgeon, salmon, and other fish are frequently recovered from Windmiller Pattern sites (Moratto 2004). Plant resources also were used, as indicated by ground stone artifacts and clay balls that were used for boiling acorn mush. Settlement strategies during the Windmiller period reflect a seasonal adaptation. Habitation sites in the valley were occupied during winter, but populations moved into the foothills during summer (Moratto 2004).

The Windmiller Pattern was superseded by a more specialized adaptation labeled the Berkeley Pattern (1500 BC to AD 500). A reduction in the number of manos and metates and an increase in mortars and pestles indicate a greater dependence on acorns. Although gathered resources grew in importance during this period, the continued presence of projectile points and atlatls in the archaeological record indicates that hunting was still an important activity (Fredrickson 1973).

The Berkeley Pattern is superseded by the Augustine Pattern around AD 500. The Augustine Pattern reflects a change in subsistence and land-use patterns to those of the ethnographically known people (Nisenan) of the historic era. This pattern exhibits a great elaboration of ceremonial and social organization, including the development of social stratification. Exchange became well-developed, and an even more intensive emphasis was placed on the use of the acorn, as evidenced by the presence of shaped mortars and pestles and numerous hopper mortars in the archaeological record. Other notable elements of the artifact assemblage associated with the Augustine Pattern include flanged tubular smoking pipes, harpoons, clamshell disc beads, and an especially elaborate baked clay industry, which included figurines and pottery vessels (Cosumnes Brownware). The presence of small projectile point types, referred to as Gunther Barbed series, suggests the use of the bow and arrow. Other traits associated with the Augustine Pattern include the introduction of preinterment burning of offerings in a grave pit during mortuary ritual, increased village sedentism, population growth, and an incipient monetary economy in which beads were used as a standard of exchange (Moratto 2004).

6.2.1.2 Ethnography

Two aboriginal populations lived in the project area—the Nisenan (also referred to as the Southern Maidu) and the Eastern Miwok. Native American populations grew in numbers sporadically between 5,000 years ago and the arrival of the Spanish in the late eighteenth century. By the beginning of the first millennium AD, the Indians were living in the more favorable environmental niches of the project area, thanks to the discovery of acorns that could be used as a food staple throughout the year.

The Nisenan/Southern Maidu territory was the drainage of the Yuba, Bear, and American Rivers and the lower drainage of the Feather River (Kroeber 1925:392). Three different groups of the Nisenan were the Northern Hill Nisenan, Southern Hill Nisenan, and the Valley Nisenan. During the warmer months, people moved to mountainous areas to hunt and collect food resources, such as pine nuts. Nisenan settlement patterns were oriented to major river drainages and tributaries. In the foothills and lower Sierra Nevada, Nisenan located their villages in large flats or ridges near major streams. These villages tended to be smaller than the villages in the valley (Kroeber 1925). Several archaeological sites of significance have been found along the river terraces in Sacramento County.

Of the five different groups that composed the Eastern Miwok, the Plains Miwok lived in the project area. These people inhabited the lower reaches of the Mokelumne and Cosumnes Rivers and both banks of the Sacramento River from Rio Vista to Freeport. Most of the known settlements of the Plains Miwok were located on natural levees and knolls along major rivers (Levy 1978). Many archaeological sites of this group have been discovered in Sacramento County.

After 1770, Indian populations declined and settlement patterns were disrupted in the Central Valley from Spanish colonial expeditions and mission recruitment. In addition, epidemics of malaria in the early to mid-1800s and early American settlements after 1848 contributed significantly to the rapid decline in Native American populations.

6.2.1.3 Historic Context

Early American Settlements

The pace of physical change to the landscape and the construction of adobes and other structures widened as the missions were disbanded in the 1830s and Mexican settlers took title to the land. Agriculture, grazing, and mining activities led to the establishment of permanent settlements and urban centers. The natural environment began to change rapidly as cattle and other domesticated animals grazed the land, as woodlands were cut for fuel and lumber, and as native vegetation gave way to imported grasses and plants spread by the settlers and their livestock.

Gold Rush

In January 1848, gold was discovered by James Marshall on the South Fork of the American River near present-day Coloma. The onset of the gold rush brought large numbers of people into California; miners poured into the Sierra Nevada foothills in search of placer deposits along the rivers and creeks of Sacramento, Sutter, Yolo, Yuba, El Dorado, and Placer Counties. When the placer deposits were depleted, the miners turned to other methods to reach gold-bearing strata. One of the most common methods of mining, hydraulic mining, introduced huge quantities of rock, sand, and mud into and adjacent to the mountain waterways. Later, mining companies deployed dredges to reach gold deposits along the rivers. Dredging eventually supplanted other forms of mining because it was more efficient, more cost-effective, and not subjected to regulation as was hydraulic mining. Consequently, dredging became the preferred method of gold mining in California in the early 1900s and dramatically altered the landscape. Some of the tailings associated with this type of gold mining—particularly in and around the city of Folsom—have contributed to the city's historic significance. The gold rush dramatically altered the landscape of California, particularly the Sacramento Valley and the counties and regions that surround it (Hoover et al. 2002:75, 80, 540).

Sacramento County

Sacramento County is one of the original 27 counties established by the California State Legislature in 1850, and the city of Sacramento has been the county seat since it was created. Spanish explorers first visited the Sacramento County region as early as the 1700s in their search for suitable inland mission sites. In 1772, Pedro Fages passed through San Francisco Bay and reached the San Joaquin and Sacramento Rivers, while in 1793, Francisco Eliza sailed into the as-yet-unexplored Sacramento River. The first European American to travel through the Sacramento area was explorer and trapper Jedediah Strong Smith, who established the Sacramento Trail during the 1820s. Other explorers followed Smith's general path in the 1830s (Holden 1988:130; Hoover et al. 2002:301–303).

European American settlement of the Sacramento area did not begin until the late 1830s and early 1840s, when individuals such as John Sutter obtained land grants from the Mexican government. Mexican citizens generally received these grants in exchange for an agreement to protect Mexican interests in these remote interior regions. Sutter's settlement at New Helvetia (Sutter's Fort) is probably the best known of these early operations. In addition to Sutter, numerous other European Americans pursued land grants in the mid-nineteenth century in what would become Sacramento and Yolo Counties (Beck and Haase c. 1974; Thompson and West 1880; Hoover et al. 2002:301, 303).

At its inception, Sacramento County was largely supported by commerce related to the gold rush and river shipping. The county and particularly the city of Sacramento continued to grow, however, after the conclusion of the gold rush, when agriculture in the Sacramento Valley became an important part of the economy. Wheat was a staple product early on, but by the twentieth century, a variety of fruits, including citrus fruits, and nuts displaced it in importance. The county also experienced tremendous growth as a result of the construction railroads in the Sacramento area. In 1856, the Sacramento Valley Railroad constructed an alignment from Sacramento to Folsom; in 1869, the transcontinental railroad was completed, linking the Sacramento region directly with markets in the east. By the mid-twentieth century, two military bases had been constructed in the county, and a major freeway, Interstate 5, ran through the heart of the old city of Sacramento. The military bases closed in the late twentieth century, but the county continued to grow in economic wealth and population. As of 2009, Sacramento County boasted a population of 1,400,949 (Phillips and Miller 1915:17, 23, 83; Holden 1988:288; U.S. Census Bureau 2010).

El Dorado County

El Dorado County is one of the original 27 counties created by the California State Legislature in 1850. Originally, the county's boundaries included parts of present-day Amador, Alpine, and Placer Counties. By 1919, the state adopted the current boundary lines that are marked to the east by the state of Nevada and to the west by Sacramento County. The American and Consumes Rivers form the county's northern and southern boundaries. The original county seat was the town of Coloma, but in 1857 it was moved to Placerville (Coy 1973:97–99; Hoover et al. 2002:81).

On January 24, 1848, James W. Marshall, an employee of John A. Sutter, discovered gold near the area of present-day Coloma. The first mining town in California sprouted soon after his discovery, and the gold region of El Dorado County experienced rapid growth. It was likely Marshall's discovery, as well as the gold discovered by others, from which the county derives its name, El Dorado, meaning "the gilded man" in Spanish (Hoover et al. 2002:81–82).

Both during and after the gold rush, gold mining was the predominant industry in El Dorado County for many years. The county lies on a rich ore vein that extends through several counties on the western slope of the Sierra Nevada. By the turn of the twentieth century, timber production, raising livestock, and farming had joined mining as the principal industries of the county. Crops included pears, plums, apples, peaches, cherries, oranges, olives, walnuts, wheat, rye, corn, and acres of vineyards. Another industry that gained popularity in El Dorado County was tourism. In the 1910s and 1920s, with the advent of the automobile, visitors increasingly traveled to the Sierra Nevada and Lake Tahoe. US 50 (which was the primary route to the gold fields in 1849) was California's first state-sanctioned wagon road. It was incorporated into the state (and later the national) highway network during the twentieth century, when it became part of the Interstate Highway System, which linked the east coast of the United States to the west. At present, the county's economy is based mainly on lumber, mining, agriculture, livestock, manufacturing, and tourism (Phillips and Miller 1915:47; Supernowicz 1993).

Transportation

As mining in the area increased, roads were built to facilitate the traffic of the numerous miners heading east to the gold fields in the Sierra foothills, and later to the silver mines in Nevada. Roads also were needed for westbound traffic transporting agricultural products and timber from the Sierra Nevada to Sacramento and eventually San Francisco.

Folsom Boulevard was once a major route between Sacramento and Placerville. It parallels modern US 50 and appears to have been a dirt road in 1850. Folsom Boulevard facilitated the movement of people and goods between Sacramento and Folsom, which was a hub for other segments of the road that led to Clarksville, Placerville, and Nevada. Two other roads crossed Folsom Boulevard, one heading to White Rock and Placerville and the other to Ione and Jackson. Subsequently, the Lincoln Highway followed the alignment of some of these roads, and following World War II Caltrans began acquiring right-of-way for the construction of a new highway that would connect Sacramento with Placerville. This new highway is US 50, which was constructed during the 1950s and 1960s.

American River Gold Mining District

A portion of the project area is located in the American River Gold Mining District, an area that is approximately 10 miles long and 7 miles wide. The gold-mining district extends from Folsom to the east border of Mather Airport. It is a conceptualized area defined by historical records and includes a variety of mining sites and features. It encompasses the general region that was mined using the water taken from the South Fork of the American River by the Natoma Company. An estimated 1 billion cubic yards of earth were dredged from the area between 1890 and 1960 for mining purposes (Clark 1963:47). A primitive grab-dredger was in operation in the area in 1894, and 4 years later a bucket-line dredge was operating in the area. Subsequently, a number of small dredge mining operations were established, but by 1908 most merged into Natomas Consolidated of California, later known as the Natomas Company. The Natomas Company designed and built their own dredges at Natoma (currently the area around the Nimbus Winery), and in 1916 they had 11 active dredges in the district that recovered more than $2 million in gold (Clark 1963:47–48). However, dredge mining began to decline in the 1950s as mining costs increased and land suitable for dredging became scarce. Most dredge mining in the area was completed by 1954, and by 1960 only one active dredge was operational in the American River Gold Mining District (Clark 1963:48).

The town of Prairie City, located approximately 2 miles south of Folsom and in the center of the aforementioned American River Gold Mining District, became a supply center serving various mining areas associated with the Natomas Company (Tordoff and Noble 1994). Although the population grew to 1,000, the settlement was in decline by 1855 and abandoned in the 1860s (Tordoff and Noble 1994). The town's exact location today is unknown; however, many associated mining features and activities are defined by the Prairie Diggings Placer Mining District, which consists of approximately 17 mining loci and habitation sites in 302 acres. Mining techniques used in the Folsom region between 1853 and 1949 represented in this site include placer mining, ground sluicing, low-pressure hydraulicking, drifting, and dredging (Lindstom 1994).

The Natomas Company began to sell lands exhausted by dredge mining in 1950 to Aerojet-General Corporation. The dredge fields eventually were occupied by companies such as Aerojet-General Corporation and Douglas Aircraft Company, which produced and tested rockets and munitions for the Department of Defense (Clark 1963:48). The area continued to be used for these activities until relatively recently because the tailings shielded developed areas from the testing facilities.

6.2.2 Regulatory Setting

The regulatory setting discussion for cultural resources includes federal, state, and local regulations that may apply if a roadway is constructed as a result of adoption of the Capital SouthEast Connector. Although this is a CEQA-only analysis, possible future roadway construction could require federal permitting (e.g., USACE) or federal funding (e.g., Federal Highway Administration); therefore, a discussion of the applicable federal regulations is warranted.

Cultural resource is the term used to describe several different types of properties: prehistoric and historical archaeological sites; architectural properties, such as buildings, bridges, and infrastructure; and locations important to Native Americans. Federal regulations (36 CFR 800) define a *historic property* as any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places (NRHP).

Historical resource is a term from CEQA that includes buildings, sites, structures, objects, or districts—each of which may have historical, prehistoric, architectural, archaeological, cultural, or scientific importance, and is eligible for listing or is listed in the CRHR.

6.2.2.1 Federal

National Historic Preservation Act Section 106

The National Historic Preservation Act (NHPA) of 1966, as amended, is the primary mandate governing projects under federal jurisdiction that may affect cultural resources. Specific regulations regarding compliance with Section 106 of the NHPA state that, although the tasks necessary to comply with Section 106 may be delegated to others, the federal agency is ultimately responsible for ensuring that the Section 106 process is completed according to statute. The Section 106 process is a consultation process that involves the State Historic Preservation Officer (SHPO) throughout; the process also calls for including Native American tribes and interested members of the public, as appropriate.

National Register of Historic Places

The NRHP is the official list of the nation's recognized cultural resources. Authorized under the NHPA (1966), the NRHP is part of a national program to coordinate and support public and private efforts to identify, evaluate, and protect historic and archaeological resources. The National Park Service, under the Secretary of the Interior, administers the NRHP. Properties listed in the NRHP include districts, sites, buildings, structures, and objects that are significant to American history, architecture, archaeology, engineering, and culture. These resources contribute to an understanding of the historical and cultural foundations of the nation.

The NRHP includes:

- all historic areas in the National Park System;
- National Historic Landmarks, which have been designated by the Secretary of the Interior for their significance to all Americans; and
- properties significant to the nation, state, or community that have been nominated by the states, federal agencies, and others and have been approved by the National Park Service.

6.2.2.2 State

Cultural resources are buildings, sites, structures, or objects, each of which may have historical, architectural, archaeological, cultural, or scientific importance. Under the CEQA statutes, an impact on a cultural resource is considered significant if a project would result in an effect that may change the significance of the resource (Public Resources Code [PRC] 21084.1). Demolition, replacement, substantial alteration, and relocation of historical properties are actions that would change the significance of a historical resource (14 CCR 15064.5). Before the level of significance of impacts can be determined and appropriate mitigation measures developed, the significance of cultural resources must be determined. The following steps are normally taken in a cultural resources investigation to comply with CEQA.

1. Prepare a cultural resources inventory that present the results of identification efforts conducted for a project. The inventory documents both positive and negative archaeological survey results; it does not necessarily evaluate sites.
2. Evaluate the significance of the cultural resources based on established thresholds of significance.
3. Evaluate the effects of a project on all cultural resources.
4. Develop and implement measures to mitigate the effects of the project on significant cultural resources.

Because the project is located on non-federal land in California, it is also necessary to comply with state and local laws and policies pertaining to the inadvertent discovery of human remains. The California Health and Safety Code (HSC) 7050.5 and 7052 and PRC 5097 present the treatment and protection of interred human remains. The procedures that must be followed if burials of Native American origin are discovered on non-federal land in California are summarized below in Section 6.3.5, "Mitigation Measures."

California Register of Historical Resources

The CRHR was created by the California state legislature in 1992 and is intended to serve as an authoritative listing of historical and archaeological resources in California. Additionally, the eligibility criteria for the CRHR are intended to serve as the definitive criteria for assessing the significance of historical resources for purposes of CEQA compliance, establishing a consistent set of criteria for use by all public agencies statewide.

For a historical resource to be eligible for listing in the CRHR, it must be significant at the local, state, or national level under one or more of the following criteria from State CEQA Guidelines Section 15064.5(a)(3)(A–D).

1. It is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
2. It is associated with the lives of persons important in our past.
3. It embodies the distinctive characteristics of a type, period, region, or method of construction or represents the work of an important creative individual or possesses high artistic values.
4. It has yielded, or may be likely to yield, information important in prehistory or history.
5. Historical resources automatically listed in the CRHR include those historical properties listed in, or formally determined to be eligible for listing in, the NRHP (PRC 5024.1).

6.2.2.3 Local

Cities and counties have stated goals, objectives, and policies in their respective general plan documents related to cultural resources. The proposed project must comply with the goals, objectives, and policies stated in the respective city or county general plan. Table 6-1 lists the specific general plan elements/sections that apply to archaeological and historical resources.

Revised Table 6-1. Applicable Local General Plans

Jurisdiction	Document	Section
El Dorado County	General Plan (2004)	Conservation and Open Space Element
Sacramento County	General Plan (2011)	Conservation Element
City of Elk Grove	General Plan (2009)	Historic Resources Element
City of Folsom	General Plan (1993)	Open Space and Conservation Element
City of Rancho Cordova	General Plan (2006a)	Cultural and Historic Resources Element
Sources: City and county general plans as noted.		

Some of the jurisdictions include cultural resources preservation elements in their general plans. In general, these sections pertaining to archaeological and historical properties are put into place to afford cultural resources a measure of protection. The policies outlined in the individual general plans should be consulted prior to any undertaking or project.

6.2.2.4 Local Historical Societies

Local historical, heritage, and landmark societies throughout the project area also work in conjunction with their city or county toward the identification and protection of cultural resources. These organizations are largely nonprofit societies that achieve their purpose through educating the public and creating awareness of the historical heritage of their community. They also are involved in protecting the history of the area through the documentation, publication, or preservation of historical materials and artifacts pertaining to the community. Historical organizations in the project area include:

- El Dorado County Historical Museum,
- Elk Grove Historical Society,
- Rancho Cordova Historical Society,
- Sacramento Archives Museum and Collection Center, and
- Sacramento County Historical Society.

6.3 Impact and Mitigation Discussion

6.3.1 Thresholds of Significance

Appendix G of the State CEQA Guidelines (14 CCR 15064.5[b]) provides guidance for evaluation of project effects on cultural resources. A project with an effect that may cause a substantial adverse change in the significance of a historical resource or a unique archaeological resource is a project that may have a significant effect on the environment. CEQA further states that a substantial adverse change in the significance of a resource means the physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historical resource or unique archaeological resources would be materially impaired. Actions that would materially impair the significance of a historical resource or a unique archaeological resource are any actions that would demolish or adversely alter those physical characteristics of a historical resource or unique archaeological resource that convey its historic significance and qualify it for inclusion in the CRHR or in a local register or survey that meets the requirements of PRC 5020.1(k) and 5024.1(g). Therefore, an impact pertaining to cultural resources would be considered significant under CEQA if it would:

- cause a substantial adverse change in the significance of a historical or unique archaeological resource, or
- disturb human remains.

6.3.2 Approach and Methodology

The potential for the proposed project to affect cultural resources in the cultural resources study area was determined through literature review, a records search, a reconnaissance-level survey of the proposed project corridor, and consultation with interested parties. No field surveys were conducted for this program-level analysis.

6.3.2.1 Known Cultural Resources in the Project Area

Archaeology

For the project area, records identifying the locations of archaeological sites and studies are contained in technical reports stored at the North Central Information Center (NCIC) at California State University, Sacramento. The NCIC covers both Sacramento and El Dorado Counties, among others. These reports contain information regarding known archaeological sites and other cultural resources in the project area.

Records and reports contained at the NCIC reveal an abundance of archaeological sites and other cultural resources in the project area. The types of resources generally present are prehistoric Native American habitation and burial sites and a variety of historic sites relating to the gold rush era. Sites are commonly concentrated along natural waterways, such as the Cosumnes, American, and Sacramento Rivers. Excavations throughout the years repeatedly have uncovered prehistoric sites buried in deep sediments. For example, an archaeological deposit located near Arcade Creek, north of Sacramento, was discovered under 9 feet of natural soil.

It should be noted, however, that development is often what drives cultural resources surveys. In other words, some areas rich in cultural resources may not appear to be simply because the resources have not been officially recorded.

Architecture

Numerous historic architectural (built-environment) resources also are located throughout the project area. Historic architectural resources generally include buildings, roads, trails, bridges, canals, and railroads usually associated with the time period beginning with the first Euroamerican contact. In general, concentrations of historic resources in the project area are expected to occur:

- adjacent to transportation corridors (historic highways, railroads);
- on historic ranches;
- in areas of historic rock, soil, and mineral extraction; and
- in residential neighborhoods and business districts.

In the project area, known resources are commonly associated with key historic events that occurred in the region, including the gold rush, mining, agriculture, irrigation, military testing, and transportation. Additional historic architectural resources in the project area have been designated as State Historical Landmarks, Points of Historical Interest, or as local historic landmarks important to a region or community. In addition to the programs maintained at the national and state levels, local governments in the project area have established listings or passed ordinances in recognition of the importance of such resources to their community.

Records Search

ICF cultural resources staff conducted the records search on April 14, 15, 21, 28, and 29, 2010. The records search was conducted for the project corridor and a 0.25-mile buffer area on both sides. Sources consulted included base maps marked with the locations of previous cultural resources studies and known cultural resources. In addition, the following sources were consulted:

- California Inventory of Historic Resources (California Department of Parks and Recreation 1976 and updates);
- California Points of Historical Interest (California Department of Parks and Recreation 1992 and updates);
- California Historical Landmarks (California Department of Parks and Recreation 1996 and updates);
- California Place Names (Gudde 1996);
- Historic Spots in California (Hoover et al. 2002);
- Directory of Properties for Sacramento County (Office of Historic Preservation 2008:33–56);
- Determinations of Eligibility (North Central Information Center August 2008);
- the NRHP (National Park Service 2008); and
- the CRHR (California Department of Parks and Recreation2008).

The records search included studies that indicate areas previously surveyed for cultural resources. Table 6-2 below summarizes an approximate percentage of coverage for the proposed project as well as each design alternative by itself.

Table 6-2. Approximate Percentage of Study Area Previously Surveyed for Cultural Resources

Proposed Project Corridor	58%
Off-Corridor Multi-Use Path Alternative	46%
Kammerer Road Bypass Option	Less than 5%
Deer Creek Causeway Option	Less than 5%
Sheldon Reduced Access Roadway Option	Less than 5%
Sheldon High Access Roadway Option	40%

The records search revealed an abundance of archaeological and historical sites and cultural and architectural resources in the study area. Table 6.3 identifies the number of known cultural resources located within 0.25 mile of the proposed project as well as each design alternative by itself.

Table 6-3. Known Cultural Resources in the Study Area

		Design Alternative or Option				
Site Type	Proposed Project	Off-Corridor Multi-Use Path Alternative	Kammerer Road Bypass	Deer Creek Causeway	Sheldon Reduced Access Roadway	Sheldon High Access Roadway
Historic	43	110	1	0	1	42
Prehistoric	6	3	1	0	0	6
Total	**49**	**113**	**2**	**0**	**1**	**48**

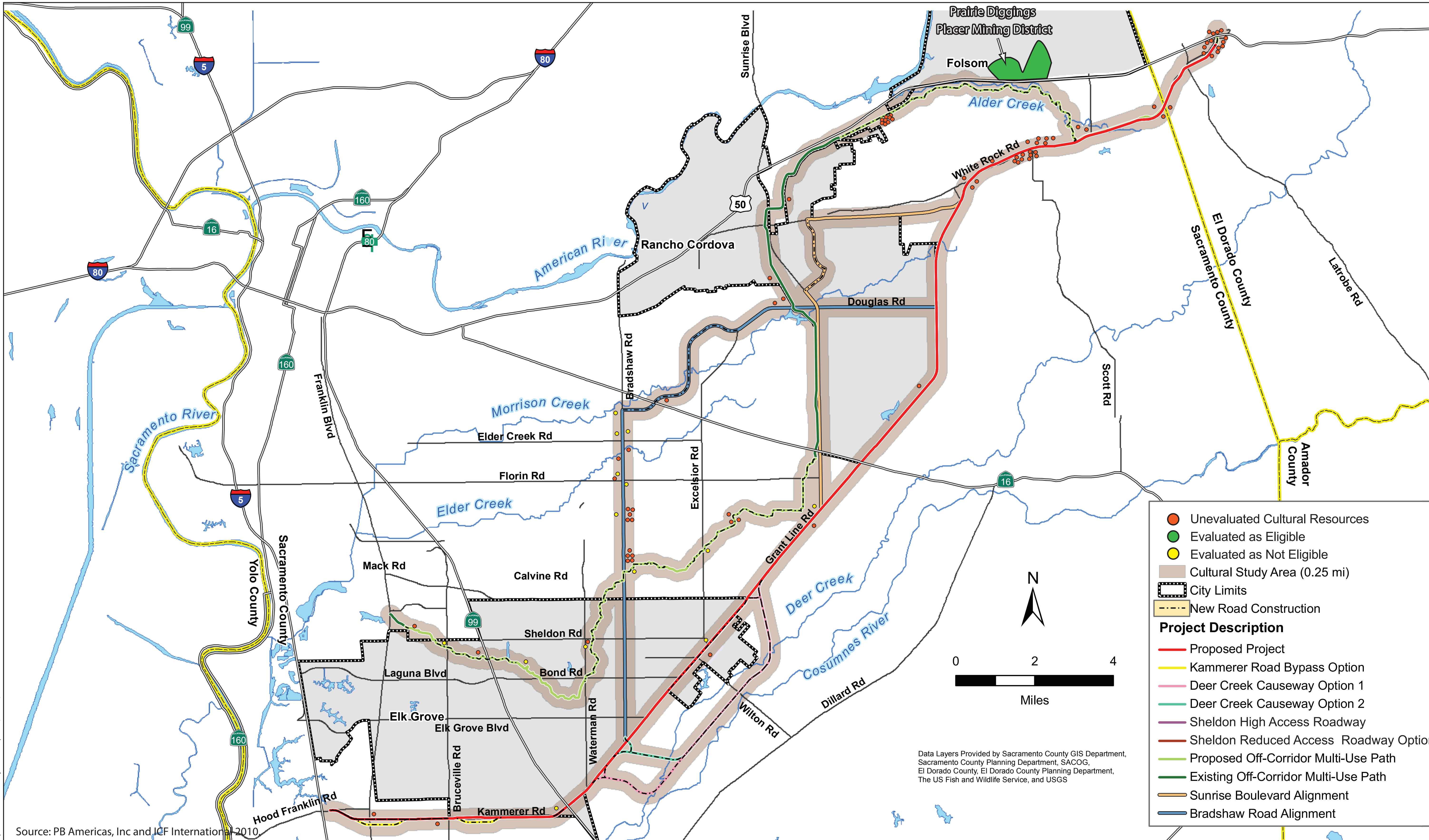
The approximate locations of recorded cultural resources in the project area and their NRHP/CRHR eligibility status are shown on Figure 6-1. Appendix C-1—Recorded Cultural Resources details the known cultural resources by design option and alternative. There are no cultural resources in the study area that are listed on the CRHR or the NRHP. One site, Prairie Diggings Placer Mining District (P-34-2806-H), has been evaluated as eligible for the NRHP and is therefore a historical resource for the purposes of CEQA. This site is located in the study area for the Off-Corridor Multi-Use Path. It consists of approximately 17 mining loci and habitation sites in 302 acres. Most of the cultural resources listed have only been documented, not evaluated using criteria for listing in the CRHR or the NRHP.

Although the records search identified 49 recorded sites in the proposed project study area, there are likely more that have not yet been formally recorded. These known resources, however, provide information as to the types of resources that could be located in the proposed corridor and its design options (Appendix C-1—Recorded Cultural Resources). For example, the proposed project and alternatives all pass through the Mormon Tavern site and the American River Mining District. The Mormon Tavern is located at the eastern terminus of the proposed project on what was the old Clarksville–White Rock Emigrant Road. It was constructed in 1849 and a stop for teams and stages. It became a remount station of the Pony Express and is a registered California Historical Landmark, No. 699 (California Department of Parks and Recreation 1976).

6.3.2.2 Consultation with Interested Parties

The Native American Heritage Commission (NAHC) was contacted on June 7, 2010, with a request to search their sacred lands database and to provide a list of Native American representatives from each county in the project area. The NAHC responded on July 7, 2010, with a list of interested Native American representatives (Appendix C-2—Consultation). On July 9, 2010, letters with project area location maps were sent to each group/individual listed by the NAHC with a brief explanation of the proposed project and a request for information on cultural resources in the project area.

Billie Blue Ellison, of the Ione Band of Miwok Indians, and the Shingle Springs Rancheria responded on July 13, 2010. Both requested additional information regarding the project. Ms. Ellison expressed concern about the size of the project area and the proximity to the Cosumnes River and its tributaries. Cultural resources staff of ICF returned Ms. Ellison's message on July 16, 2010, and left a message explaining the programmatic nature of the project, indicating that if any of the local jurisdictions decide to move forward with the proposed project, they will be required to conduct project-specific studies, including Native American consultation. To date, there has been no further communication with Ms. Ellison.



ICF INTERNATIONAL

Figure 6-1
Recorded Cultural Resources

On July 20, 2010, cultural resources staff of ICF spoke to Angela of the Shingle Springs Rancheria, who explained her concerns regarding the extensive area covered by the proposed project and requested a more detailed map. The programmatic nature of the project was explained and assurance given that should any of the local jurisdictions decide to move forward with the proposed project, they will be required to conduct project-specific studies, including Native American consultation.

In addition, letters were sent to the city and county historical organizations describing the proposed project and requesting any information on potential cultural resources in the cultural resources study area (Appendix C-2—Consultation). To date, no responses have been received. Letters were sent to the following organizations:

- El Dorado County Historical Museum,
- Elk Grove Historical Society,
- Rancho Cordova Historical Society,
- Sacramento Archives Museum and Collection Center, and
- Sacramento County Historical Society.

6.3.3 Impacts of the Proposed Project

This section describes potential impacts on cultural resources that could result from projects implemented as a result of the Capital SouthEast Connector. Some of these projects could significantly affect cultural resources. Impacts could occur from construction activities (including road widening, construction of interchanges, and new stream crossings) or new road alignments.

Impact CUL-1: Potential for Damage to or Destruction of Cultural Resources during Project Construction

Ground disturbance and excavation associated with construction of project components could result in the physical demolition, destruction, relocation, or alteration of an archaeological resource. The records search indicated 49 cultural resources in the study area that have been recorded. No known cultural resources listed in the NRHP or the CRHR are located in the study area. Because only 58% of the project area has been surveyed and the precise location of the project construction within the study area has not been designed, it is possible that archaeological resources could be present within the project corridor and affected by project-level construction activities.

The proposed project, when compared to the project options and/or the Off-Corridor Multi-Use Path, is far greater in scope and size. Also, the level of intensity of the construction (i.e. excavation of the roadbed) of the proposed project presents a greater potential to encounter previously unknown archaeological deposits. Disturbance of such features would compromise the physical integrity and information potential of any archaeological deposits and would result in a significant impact if the physical characteristics of a historical resource that convey its significance and qualify it for inclusion in the CRHR or in a local register or survey that meets the requirements of PRC 5020.1(k) and 5024.1(g) are demolished or substantially altered. The impact could be significant where cultural resources exist in areas affected by project implementation. Mitigation measures CUL-1, CUL-2 and CUL-4 would reduce this impact, in most cases, to a less-than-significant level. Where avoidance of significant cultural resources is not found to be feasible, impacts would remain significant and unavoidable.

Mitigation Measure CUL-1: Conduct Site-Specific Cultural Resource Investigations and Implement the Recommendations

Prior to construction, the JPA or local jurisdictions will update the consultation completed for this Program EIR with the NAHC to determine whether any sacred sites since have been identified in the specific project area, as well as update the list of Native American groups/individuals to contact. In addition, a qualified archaeologist will update the records search at the NCIC to determine whether additional surveys of the specific project area have been conducted or any new sites have been identified.

The NCIC will recommend whether a cultural resources survey is warranted based on the specific details of the project design and the sensitivity of the specific project area for archaeological resources. If recommended, the JPA or local jurisdiction will retain a qualified archaeologist to conduct a site-specific cultural resource survey before any construction activities.

If the cultural resource survey indicates that archaeological resources are located in the specific project area, the JPA or local jurisdiction will retain a qualified archaeologist to assess the significance of the resource(s) according to the applicable local, state, and federal significance criteria. Measures to reduce substantial adverse changes in the significance of significant archaeological resources will be developed in consultation with qualified archaeologists and other concerned parties. Avoidance will ensure that the impact is reduced to a less than significant level.

If avoidance is not feasible, other measures will be implemented to reduce the impact, including data recovery excavation, and public interpretation of the resource. For some resources, these measures will not reduce the impact to a less than significant level.

If this process indicates that the specific project area has the potential to yield cultural materials, the JPA or local jurisdiction will retain a qualified archaeologist to monitor any subsurface operations, including but not limited to grading, excavation, trenching, and removal of existing features of the subject property.

If archeological materials are uncovered during construction, they should be avoided. As described above, if avoidance is not feasible, other measures will be implemented to reduce the impact, including data recovery excavation, and public interpretation of the resource. For some resources, these measures will not reduce the impact to a less than significant level.

Mitigation Measure CUL-2: Stop Work If Archaeological Materials Are Discovered during Construction

If archaeological materials (e.g., chipped or ground stone, historic debris, or building foundations) are inadvertently discovered during ground-disturbing activities, the JPA or local jurisdiction will ensure that the contractor notify the agencies responsible for project implementation and will stop work in that area and within 100 feet of the find until a qualified archaeologist retained by the JPA or local jurisdiction can assess the significance of the find and implement Mitigation Measure CUL-1.

Mitigation Measure CUL-4: Conduct Historic Inventory and Evaluation for Architectural Resources

For implementation of specific project activities, before construction activities begin, the JPA or local jurisdiction will ensure that a qualified architectural historian conducts a project-level inventory and evaluation for architectural resources, including an intensive field survey, background research on the history of the site-specific project area, and property-specific research.

Should any historic architectural resources be identified in the area affected by the specific project activity, the architectural historian will evaluate the significance of architectural resources located using criteria for listing in the NRHP and CRHR. The resources will be recorded on appropriate California Department of Parks and Recreation (DPR) 523 forms, photographed, and mapped. The DPR forms will be produced and forwarded by the architectural historian to the appropriate Information Center.

Significant historic resources should be avoided if feasible.

Impact CUL-2: Potential for Damage to or Destruction of Previously Undiscovered Human Remains

Currently, only approximately 58% of the proposed project corridor has been formally surveyed for cultural resources, and therefore it is not known whether buried human remains are located in the study area. Indications are that humans have occupied portions of the project vicinity for at least 10,000 years and burial sites or individual remains may exist in the project corridor. Previous archaeological investigations in the study area have identified resources such as midden, lithic scatters, and milling features (Johnson 1974). Archaeological features and finds such as these would indicate a habitation site and likely would be considered substantial as well as have a high sensitivity for the presence of buried human remains. Therefore, the potential for buried human remains to be unearthed and disturbed during ground-disturbing activities that would be associated with future roadway construction, such as grading and excavation, in the study area is high. Damage to or destruction of a burial site and disturbance of human remains would be a significant impact. Mitigation measure CUL-3 would reduce this impact to a less-than-significant level.

Mitigation Measure CUL-3: Stop Work If Human Remains Are Discovered during Construction

If human remains are uncovered, the JPA or local jurisdiction will ensure that the contractor contacts the county coroner and NAHC immediately. If human remains are discovered in any location other than a dedicated cemetery, there will be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until:

- the county coroner has been informed and has determined that no investigation of the cause of death is required; and
- if the remains are of Native American origin,
  - the descendants of the deceased Native Americans have made a recommendation to the landowner or the person responsible for the excavation work regarding the means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in PRC 5097.98, or

- the NAHC was unable to identify a descendant or the descendant failed to make a recommendation within 24 hours after being notified by the NAHC.

According to the HSC, six or more human burials at one location constitute a cemetery (Section 8100), and disturbance of Native American cemeteries is a felony (Section 7052).

Impact CUL-3: Damage to Historical Architectural (Built Environment) Resources

The project corridor is located near architectural resources (buildings/structures or linear features) that are 50 years old or older. Thirty-three built environment (architectural resources) resources over 50 years old were identified along the proposed project corridor. Only two of these resources have been evaluated and found not eligible for listing in the NRHP or the CRHR. The remaining 31 have not been formally evaluated for significance under CEQA guidelines. Given the age of these resources, it is possible they are historically significant and eligible for listing in the CRHR or the NRHP. Proposed improvements may lead to physical demolition, destruction, relocation, or alteration of potential historical resources. The impact could be significant where cultural resources exist in areas affected by project implementation. As described above, Mitigation Measure CUL-4 would reduce this impact, in most cases, to a less-than-significant level. Where avoidance of significant historic resources is not found to be feasible, impacts would remain significant and unavoidable.

6.3.4 Impacts of the Off-Corridor Multi-Use Path Alternative

Impact CUL-1: Potential for Damage to or Destruction of Cultural Resources during Project Construction

This alternative alignment and buffer contain the largest number of known cultural resources—a total of 113 resources, six of which have been evaluated as not eligible for the NRHP and one that has been evaluated as eligible for the NRHP. Most of these resources are historic sites, including the Prairie Diggings Placer Mining District (evaluated as eligible for the NRHP) located within the American River Mining District. Implementation of this alternative could increase impacts of the proposed project if its construction and operation affected significant resources. As described above, Mitigation Measures CUL-1, CUL-2, and CUL-3 would reduce impacts to a less-than significant level.

Impact CUL-2: Potential for Damage to or Destruction of Previously Undiscovered Human Remains

The proposed improvements associated with this alternative involve excavations through areas with high sensitivity for cultural resources. Therefore, the potential for buried human remains to be unearthed and disturbed during ground-disturbing activities that would be associated with future roadway construction, such as grading and excavation, in the study area is high. Damage to or destruction of a burial site and disturbance of human remains would be a significant impact. Mitigation measure CUL-3 would reduce this impact to a less-than-significant level.

Impact CUL-3: Damage to Historical Architectural (Built Environment) Resources

Given the age of these resources, it is possible they are historically significant and eligible for listing in the CRHR or the NRHP. Proposed improvements may lead to physical demolition, destruction, relocation, or alteration of potential historical resources. The impact could be significant where cultural resources exist in areas affected by project implementation. As described above, Mitigation

Measure CUL-4 would reduce this impact, in most cases, to a less-than-significant level. Where avoidance of significant historic resources is not found to be feasible, impacts would remain significant and unavoidable.

6.3.5 Impacts of the Project Options

6.3.5.1 Kammerer Road Bypass Option

Impact CUL-1: Potential for Damage to or Destruction of Cultural Resources during Project Construction

The records search identified two unevaluated cultural resources in the study area of this design option, one of which is an archaeological site that could contain buried archaeological resources. This option could potentially have significant impacts on archaeological resources. As described above, Mitigation Measures CUL-1, CUL-2, and CUL-3 would reduce this impact to a less-than-significant level.

Impact CUL-2: Potential for Damage to or Destruction of Previously Undiscovered Human Remains

The potential for buried human remains to be unearthed and disturbed during ground-disturbing activities that would be associated with future roadway construction, such as grading and excavation, in the study area is high. Damage to or destruction of a burial site and disturbance of human remains would be a significant impact. Mitigation measure CUL-3 would reduce this impact to a less-than-significant level.

Impact CUL-3: Damage to Historical Architectural (Built Environment) Resources

The Kammerer Road Bypass design option was developed, in part, to avoid existing structures. These structures have not been evaluated as historic resources. It is possible they are historically significant and eligible for listing in the CRHR or the NRHP. Proposed improvements may lead to physical demolition, destruction, relocation, or alteration of potential historical resources. The impact could be significant where cultural resources exist in areas affected by project implementation. As described above, Mitigation Measure CUL-4 would reduce this impact, in most cases, to a less-than-significant level. Where avoidance of significant historic resources is not found to be feasible, impacts would remain significant and unavoidable.

6.3.5.2 Deer Creek Causeway Options

Impact CUL-1: Potential for Damage to or Destruction of Cultural Resources during Project Construction

There are two design options for the Deer Creek causeway; however, impacts to cultural resources are the same under either alternative and are analyzed as such. Neither Deer Creek Causeway option alignment has been surveyed previously and therefore contains no known cultural resources. The reason for this is probably that cultural resources surveys are driven primarily by development, and the location of this option is in the Cosumnes River floodplain. There is a high probability that this area was inhabited by Native Americans because it is close to the river. However, archaeological sites could be buried by deep alluvial sediments and it remains unknown whether or not cultural resources exist in this area. Construction of this design option could impact previously unknown buried archaeological resources and/or human remains. As described above, Mitigation Measures CUL-1 and CUL-2 would reduce potential impacts to a less than significant level.

Impact CUL-2: Potential for Damage to or Destruction of Previously Undiscovered Human Remains

The potential for buried human remains to be unearthed and disturbed during ground-disturbing activities that would be associated with future roadway construction, such as grading and excavation, in the proposed option alignment is high due to the location in a floodplain. Damage to or destruction of a burial site and disturbance of human remains would be a significant impact. Mitigation Measure CUL-3 would reduce this impact to a less-than-significant level.

Impact CUL-3: Damage to Historical Architectural (Built Environment) Resources

The location of this design option in the floodplain of the Cosumnes River makes it less likely to encounter a substantial amount of built environment resources. Currently, the majority of the area is used for row crop agriculture and grazing. However, the proposed alignment could lead to physical demolition, destruction, relocation, or alteration of potential historical resources. The impact could be significant where historical cultural resources exist in areas affected by project implementation. As described above, Mitigation Measure CUL-4 would reduce this impact, in most cases, to a less-than-significant level. Where avoidance of significant historic resources is not found to be feasible, impacts would remain significant and unavoidable.

6.3.5.3 Sheldon Reduced Access Roadway Option

Impact CUL-1: Potential for Damage to or Destruction of Cultural Resources during Project Construction

Although only one unevaluated cultural resource is known to occur within this option alignment, much of the area has not been surveyed, and additional resources could exist that have not been recorded. Construction of this design option could impact previously unknown cultural resources. As described above, Mitigation Measures CUL-1, CUL-2, and CUL-3 would reduce impacts of this design option to a less-than-significant level.

Impact CUL-2: Potential for Damage to or Destruction of Previously Undiscovered Human Remains

The potential for buried human remains to be unearthed and disturbed during ground-disturbing activities that would be associated with future roadway construction, such as grading and excavation exists. Damage to or destruction of a burial site and disturbance of human remains would be a significant impact. Mitigation measure CUL-3 would reduce this impact to a less-than-significant level.

Impact CUL-3: Damage to Historical Architectural (Built Environment) Resources

Sheldon and Grant Line Roads contain structures over 50 years old that have the potential to be considered significant historic resources. The impact could be significant where historical cultural resources exist in areas affected by project implementation. As described above, Mitigation Measure CUL-4 would reduce this impact, in most cases, to a less-than-significant level. Where avoidance of significant historic resources is not found to be feasible, impacts would remain significant and unavoidable.

6.3.5.4 Sheldon High Access Roadway Option

Impact CUL-1: Potential for Damage to or Destruction of Cultural Resources during Project Construction

Cultural resources are located within the Sheldon High Access Roadway Option location and construction of this design option could impact previously unknown cultural resources. As described above, Mitigation Measures CUL-1, CUL-2, and CUL-3 would reduce impacts of this design option to a less-than-significant level.

Impact CUL-2: Potential for Damage to or Destruction of Previously Undiscovered Human Remains

The potential for buried human remains to be unearthed and disturbed during ground-disturbing activities that would be associated with future roadway construction, such as grading and excavation exists. Damage to or destruction of a burial site and disturbance of human remains would be a significant impact. Mitigation measure CUL-3 would reduce this impact to a less-than-significant level.

Impact CUL-3: Damage to Historical Architectural (Built Environment) Resources

Sheldon and Grant Line Roads contain structures over 50 years old that have the potential to be considered significant historic resources. The impact could be significant where historical cultural resources exist in areas affected by project implementation. As described above, Mitigation Measure CUL-4 would reduce this impact, in most cases, to a less-than-significant level. Where avoidance of significant historic resources is not found to be feasible, impacts would remain significant and unavoidable.

Chapter 7
Energy

7.1 Introduction

This chapter provides an analysis of energy impacts resulting from the proposed project. It describes the existing energy setting in the project area and summarizes the overall regulatory framework in California and the region. Environmental impacts related to usage, as well as mitigation measures to reduce or eliminate potential impacts, are also discussed.

7.2 Environmental Setting

The study area for the analysis of energy consists of the traffic analysis study area, shown in Figure 16-1 from Chapter 16, Traffic, which covers portions of five jurisdictions: Sacramento County; El Dorado County; the cities of Elk Grove, Rancho Cordova and Folsom. It covers the general area where the travel demand model shows "significant" changes in traffic volumes would result from the Connector alternatives, although the percentage of roadways that would be affected by the Connector decreases on the fringes of that area. This analysis considers the direct energy consumption and indirect energy consumption related to the proposed project (Sections 7.4.2.1 and 7.4.2.2).

Section 15125(a) of the State CEQA Guidelines provides that the environmental setting "will normally constitute the baseline physical conditions by which a lead agency determines whether an impact is significant." The environmental setting consists of existing physical conditions at the time the NOP is released or CEQA analysis is begun.

In 2010, the California Supreme Court clarified that "[n]either CEQA nor the CEQA Guidelines mandates a uniform, inflexible rule for determination of the existing conditions baseline. Rather, an agency enjoys the discretion to decide, in the first instance, exactly how the existing physical conditions without the project can most realistically be measured, subject to review, as with all CEQA factual determinations, for support by substantial evidence. (citation)" (*Communities for a Better Environment v. South Coast Air Quality Management District* (2010) 48 Cal.4th 310) The Court limited this flexibility by further stating that "[a]n approach using hypothetical allowable conditions as the baseline results in 'illusory' comparisons that 'can only mislead the public as to the reality of the impacts and subvert full consideration of the actual environmental impacts,' a result at direct odds with CEQA's intent. (citation)"]

Past practice in traffic impact analysis undertaken to help determine the significance of a project's energy impact has often relied upon a "future no-project" scenario as its CEQA baseline. The project's impact is derived from the difference between "future with-project" and "future no-project" scenarios. This approach has been used in the past because it offers a means of comparing with- and without-project scenarios that share common assumptions for future growth and improvements. It may not, however, conform to the *Communities for a Better Environment* decision. In fact, that very approach was invalidated late last year in the Sixth District Court of Appeal's decision in *Sunnyvale West Neighborhood Assn. v. City of Sunnyvale* (2010) 190 Cal.App.4th 1351.

Since the *Sunnyvale West* decision, two additional appellate court decisions have addressed issues regarding the appropriate CEQA baseline: *Madera Oversight Coalition, Inc., v. County of Madera* (2011) 199 CalApp.4th 48, and *Pfeiffer v. City of Sunnyvale*, 2011 WL 5845009 (Cal.App. 6th Dist.) (Nov. 22, 2011).

In recognition of the *Communities for a Better Environment* and Sunnyvale West decisions, the Program EIR for the Connector does not followthe past practice of evaluating impacts by comparing the "future with-project" and the "future no-project" scenarios. For purposes of determining the impact on energy in this EIR, the baseline is physical conditions along the Southeast Connector alignment as they existed in 2008. This is the most recent year for which comprehensive traffic data is available. The data on existing traffic levels has been used to estimate existing energy conditions based on standard modeling techniques. The estimated conditions are compared to the conditions with the project to determine the significance of the project's energy impact. This approach complies with the intent of the *Communities for a Better Environment*, by providing a significance determination based on the change from existing conditions and avoiding the use of a hypothetical baseline condition.

Determining the significance of an impact by comparing anticipated project conditions to existing conditions in the area affected by the project is a relatively straightforward analysis for most impacts. However, the energy impact of a project that will not be operational for years is not easily compared to existing conditions. By the time the Project is operational in 2025 there will be new infrastructure and background growth in the region unrelated to the project that will impact area roads. The 2025 traffic conditions modeled for the proposed project and used as the basis for the energy analysis do not include reasonable assumptions about new infrastructure and background growth within the region. As a result, although this provides a comparison between existing conditions and conditions with the Project in place, the resultant significance determination will likely overstate the extent of change in energy conditions that is a direct result of the Project.

This Program EIR also analyzes the potential impacts that would occur under the "future with-project" scenario. The significance of the impacts of the "future with-project" scenario in comparison to the "future without-project" scenario is analyzed and disclosed in the cumulative impact discussion in Chapter 18, "Cumulative and Growth Inducing Impacts."

The study of future conditions, in addition to existing conditions, was expressly approved in both *Sunnyvale West* and *Pfeiffer*. In *Pfeiffer*, the court acknowledged that discussions of "foreseeable changes and expected future conditions" have may be considered in determining a proposed project's impact on the environment, and "may be necessary to an intelligent understanding of a project's impacts over time and full compliance with CEQA." (*Pfeiffer*, *supra*, at p. 23, quoting *Sunnyvale West*, *supra*, 190 Cal.App.4th at p. 1381.) In addition, the CEQA Guidelines expressly provide for the consideration of potential future conditions, and require that an EIR clearly identify and describe the "direct and indirect significant effects of the project on the environment" and give "due consideration to both the short-term and long-term effects." (California Code of Regulations, title 14, section 15126.2, subd. (a).)

7.2.1 Energy Terminology

- **Biomass.** Plant materials and animal waste used especially as a source of fuel.
- **Cubic Foot.** A unit of measurement used to represent volume. It represents an area one foot long, by one foot wide, by one foot deep.

- **Direct energy.** The energy used in the actual propulsion of a vehicle using the facility. It can be measured in terms of the thermal value of the fuel (usually measured in British thermal units [BTUs]), the cost of the fuel, or the quantity of electricity used in the engine or motor.
- **Fossil Fuel.** A fuel (as coal, oil, or natural gas) formed in the earth from plant or animal remains.
- **Fuel Cell.** A device that continuously changes the chemical energy of a fuel (as hydrogen) and an oxidant directly into electrical energy.
- **Geothermal.** Of, relating to, or utilizing the heat of the earth's interior.
- **Gigawatt.** A unit of power equal to one billion watts.
- **Hydroelectric.** Of, or relating to, production of electricity by water power.
- **Indirect energy.** The remaining energy used to run a transportation system, including construction energy, maintenance energy, and any substantial impacts on energy expenditures related to project-induced land use changes and mode shifts, and any substantial changes in energy associated with vehicle operation, manufacturing, or maintenance due to increased automobile use.
- **Kilowatt.** A unit of power equal to 1,000 watts.
- **Megawatt.** A unit of power equal to 1,000 watts.
- **Photovoltaic.** Of, relating to, or utilizing the generation of a voltage when radiant energy falls on the boundary between dissimilar substances (as two different semiconductors).
- **Renewable Energy.** Energy derived from sources capable of being replaced by natural ecological cycles (i.e., solar, wind, biomass, geothermal, tidal) or sound management practices.
- **Solar Energy.** Produced or operated by the action of the sun's light or heat.
- **Watt.** The absolute meter-kilogram-second unit of power equal to the work done at the rate of one joule per second.
- **Watt-hour.** A unit of work or energy equivalent to the power of one watt operating for one hour.

7.3 Regulatory Setting

7.3.1 Federal Regulations

7.3.1.1 The National Energy Policy

The National Energy Policy, established in 2001 by the National Energy Policy Development Group (NEPDG), is designed to help the private sector and state and local governments promote dependable, affordable, and environmentally sound production and distribution of energy for the future (National Energy Policy Development Group 2001). Key issues addressed by the energy policy are energy conservation, repair and expansion of energy infrastructure, and ways of increasing energy supplies while protecting the environment. The National Energy Policy report includes a recommendation to establish Corporate Average Fuel Economy (CAFE) standards for new motor vehicles.

7.3.1.2 Corporate Average Fuel Economy Standards

The CAFE Standards were enacted into law by Congress in 1975 under the "Energy Policy Conservation Act. The CAFE is the sales weighted average fuel economy of a manufacturer's fleet of passenger cars or light trucks manufactured for sale in the United States, for any given model year, and the CAFE Standards are intended to improve the average fuel economy of cars and light trucks (trucks, vans and sport utility vehicles) sold in the U.S. In May 2010, a new national fuel economy program adopting uniform federal standards to regulate both fuel economy and greenhouse gas emissions was adopted. Covering the model years 2012 to 2016, the program would ultimately require an average fuel economy standard of 35.5 miles per gallon (mpg) which is an increase from the current average of 25 mpg for all vehicles. In September 2010, the U.S. Department of Transportation and EPA announced intent to propose new CAFE and GHG emission standards for passenger cars and trucks built in model years 2017 through 2025.

7.3.2 State Regulations

7.3.2.1 California Assembly Bill 32—Global Warming Solutions Act of 2006

Assembly Bill 32 (AB 32) requires California to reduce its total GHG emissions to 1990 levels by 2020, which represents about a 30% decrease from current levels. In September 2007, ARB approved a list of nine Discrete Early Actions to reduce GHG emissions and is currently in the process of developing regulations and programs, based on these actions, that must be adopted and in effect by January 1, 2010 (HSC §38560.5 [b]).

ARB's Discrete Early Actions include maximizing energy efficient building and appliance standards, pursuing additional efficiency efforts, including new technologies and new policy and implementation mechanisms, and pursuing comparable investment in energy efficiency by all retail providers of electricity in California (including both investor-owned and publicly-owned utilities). Current Approved Discrete Early Action Items which have regulatory effect include the

- **Low Carbon Fuel Standard Program.** The purpose of the Low Carbon Fuel Standard Program is to reduce the carbon intensity in transportation fuels as compared to conventional petroleum fuels
- **Heavy-Duty (Tractor-Trailer) Greenhouse Gas Regulation.** The purpose of the Heavy-Duty (Tractor-Trailer) Greenhouse Gas Regulation is to reduce greenhouse gas emissions by improving the fuel efficiency of heavy-duty tractors that pull 53-foot or longer box-type trailers. Fuel efficiency is improved through improvements in tractor and trailer aerodynamics and the use of low rolling resistance tires
- **HFC Emission Reduction Measures for Mobile Air Conditioning measure**. The purpose of the HFC Emission Reduction Measures for Mobile Air Conditioning measure is to reduce hydrofluorocarbon (HFC) emissions associated with mobile air conditioning (MAC) through use of low global warming potential refrigerants in MAC and through efficiency measures applied to MAC systems.
- **Tire Inflation Regulation.** The purpose of the Tire Inflation Regulation is to reduce greenhouse gas emissions from vehicles operating with under inflated tires by inflating them to the recommended tire pressure rating.

7.3.2.2 Assembly Bill 1493 Pavley Standards

Known as "Pavley I," Assembly Bill (AB) 1493 standards are the nation's first GHG standards for automobiles. AB 1493 requires ARB to adopt vehicle standards that will lower GHG emissions from new light-duty autos to the maximum extent feasible beginning in 2009, although court action delayed its implementation. Additional strengthening of the Pavley standards (Pavley II) has been proposed for vehicle model years 2017–2020. Together, the two standards are expected to increase average fuel economy to roughly 43 mpg by 2020 and reduce GHG emissions from the transportation sector in California by approximately 14%. In June 2009, EPA granted California's waiver request enabling the state to enforce its GHG emissions standards for new motor vehicles beginning with model year 2009 and later new motor vehicles.

7.3.2.3 Executive Order S-01-07—Low Carbon Fuel Standard

EO S-01-07 essentially mandates: (1) that a statewide goal be established to reduce the carbon intensity of California's transportation fuels by at least 10% by 2020, and (2) that a Low Carbon Fuel Standard (LCFS) for transportation fuels be established in California. A reduction of 10% in the carbon intensity of all transportation fuels is expected to yield a reduction of 16.5 million MT CO2e by 2020 (California Air Resources Board 2008).

7.3.2.4 Senate Bill 375—Sustainable Communities Strategy, Chapter 728, Statutes of 2008

SB 375 provides for a new planning process that coordinates land use planning, regional transportation plans, and funding priorities in order to help California meet the GHG reduction goals established in AB 32. SB 375 requires that regional transportation plans (RTPs), developed by metropolitan planning organizations (MPOs) relevant to the project area (the Sacramento Area Council of Governments [SACOG] in the case of the proposed action) incorporate a sustainable communities strategy (SCS). The goal of the SCS is to reduce regional GHG emissions through land use and transportation planning such that development patterns would lead to reduced vehicle trips and associated emissions. SB 375 also includes provisions for streamlined CEQA review for some infill projects, such as transit-oriented development. Those provisions will not become effective until an SCS is adopted. Once ARB approves the regional target, SACOG will work with the local jurisdictions to develop the SCS for the region. Each SCS will be developed as part of the RTP update, performed regularly by the 18 MPOs in California. SACOG is currently underway with their RTP update.

7.4 Impact and Mitigation Discussion

A qualitative comparison of the proposed project and project options was employed in this analysis. Direct energy consumption was relatively assessed through a comparison of peak vehicle miles traveled (VMT) (a.m. and p.m.), total VMT, and delay hours. Indirect energy consumption was based on the assumed construction parameters of the proposed project (see Appendix B for the construction assumptions).

The assessment of direct energy use consider various factors, including vehicle fleet mix, annual VMT, fuel economy, and variation of fuel consumption rates over time and by vehicle type.

The proposed project cannot influence the vehicle fleet, future fuel economy, or development patterns that steer regional driving patterns. However, at the writing of this document, both the regulatory environment and the market are responding to climate change concerns, and a transformation of American driving patterns and technologies seems likely within a generation. The practice of assuming present-day fuel economy and fleet conditions is commonly implemented as a worst-case scenario for energy analyses, but at this time the likelihood of large-scale changes in this sector would render that assumption grossly incorrect. This analysis has therefore relied on a comparison of the raw traffic numbers.

In addition, numerous contributors to the energy balance within a project area require complicated and rigorous economic analysis. The decision of where people buy homes, how far they regularly commute, their choice of personal vehicle, and the fuel price at which consumers begin to alter their transportation patterns are just a few examples of large-scale patterns that ultimately affect the number of vehicles in the project area. Traditional energy analyses for roadway projects have ignored these components and consequently attributed changes in VMT and roadway speed/congestion uniquely to the implementation of the projects—a gross oversimplification of the regional energy budget.

With so many unknowns and a multitude of future energy scenarios, a quantitative analysis has a high risk of being inaccurate and meaningless and therefore a qualitative approach was employed (described in detail in Section 7.4.2, Approach and Methodology).

7.4.1 Thresholds of Significance

The JPA has not formally adopted a threshold of significance for impacts related to energy and natural resources. For purposes of this analysis, consistent with prevailing practice, a significant impact related to energy would occur through the encouragement of activities or practices, or construction of facilities that result in the inefficient, wasteful, and unnecessary consumption of energy.

7.4.2 Approach and Methodology

The energy analysis addresses both direct and indirect energy consumption. The analysis of direct energy consumption discusses the potential for increased energy consumed by fossil-fuel–powered vehicles. A discussion of motor vehicle traffic (VMT and average travel speeds) is a component of the direct energy analysis because VMT and speeds can infer direct energy consumption. These VMT values were not converted to direct energy expenditures, avoiding the need to make assumptions about the future vehicle fleet or fuel economy. This approach essentially assumes that all future developments in fuel carbon content, fuel economy, fuel technology, and regulation affect the projected VMT.

The analysis of indirect energy consumption addresses the energy associated with construction and maintenance of the proposed project. Construction-related energy consumption and energy consumption embodied in materials production is assumed to be directly proportional to the size of the proposed project.

7.4.2.1 Direct Energy Consumption

This analysis compares the estimated VMT, vehicle hours traveled (VHT), and average network speed in the traffic analysis study area (see Chapter 16, Traffic). The analysis uses VMT (fuel consumption through VMT), VHT (congestion), and expected air pollutant emission as surrogates for direct energy expenditures associated with anticipated changes in energy consumption associated with changes in estimated roadway vehicle speeds, as indicated in the traffic study. A comparison of traffic metrics in the project area for 2035 conditions is shown in Tables 7-1 through 7-3. It is assumed that societal, economic, or regulatory changes affecting fuel economy are equally reflected in the traffic data (i.e., would not change between alternatives and scenarios). Thus assumed fuel economy is not required to convert traffic data to energy consumption, such as BTUs.

Direct energy expenditures associated with the Kammerer Road Bypass and Off-Corridor Multi-Use Path options were not estimated because the traffic analysis (Chapter 16) found that they would have no discernable impacts on the transportation network, and did not identify any differences in the operational data.

Tables 7-1 and 7-2 summarize peak period delay for the project area and indicate that overall delay is anticipated to improve during peak periods when the highest levels of congestion are expected to occur. Improvements in overall delay indicate that network improvements would occur in which congestion would be lessened and vehicles would flow through the network more efficiently, thereby reducing energy consumption.

Although the data in Tables 7-1 and 7-2 indicate that the proposed project would substantially reduce delay along the project alignment and reduce overall delay on the entire roadway system serving the traffic study area, Table 7-3 indicates that the proposed project with the Sheldon Reduced Access Roadway option would result in increases in total VMT by 1.4%, total VHT by 0.1%, and average speed by 0%. Vehicle energy usage is a function of overall VMT and how efficient this VMT is operating through the roadway network. Within this analysis, average speed is used as a surrogate to determine network efficiency, as average speed takes into account the number of hours (i.e., congestion and vehicle delay) it takes for vehicles to travel through the roadway network.

Increases in VMT generally are associated with increases in direct energy consumption. While VMT increases by approximately 1.7%, average speed remains unchanged, indicating that increased energy consumption may occur associated with the VMT increases.

Because variables such as vehicle age, vehicle type, and fuel type also factor into vehicle efficiency, the description of vehicle efficiency presented here is a generalization. However generalized, the description is pertinent to this analysis and helps to demonstrate that VMT would increase (i.e., energy usage increase). To further evaluate the effects of the project and options on congestion and emissions, an additional analysis at link level was undertaken to estimate changes in VMT and associated fuel consumption in the project alignment area. The Synchro traffic simulation model was used to evaluate traffic operations along the proposed project alignment. The simulation model tracks individual vehicles on the proposed project alignment and their acceleration/deceleration and delay at signals, allowing fuel consumption to be estimated. As emissions are directly related to fuel consumption, one can infer effects to air quality emissions based on changes in fuel consumption associated with the proposed project and options. The additional Synchro analysis found that change in regional fuel consumption would be less than 0.06 percent for any of the project options along the proposed project alignment. Consequently, while Table 7-3 shows increases in VMT, the results of the Synchro analysis, which provides a more complete analysis of the effects of congestion on network operation, indicates that the project and options may result in a smaller increase in VMT than those identified in Table 7-3. While the results of the Synchro model and Table 7-3 cannot be directly compared due to limitations inherent in the Synchro modeling analysis, it does provide a more complete snapshot of the congestion-relief benefits of the project and it's affect on fuel consumption and air quality emissions, and it is likely that the actual effects of the project to VMT lie in the middle of the Synchro results and those presented in Table 7-3.

Table 7-1. Peak Period Vehicle Delay in Traffic Analysis Study Area

			2035 with Project			
			Sheldon Reduced Access Roadway	Deer Creek Causeway		Sheldon High Access Roadway
Measure	Facility	2008		Option 1	Option 2	
> Level of Service (LOS) C Delay[a]	Connector	40,862	26,920	27,430	27,351	27,600
	Non-Connector	1,089,698	1,357,521	1,352,409	1,365,969	1,360,102
	Total traffic study area	1,130,560	1,384,441	1,379,838	1,393,320	1,387,702
Change from Baseline	Connector		(8,870)	(8,791)	(9,301)	(8,621)
	Non-Connector		(27,007)	(40,568)	(35,455)	(32,874)
	Total traffic study area		(35,877)	(49,359)	(44,756)	(41,495)
Percent Change from Baseline	Connector		-24.5%	-24.3%	-25.7%	-23.8%
	Non-Connector		-1.9%	-2.9%	-2.5%	-2.4%
	Total traffic study area		-2.5%	-3.5%	-3.1%	-2.9%
> LOS E Delay[b]	Connector	26,545	6,358	7,886	7,583	6,381
	Non-Connector	770,636	807,018	804,030	817,538	810,755
	Total traffic study area	797,181	813,376	811,916	825,121	817,136
Change from Baseline	Connector		(5,561)	(5,258)	(6,785)	(6,763)
	Non-Connector		(9,893)	(23,401)	(20,413)	(16,676)
	Total traffic study area		(15,454)	(28,659)	(27,199)	(23,439)
Percent Change from Baseline	Connector		-42.3%	-40.0%	-51.6%	-51.5%
	Non-Connector		-1.2%	-2.8%	-2.5%	-2.0%
	Total traffic study area		-1.8%	-3.4%	-3.2%	-2.8%

Source: DKS Associates 2010.

Note: See Figure 16-1 for boundary of traffic study area. The peak period covers 6 hours: the 3-hour morning commute period (6 to 9 a.m.) and the 3-hour evening commute period (3 to 6 p.m.).

[a] > LOS C is the added travel time for vehicles faced with LOS D, E, and F conditions in the traffic study area during the 6-hour peak period.

[b] > LOS E is the added travel time for vehicles faced with LOS F conditions in the traffic study area during the 6-hour peak period.

Table 7-2. Peak Period Vehicle Delay in Traffic Analysis Study Area

		2035 PM Peak Hour Travel Time (minutes)									
		Baseline		Proposed Project with Sheldon Reduced Access Roadway		Proposed Project with Deer Creek Causeway				Proposed Project with High Access Roadway	
						Option 1		Option 2			
Segment	Distance (miles)	North/ East Bound	South/ West Bound	North/ East Bound	South/ West Bound	North/ East Bound	South/ West Bound	North/ East Bound	South/ West Bound	North/ East Bound	South/ West Bound
1 - US 50/Silva Valley to Sacramento Co Line	2.3	6.3	5.4	6.9	6.6	7.2	6.5	7.0	6.6	7.8	6.8
2 - El Dorado Co Line to Grant Line Rd	6.3	9.1	16.4	6.1	8.1	7.8	8.1	7.9	8.1	7.8	8.1
3 - Grant Line Rd to Calvine Road	11.6	22.7	23.5	17.5	17.8	17.0	17.3	17.6	17.3	17.5	17.9
4 - Calvine Rd to Bond Rd	2.7	6.7	6.9	4.5	4.6	5.2	5.0	5.2	5.0	7.3	7.2
5 - Bond Rd to SR 99	4.3	8.5	9.1	7.7	8.1	9.3	10.7	9.3	10.7	8.3	9.7
6 - SR 99 to I-5	6.5	9.6	9.8	8.9	8.7	7.9	8.2	8.8	9.1	8.8	9.0
Total Corridor	**33.7**	**62.9**	**71.0**	**51.6**	**53.8**	**54.2**	**55.8**	**55.8**	**56.9**	**57.5**	**58.6**
Difference from Baseline				-8.7	-15.2	-11.3	-17.2	-7.1	-14.2	-5.4	-12.5
Percent Difference				-14%	-21%	-18%	-24%	-11%	-20%	-9%	-18%
2 & 3 - Expressway Segments	17.9	31.8	39.9	24.7	25.3	23.6	25.9	25.6	25.5	25.2	26.0
Difference from Baseline				-7.1	-14.6	-8.1	-14.0	7.0	6.6	-6.5	-13.9
Percent Difference				-22%	-37%	-26%	-35%	7.9	8.1	-21%	-35%

Source: DKS Associates 2010.

Table 7-3. Summary of Vehicle Miles Traveled, Vehicle Hours Traveled, and Average Speed

			2035 with Project			
			Sheldon Reduced Access Roadway	Deer Creek Causeway		Sheldon High Access Roadway
Measure	Facility	2008		Option 1	Option 2	
Vehicle Miles Traveled (VMT)						
VMT	Connector	168,865	685,464	755,317	749,855	677,672
	Non-Connector	3,993,135	6,656,969	6,605,387	6,613,760	6,660,363
	Total traffic study area	4,162,000	7,342,433	7,360,704	7,363,615	7,338,035
Change from Baseline	Connector		211,994	217,456	147,603	139,811
	Non Connector		(89,470)	(97,843)	(46,260)	(42,866)
	Total traffic study area		122,524	119,613	101,343	96,945
Percent Change from Baseline	Connector		39.4%	40.4%	27.4%	26.0%
	Non Connector		-1.3%	-1.5%	-0.7%	-0.6%
	Total traffic study area		1.7%	1.7%	1.4%	1.3%
Vehicle Hours Traveled (VHT)						
VHT	Connector	4,623	14,724	13,796	13,680	14,694
	Non-Connector	121,650	208,595	209,220	209,750	208,625
	Total traffic study area	126,274	223,318	223,015	223,429	223,318
Change from Baseline	Connector		754	870	1,798	1,768
	Non Connector		(476)	(1,007)	(1,631)	(1,601)
	Total traffic study area		278	(136)	167	167
Percent Change from Baseline	Connector		5.8%	6.7%	13.9%	13.7%
	Non Connector		-0.2%	-0.5%	-0.8%	-0.8%
	Total traffic study area		0.1%	-0.1%	0.1%	0.1%
Average Speed						
Average Speed	Connector	37	47	55	55	46
	Non-Connector	33	32	32	32	32
	Total traffic study area	33	33	33	33	33
Change from Baseline	Connector		10	18	18	9
	Non Connector		(1)	(1)	(1)	(1)
	Total traffic study area		0	0	0	0
Percent Change from Baseline	Connector		27.5%	49.9%	50.1%	26.3%
	Non Connector		-2.8%	-3.8%	-3.9%	-2.7%
	Total traffic study area		0.0%	0.0%	0.0%	0.0%

Source: DKS Associates 2010.

7.4.2.2 Indirect Energy Consumption

This analysis discusses the potential quantities of material for construction of structures and quantity of structures. An additional metric discussed is miles of roadway requiring maintenance after construction is complete. The total amount of energy required is inferred from these metrics and no assumptions regarding cost are made in this analysis. Because detailed construction information, such as required equipment, quantity of materials, and number of labor hours is not available, it is not possible to provide a detailed quantitative assessment of materials-specific energy factors and equipment-specific fuel economy to calculate construction-related energy consumption.

The qualitative comparison analysis presented here assumes that, in general, construction activities and construction materials could be inferred from total project length and area disturbed (see Appendix B for the construction assumptions). This assumption is based on the fact that longer roadways and roadways encompassing a larger disturbed area would require more construction activities and materials than a smaller roadway would require. For example, a roadway with a length of 100 miles and an area of disturbance of 60 acres would require more construction activities and materials than a roadway with a length of 1 mile and an area of disturbance of 6 acres. Larger amounts of materials equates with more energy use resulting from increased labor hours, increased hauling of materials, and increased embodied energy consumption in materials manufacture.

In addition to indirect energy consumption associated with construction activities, electricity required to power traffic lights and signals would result in indirect energy expenditures. As indicated in the Traffic and Transportation analysis (Chapter 16), the project is anticipated to reduce the number of traffic signals from 49 to between 34 and 36 with implementation of the project and options.

Table 7-4. Roadway Length and Assumptions on Area of Disturbance

	Project Length (miles)	Acreage Disturbed[a]
Proposed Project	36.0	1,434
Proposed Project with Off-Corridor Trail[b]	63.5	1,554
Proposed Project with Kammerer Bypass	34.3	1,476
Proposed Project with Deer Creek Causeway Option 1	35.8	1,403
Proposed Project with Deer Creek Causeway Option 2	35.8	1,427
Proposed Project with Reduced Access Roadway	33.5	1,471
Proposed Project with Sheldon High Access Roadway	33.5	1,477

[a] Assumes alignment footprint plus 50 feet on either side for construction staging. Calculated using ArcGIS.
[b] Off-corridor trail assumed to be 30 miles long and disturbed at total of 84.8 acres.

7.4.3 Impacts of the Proposed Project and Project Options

The available traffic data consists of traffic volumes only for the proposed project with the various options. Thus, the impacts discussed here are for the proposed project only in the context of the project options.

Impact EN-1: Increased Consumption of Direct Energy

Direct energy consumption would result from motor vehicle travel through the project area. This analysis compares data summarized in the traffic and air quality analyses for the proposed project and inferred future energy consumption from the relationship between traffic conditions and fuel consumption.

The proposed project would result in increased total VMT on the alignment and decreased total VMT on the remainder of the roadway system in the traffic study area, while the percentage of VMT and VHT that would occur on congested roadways would be decreased, substantially reducing delay along the project alignment and reducing overall delay on the entire roadway system serving the traffic study area. Increased VMT would result from increased motor vehicle trips traveling a greater distance in the project area. Increased vehicle speeds would increase travel flow and reduce congestion, which may result in reduced fuel consumption. The optimal fuel efficiency varies by vehicle, but generally the lowest fuel economy is in the 0–25 mph range, and the optimal range is 45–55 mph, with a steady decline in efficiency occurring as speeds exceeding 45 to 55 mph.

Because vehicle energy usage is a function of overall VMT and average speed, and because efficiency tends to follow the same trend as air pollutant emissions, the analysis of air pollutant emissions can be used to help identify whether the VMT increases are offset by the improvements in network function. The analysis of air pollutant emissions presented in Chapter 4, Air Quality, is calculated using VMT and roadway network speed data. As indicated in Tables 4-13 and 4-14, the proposed project is expected to result in an overall increase in air pollutant emissions. Consequently, it can be inferred that energy consumption will increase as well.

Under existing conditions, the proposed project would not result in speed increases over the traffic study area, while corridor speed increases would increase vehicle speeds to the optimal range for fuel efficiency (from 37 mph to the 46–55 mph range), a condition that would increase fuel efficiency when compared to future no-project conditions. Improved traffic flow would reduce the vehicle hours of delay, a condition that might reduce fuel use because lower traffic speeds (0–25 mph) result in poor fuel economy. As indicated in the additional Synchro analysis, fuel consumption would be less than 0.06 percent for any of the project options along the proposed project alignment, which indicates that the project and options may result in a smaller increase in VMT and fuel than those identified in Table 7-3.

However, as previously indicated, the proposed project is expected to result in an overall increase in air pollutant emissions. Consequently, it can be inferred that energy consumption will increase as well. However, it is not anticipated that this energy consumption would result in wasteful, inefficient, or excessive use of direct energy because operation of the proposed project would lead to improvements in congestion and roadway network efficiency. Because congestion and network inefficiency can be associated with the wasteful and inefficient use of energy, (i.e., increased congestion and network inefficiency would “waste” energy as a result of more cars idling and traffic taking longer to travel through the roadway network), improvements to congestion and roadway network efficiency associated with the proposed project are anticipated to result in more efficient use of energy resources. The impact would be less than significant. No mitigation is required.

Impact EN-2: Increased Consumption of Indirect Energy

Indirect energy consumption would result from project construction as well as the operation of traffic lights and signals. Construction of the proposed project would result in the consumption of energy to prepare the project site, manufacture and deliver construction materials to the project site, and to construct the roadway interchange and associated structures (see the roadway length and total area of disturbance data for the project in Table 7-4). This increased fossil fuel consumption from project construction is not expected to have an appreciable impact on energy resources.

Without a more rigorous assessment of the energy associated with each of the unique construction activities and energy requirements for the project components in Table 7-4, it is impossible to quantify the total energy consumed for the aggregate of construction tasks and roadway lighting. Some construction activities may be inherently more energy intensive than others, and thus apparent energy benefits in one metric could be negated in another.

Based on the qualitative comparison, the proposed project with the Sheldon Reduced Access Roadway option or the Sheldon High Access Roadway option will have the shortest project length and smallest area of disturbance, resulting in the lowest overall amount of construction activities and number of traffic lights and signals (and lowest anticipated energy expenditures), compared to the other options. Consequently, it is anticipated that energy expenditures would be lowest with the Sheldon Reduced Roadway option or the Sheldon High Access Roadway option. Construction of any of the options would be a one-time expenditure of energy. This one-time expenditure of energy would provide energy benefits in the long run because reduced congestion and improved traffic flow through the interchange might result in more efficient direct energy consumption.

As previously indicated, the number of traffic signals is anticipated to be reduced from 49 to between 34 and 36 with implementation of the project and options. Consequently, it is anticipated that implementation of the proposed project and options would result in a decrease in indirect energy consumption relative to the baseline condition from operation of lighting and traffic signals. Lighting will also be limited in order to minimize aesthetic impacts. Traffic signals will utilize standard fixtures. Therefore, the associated energy use is not expected to result in an inefficient, wasteful, or unnecessary consumption of energy. The impact would be less than significant. No mitigation is required.

Chapter 8
Geology, Soils, and Paleontological Resources

8.1 Introduction

This chapter describes the environmental setting for regional geology and seismic hazards, soil conditions, and paleontological resources within the project area. It also presents the state and local policies and regulations that determine mitigation requirements; identifies impacts related to geologic, soil, and paleontological resources that may result from implementation of the proposed project; and identifies mitigation measures to reduce these impacts where necessary. The following sources of information were reviewed to prepare this chapter:

- Capital SouthEast Connector Geotechnical Impact Report (Parsons Brinckerhoff 2010a; Appendix D)
- Capital SouthEast Connector Environmental Screening Analysis Final Technical Report (URS Corporation 2006)
- Sacramento County General Plan (Sacramento County 2011)
- El Dorado County General Plan (El Dorado County 2004)
- Elk Grove General Plan (City of Elk Grove 2009)
- Folsom General Plan (City of Folsom 1993)
- Rancho Cordova General Plan (City of Rancho Cordova 2006a)

8.2 Environmental Setting

8.2.1 Existing Conditions

The project alignment is relatively flat, with approximate elevations of 13 feet at the south end and 700 feet at the north end. The alignment is underlain by thick Quaternary and Tertiary alluvial deposits that originated from millennia of erosion of materials from the west slopes of the Sierra Nevada. Although the mountainous areas to the west are seismically active, the Central Valley is considered to be relatively seismically stable.

8.2.1.1 Regional Physiographic Setting

The project area is situated within two geomorphic provinces: the Great Valley Geomorphic Province to the west and Sierra Nevada Geomorphic Province to the east (California Geological Survey 2002). The Great Valley of California, also called the Central Valley, is a nearly flat alluvial plain extending from the Tehachapi Mountains in the south to the Klamath Mountains in the north, and from the Sierra Nevada in the east to the Coast Ranges in the west. The valley is about 450 miles long and averages about 50 miles wide. Elevations of the alluvial plain are generally just a few hundred feet above mean sea level (MSL), with extremes ranging from a few feet below MSL to about 1,000 feet above MSL (Hackel 1966).

The Sierra Nevada is a strongly asymmetric mountain range with a long gentle western slope and a high, steep eastern escarpment. The range averages 50 to 80 miles wide, and it runs west to north through eastern California for more than 400 miles, from the Mojave Desert to the south to the Cascade Range and Modoc Plateau to the north (Bateman and Wahrhaftig 1966).

8.2.1.2 Project Area Geology and Topography

The project alignment is located in an area of fairly flat topography in the Central Valley. It is underlain by five major geologic units: a metamorphic and igneous basement complex, consolidated marine deposits, consolidated volcanic rocks, continental deposits, and unconsolidated older alluvium. Near-surface deposits consist of thick Quaternary alluvial fan and river floodplain deposits derived from fluvial systems originating from higher elevations to the east. The younger geologic units affect the project area most directly and include dredge tailings, recent river channel and floodplain deposits, and the older Quaternary Victor, Riverbank, and Laguna Formations. Below the Laguna Formation are Secondary and Tertiary Metamorphic Rocks (Sacramento Water Resources Investigation 1973 in Appendix D). Aggregate and oil/gas reserves are present in the study area; one oil well and several aggregate mining operations are located in the project area (Figure 4 in Appendix D).

8.2.1.3 Seismicity

Seismic hazards are earthquake fault ground rupture and ground shaking (primary hazards), and liquefaction and earthquake-induced slope failure (secondary hazards). Compared to other areas of the state (e.g., the San Francisco Bay region), the project area is not located in a very seismically active region. However, with respect to ground shaking, earthquakes have occurred in the vicinity of the project area and can be expected to occur again. The nearest fault system is located approximately 9 miles east of the northern terminus of the project and is part of the Foothills fault system (Figure 3 in Appendix D).

Surface Rupture and Faulting

California's Alquist-Priolo Earthquake Fault Zoning Act (PRC 2621 et seq.) is intended to reduce the risk to life and property from surface fault rupture during earthquakes. The Alquist-Priolo Act prohibits the location of most types of structures intended for human occupancy across the traces of active faults and strictly regulates construction in the corridors along active faults (earthquake fault zones). It also defines criteria for identifying active faults, giving legal weight to terms such as *active*, and establishes a process for reviewing building proposals in and adjacent to earthquake fault zones.

Faults identified in an Alquist-Priolo earthquake fault zone are typically active faults. As defined under the Alquist-Priolo Act, an active fault has had surface displacement within Holocene time (about the last 11,000 years). An early Quaternary fault has had surface displacement during Quaternary time (the last 1.6 million years). A pre-Quaternary fault has had surface displacement before the Quaternary period.

The project area is not identified as being located in an Alquist-Priolo earthquake fault zone (Hart and Bryant 1997), and the Uniform Building Code (UBC) recognizes no seismic sources in the Sacramento region (International Conference of Building Officials 1997). However, numerous early Quaternary and pre-Quaternary faults associated with the Foothills fault system are located in the project vicinity. Most of these faults are early Quaternary in nature and have not had significant movement during the last 10,000 years. However, many areas of late Cenozoic faulting and some areas of Quaternary faulting have been identified along this system.

Ground-Shaking Hazard

The measurement of the energy released at the point of origin, or epicenter, of an earthquake is referred to as the *magnitude*, which is generally expressed using Richter or moment magnitude. The scale used in the Richter magnitude is logarithmic, so each successively higher Richter magnitude reflects an increase in the energy of an earthquake of about 31.5 times.

Moment magnitude is the estimation of an earthquake magnitude by using seismic moment, a measure of an earthquake size using rock rigidity, amount of slip, and area of rupture. The greater the energy released from the fault rupture, the higher the magnitude of the earthquake. Earthquake energy is most intense at the fault epicenter; the farther an area is from an earthquake epicenter, the less likely that ground shaking will occur there. Geologic and soil units comprising unconsolidated, clay-free sands and silts can reach unstable conditions during ground shaking, which can result in extensive damage to structures built on them (see "Liquefaction and Related Hazards" below).

Ground shaking is described by two methods: ground acceleration as a fraction of the acceleration due to gravity (g) or the Modified Mercalli scale, a more descriptive method involving 12 levels of intensity denoted by Roman numerals. Modified Mercalli intensities range from I (shaking that is not felt) to XII (total damage).

As mentioned above, the project area is located in a region of California characterized by historically low seismic activity and low ground-shaking hazard. Based on a probabilistic seismic hazard map that depicts the peak horizontal ground acceleration values exceeded at a 10% probability in 50 years (Cao et al. 2003; in Appendix D), the probabilistic peak horizontal ground acceleration value in the project area is about 0.22, where 1 g equals the force of gravity, thus indicating that the ground-shaking hazard in the project area is low.

The project area is located in UBC Seismic Hazard Zone 3. In these zones, structures must be designed with the load-bearing capacity to meet the regulations and standards associated with Zone 3 hazards.

8.2.1.4 Liquefaction and Related Hazards

Liquefaction is a phenomenon in which the strength and stiffness of unconsolidated sediments are reduced by earthquake shaking or other rapid loading. Poorly consolidated, water-saturated fine sands and silts that have low plasticity and are located within 50 feet of the ground surface are typically considered the most susceptible to liquefaction. Soils and sediments that are not water-saturated and that consist of coarser or finer materials are generally less susceptible to liquefaction (California Division of Mines and Geology 1997). Based on the sedimentological characteristics of the soils and the depth to groundwater, liquefaction hazard is expected to be moderate for the project area.

Two potential ground failure types associated with liquefaction in the Great Valley Geomorphic Province are lateral spreading and differential settlement (Association of Bay Area Governments 2001). Lateral spreading involves a layer of ground at the surface being carried on an underlying layer of liquefied material over a gently sloping surface toward a river channel or other open face. Lateral spreading is common in the Great Valley Geomorphic Province and poses a moderate to significant hazard (Association of Bay Area Governments 2001). Differential settlement (also called ground settlement and, in extreme cases, ground collapse) occurs as soil compacts and consolidates after ground shaking ceases. It occurs when the layers that liquefy are not of uniform thickness, which is common when the liquefaction occurs in artificial fills. Settlement can range from 1% to 5%, depending on the cohesiveness of the sediments (Tokimatsu and Seed 1984).

8.2.1.5 Landslides

Within the limits of the project area, the risk of naturally occurring large landslides varies depending on slope, underlying geology, surface soil strength, and moisture in soil. Significant excavation, grading, or fill work during construction might introduce landslide hazards along the project alignment. Because the project alignment is flat and no significant excavation is planned at this point, the potential for direct impact from landslides is considered low.

8.2.1.6 Soils

Geographic Relationships and Distribution of Soils in Major Land Resource Areas

Because of the large size of the project area, characterization of soils has been inferred using major land resource area (MLRA) information. An MLRA is a geographically associated land resource unit (LRU). An LRU is a geographic area, usually several thousand acres, characterized by a particular pattern of soil, climate, water resources, and land use. A unit can be a continuous area or several separate nearby areas. An LRU is the basic unit from which an MLRA is determined. It is also the basic unit for state land resource maps. It is coextensive with state general soil map units, but some general soil map units are subdivided into LRUs because of significant geographic differences in climate, water resources, and land use (Natural Resources Conservation Service 2006). The project area is located within MLRA 17. Descriptions of soil texture and erosion, runoff, and expansion hazards are described for the surface horizon of the soils only (Figure 8-1).

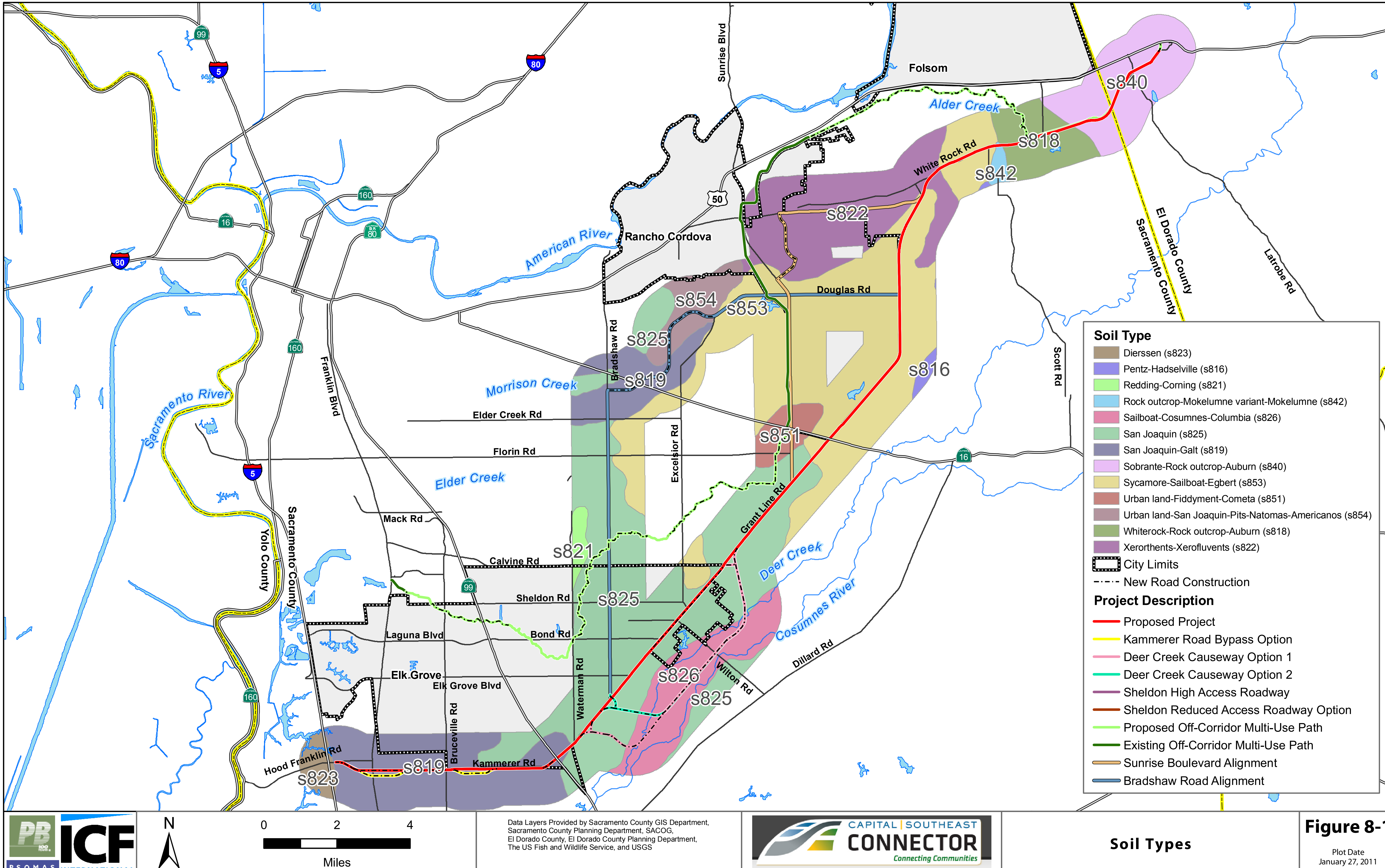
The western portion of the project area is located within MLRA 17, the Sacramento and San Joaquin Valleys. The soils are nearly level and are alluvial, occurring on low terraces, fans, floodplains, and basins. Soil textures are generally clayey to loamy sand. Soils in the northern portion of the study area are organic. Soils are very deep. Erosion hazard is slight to none, runoff is very slow, and soil expansiveness is low to high, depending on geographic location and texture.

Expansive Soils

Expansive soils shrink and swell with wetting and drying. The shrink-swell capacity of expansive soils can result in differential movement beneath foundations/pavements. Based on Sacramento County soil survey data, the project alignment is mainly underlain by San Joaquin silt in lowlands near the south end and sand/gravel/dredge tailings from mining activity/loam in the higher elevations near the north end (Natural Resources Conservation Service 2006). In addition, the depth to water is shallow and significant shrink-swelling would not be expected. Based on this information, the likelihood of expansive soils to be present at the site is low (Natural Resources Conservation Service 2006).

Tsunami, Seiches, and Flooding

The project alignment is not located near large bodies of water, so the threat of tsunami, seiches, or other seismically induced flooding is unlikely.



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PB PSOMAS | ICF INTERNATIONAL

Data Layers Provided by Sacramento County GIS Department, Sacramento County Planning Department, SACOG, El Dorado County, El Dorado County Planning Department, The US Fish and Wildlife Service, and USGS

CAPITAL | SOUTHEAST CONNECTOR Connecting Communities

Soil Types

Figure 8-1

Plot Date
January 27, 2011

Naturally Occurring Asbestos

Asbestos is a commercial term used to identify a group of six silicate minerals (chrysotile, crocidolity, amosite, tremolite, actinolite, and anthophyllite) that are fibrous and contain several properties that made them very useful in manufactured products and industrial processes during the 20th century. In addition to the silicate group above, some amphiboles such as richterite and winchite are known or suspected of being a health risk (Appendix D). Because of health concerns related to asbestos exposure, the use of asbestos has decreased significantly. Asbestos is regulated by state, federal, and international regulatory agencies based on its classification as a known human carcinogen. Naturally occurring asbestos in the vicinity of the project area is addressed in Chapter 4, "Air Quality."

8.2.1.7 Paleontological Resources

Paleontology is a science that looks at the life of past geological periods as known from fossil remains. Paleontological resources include fossil remains, as well as fossil localities and formations that have produced fossil material in other nearby areas. These resources can be important educational resources, and are they are not renewable once destroyed. Geologic history and conditions are relevant to the evaluation of paleontological resources because they influence the type of fossils that may be found (i.e., aquatic vs. terrestrial organisms) and the probability that any prehistoric remains would be subject to fossilization rather than normal decay. The depositional history of the Sacramento Valley during the late Quaternary included several cycles related to fluctuations in regional and global climate that caused alternating periods of deposition followed by periods of subsidence and erosion. Therefore, the Sacramento Valley during the Pleistocene consisted of stages of wetlands and floodplain creation as tidewaters rose in the valley from the west, areas of erosion when tidewaters receded, and alluvial fan deposition from streams emanating from the adjacent mountain ranges (Atwater 1982).

A search of the University of California Museum of Paleontology collections database [1] identified several locations within Sacramento County and El Dorado County where paleontological resources have been found, including fossils recovered from the Teichert mining operation in the study area vicinity. The finds date primarily to the late Pleistocene and include fish, frogs, snakes, turtles, and plants. Other fossil remains have included bison, horse, camel, mammoth, ground sloth, and wolf.

8.2.2 Regulatory Setting

8.2.2.1 Federal

Clean Water Act 402/National Pollutant Discharge Elimination System

The CWA is discussed in detail in Chapter 10, "Hydrology and Water Quality." However, because CWA Section 402 is directly relevant to excavation, additional information is provided below.

Amendments in 1987 to the CWA added Section 402(p), which establishes a framework for regulating municipal and industrial stormwater discharges under the National Pollutant Discharge Elimination System (NPDES) program. The EPA delegated the authority for the NPDES program in California to the SWRCB, which is implemented by the state's nine RWQCBs. Under the NPDES Phase

[1] University of California Museum of Paleontology. 2010. Berkeley Natural History Museums. Collections search. Available: http://ucmpdb.berkeley.edu/Browse_US_states2.html. Access date: October 10, 2010.

II Rule, construction activity disturbing 1 acre or more must obtain coverage under the state's General Construction Permit (Order 2009-0009-DWQ). General Construction Permit applicants are required to prepare a notice of intent and a storm water pollution prevention plan (SWPPP), and to implement and maintain BMPs to avoid releasing sediment and contaminants into surface waters as a result of construction activities, including earthwork. The SWPPP must contain a visual monitoring program; a chemical monitoring program for "non-visible" pollutants to be implemented if there is a failure of BMPs; and a sediment monitoring plan if the site discharges directly to a water body listed on the Section 303(d) list for sediment.

International Building Code

The design and construction of engineered facilities in California must comply with the requirements of the International Building Code (IBC) (International Code Council 2006) and the adoptions to that code adopted by the State of California (see "California Building Standards Code" below).

8.2.2.2 State

Seismic Hazards Mapping Act

Like the Alquist-Priolo Act, the Seismic Hazards Mapping Act of 1990 (PRC 2690–2699.6) is intended to reduce damage resulting from earthquakes. While the Alquist-Priolo Act addresses surface fault rupture, the Seismic Hazards Mapping Act addresses other earthquake-related hazards, including strong ground shaking, liquefaction, and seismically induced landslides. Its provisions are similar in concept to those of the Alquist-Priolo Act: the State of California is charged with identifying and mapping areas at risk of strong ground shaking, liquefaction, landslides, and other corollary hazards, and cities and counties are required to regulate development within mapped seismic hazard zones.

Under this act, permit review is the primary mechanism for local regulation of development. Specifically, cities and counties are prohibited from issuing development permits for sites in seismic hazard zones until appropriate site-specific geologic or geotechnical investigations have been carried out, and measures to reduce potential damage have been incorporated into the development plans. Geotechnical investigations conducted within seismic hazard zones must incorporate standards specified by California Geological Survey Special Publication 117 (California Division of Mines and Geology 1997).

California Building Standards Code

The State of California's minimum standards for structural design and construction are set forth in the California Building Standards Code (CBSC) (24 CCR). The CBSC is based on the IBC, which is used widely throughout United States (generally adopted on a state-by-state or district-by-district basis) but has been modified for California conditions with numerous, more detailed or more stringent regulations. The CBSC requires that "classification of the soil at each building site will be determined when required by the building official" and that "the classification will be based on observation and any necessary test of the materials disclosed by borings or excavations." In addition, the CBSC states that "the soil classification and design-bearing capacity will be shown on the (building) plans, unless the foundation conforms to specified requirements." The CBSC provides standards for various aspects of construction, including excavation, grading, and earthwork construction; fills and embankments; expansive soils; foundation investigations; and liquefaction potential and soil strength loss. In accordance with California law, certain aspects of the proposed project would be required to comply with all provisions of the CBSC.

The California Building Code (CBC) requires extensive geotechnical analysis and engineering for grading, foundations, retaining walls, and other structures, and include criteria for seismic design.

Paleontological Resources

No state or local agencies have specific jurisdiction over paleontological resources. However, CEQA Guidelines Section 15064.5(a)(3) provides protection for paleontological resources by requiring that they be identified and mitigated as historical resources. PRC 21000 et seq. requires public agencies and private interests to identify the potential adverse effects or environmental consequences of their proposed projects to any object or site important to the scientific annals of California (Division 1, PRC 020.1[b]). This is interpreted to include fossils and other paleontological resources.

8.2.2.3 Local

Geotechnical Investigations

Local jurisdictions in the project area typically regulate construction activities through a process that may require conducting a site-specific geotechnical investigation. The purpose of a site-specific geotechnical investigation is to provide a geologic basis for the development of appropriate construction design. Geotechnical investigations typically assess bedrock and Quaternary geology, geologic structure, soils, and the previous history of excavation and fill placement for design of earthworks and foundations for proposed structures.

Local Grading and Erosion Control Ordinances

The counties and cities in the project area have grading and erosion control ordinances. These ordinances are intended to control erosion and sedimentation caused by construction activities. A grading permit is typically required for construction-related projects. As part of the permit, project applicants usually must submit a grading and erosion control plan, vicinity and site maps, and other supplemental information. Standard conditions in the grading permit include a description of BMPs similar to those contained in a SWPPP.

General Plans

Cities and counties have stated goals, objectives, and policies in their respective general plans related to geology, soils, and paleontology. The proposed project must comply with the goals, objectives, and policies stated in these plans. Table 8-1 lists the specific general plan elements and sections that apply to geology, soils, and paleontology in the project area.

Revised Table 8-1. Applicable Local General Plans

Jurisdiction	Document	Section
El Dorado County	General Plan (2004)	Land Use and Conservation and Open Space Elements
Sacramento County	General Plan (2011)	Land Use and Conservation Elements
City of Elk Grove	General Plan (2009)	Historic Resources and Conservation and Air Quality Elements
City of Folsom	General Plan (1993)	Land Use Element
City of Rancho Cordova	General Plan (2006a)	Cultural and Historic Resources and Natural Resources Elements

Sources: City and county general plans as noted.

8.3 Impact and Mitigation Discussion

8.3.1 Thresholds of Significance

Appendix G of the State CEQA Guidelines provides guidance for evaluation of project effects on geology, soils, and paleontological resources. Based on these guidelines, the proposed project would have a significant impact if it would:

- expose people or structures to 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;
- expose people or structures to major geologic hazards that could result in loss, injury, or death related to strong seismic ground shaking or seismic-related ground failure, including liquefaction or landslides;
- result in development on a geologic unit or soil that is unstable or that would become unstable as a result of the proposed project and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse;
- result in substantial soil erosion or the loss of topsoil;
- result in development on expansive soil, as defined in the UBC (International Conference of Building Officials 1997), creating substantial risks to life or property; or
- directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

8.3.2 Approach and Methodology

The evaluation of the geology, soils, and paleontology impacts assumes that the JPA or local jurisdiction will ensure that the project design and construction conforms to the latest IBC standards, CBSC standards, Caltrans seismic design criteria, county and city general plan seismic standards, county and city grading ordinances, and NPDES requirements, as appropriate for site-specific project components.

8.3.3 Impacts of the Proposed Project

This section describes potential impacts on geology, soils, and paleontological resources that could result from the project and mitigation to reduce these effects.

Impact GEO-1: Potential Structural Damage and Injury Caused by Fault Rupture

Ground rupture is caused when an earthquake event along a fault creates rupture at the surface. No known active faults exist in the project vicinity. The proposed project will need to be designed and constructed to withstand moderate to strong earthquake-shaking as specified in Caltrans Standards or 2007 CBC for Seismic Zone 3. Therefore, the risk of fault rupture is low. This impact is less than significant. No mitigation is necessary.

Impact GEO-2: Potential Structural Damage and Injury from Ground Shaking

The project area is located in a region with low potential for ground shaking. The proposed project will need to be designed and constructed to withstand moderate to strong earthquake-shaking as specified in Caltrans Standards or 2007 CBC for Seismic Zone 3. Therefore, the risk of fault rupture is low. This impact is less than significant. No mitigation is necessary.

Impact GEO-3: Potential Structural Damage and Injury from Development on Materials Subject to Liquefaction

Based on the low existing ground-shaking hazard, sediment characteristics of the soils, and depth to groundwater, the liquefaction hazard to construction workers and users of project facilities is expected to be moderate. However, the geotechnical investigation determined that soil types in the study area may be conducive to liquefaction. The impact is considered significant. Mitigation Measures GEO-1 and GEO-2, which include implementing the recommendations of the geotechnical investigation to conduct site-specific geotechnical investigations, would reduce this impact to a less-than-significant level.

Mitigation Measure GEO-1: Implement Seismic Design Standards into Site-Specific Project Design

Prior to construction, the JPA or local jurisdictions will ensure that the project is designed and constructed in compliance with the latest CBSC standards, Caltrans seismic design criteria, and county and city general plan seismic standards to ensure that all project components can withstand moderate to strong earthquake-shaking.

Mitigation Measure GEO-2: Conduct Site-Specific Geotechnical Investigations and Implement the Recommendations

Prior to construction, the JPA or local jurisdictions will prepare project-specific geotechnical investigations to guide the design of earthworks and foundations for proposed structures. Based on the subsurface conditions expressed through geotechnical investigation, the JPA and local jurisdictions, in conjunction with soil scientists or engineers, will ensure that specific project elements are designed to accommodate the effects of liquefaction of expansive soils. For roadways and bridges, subsurface borings at regular intervals along proposed roadways and in the vicinity of proposed bridges are recommended as part of the geotechnical evaluations.

If the site-specific geotechnical investigations find that liquefiable soils, soils susceptible to seismically induced settlement, or expansive soils are present at any location where project activities would occur, corrective actions will be taken. These actions may include—depending on the extent and depth of susceptible soils and findings of the geotechnical evaluations—removal and replacement of soils; on-site densification; grouting; and design of special foundations or other similar measures. All of these measures reduce pore water pressure during ground shaking by making the soil more dense or improving its drainage capacity (Johansson 2000). The JPA or local jurisdictions will ensure that their contractors implement one or more of these measures in consultation with a qualified engineer before beginning and during construction.

The JPA or local jurisdictions will ensure, as a contract specification, that their contractors implement the recommendations of site-specific geotechnical reports pertaining to site clearing and preparation, organic removal, engineered fill placement, trench backfilling, foundation design, soundwall systems, exterior flatwork, pavement design, and site drainage to minimize any adverse effects associated with runoff, erosion, and sedimentation.

Impact GEO-4: Potential Structural Damage as a Result of Development on Expansive Soils

The shrink-swell capacity of expansive soils can result in differential movement beneath foundations/pavements. Although the likelihood of expansive soils in the study area is low, if present beneath planned project components, they could compromise the structural integrity of proposed new facilities (including roadways, bridges, and associated features). This is considered a significant impact. As described above, Mitigation Measures GEO-1 and GEO-2, which include implementing the recommendation of the geotechnical investigation to conduct site-specific geotechnical investigations, would reduce this impact to a less than significant level.

Impact GEO-5: Potential Accelerated Runoff, Erosion, and Sedimentation from Construction Activities

Grading, excavation, removal of vegetation cover, and loading activities associated with construction activities could temporarily increase runoff, erosion, and sedimentation. Construction activities also could result in soil compaction and wind erosion effects that could adversely affect soils and reduce the revegetation potential at construction sites and staging areas. This is considered a significant impact. However, the JPA or local jurisdictions will require grading and construction contractors to comply with the applicable county or city grading ordinances as a contract specification, which would minimize any adverse effects associated with erosion and sedimentation. Mitigation Measure HYD-1: Obtain and Implement the Requirements of the NPDES Construction General Permit, described in Chapter 10, Hydrology and Water Quality, would further reduce the impact to less than significant.

Impact GEO-6: Potential for Damage to or Destruction of Previously Undiscovered Buried Paleontological Sites

Project construction and staging activities could disturb buried, undiscovered paleontological sites. Improvements and modifications occurring within existing rights-of way would have less potential to encounter previously unknown resources relative to those in undisturbed areas; however, any work entailing deep ground disturbance would have the potential to encounter paleontological resources. This is considered a significant impact. Mitigation Measure GEO-3 would reduce this impact to a less than significant level.

Mitigation Measure GEO-3: Stop Work if Paleontological Resources are Discovered During Construction and Implement Recommendations of Paleontologist

If paleontological resources (i.e., fossils) are discovered during ground-disturbing activities, the JPA or local jurisdictions will ensure that their contractors notify the JPA or local jurisdictions responsible for project implementation, and stop work in that area and within 100 feet of the find until a qualified paleontologist can assess the significance of the find and develop appropriate treatment measures. Treatment measures will be made in consultation with the JPA or local jurisdictions and would include the following steps to be taken by a qualified paleontologist:

- Conduct a paleontological survey of the area before continuing with construction.
- If construction could encounter significant paleontological resources, monitor construction in the area for the purpose of ensuring that construction does not destroy resources before they can be evaluated
- Salvage, curate, and preserve significant paleontological resources to meet professional standards.

8.3.4 Impacts of the Off-Corridor Multi-Use Path Alternative

Impact GEO-1: Potential Structural Damage and Injury Caused by Fault Rupture

There are no known active faults in the project vicinity and the risk of fault rupture is low. This impact is less than significant.

Impact GEO-2: Potential Structural Damage and Injury from Ground Shaking

There are no known active faults in the project vicinity and the risk of groundshaking is low. This impact is less than significant.

Impact GEO-3: Potential Structural Damage and Injury from Development on Materials Subject to Liquefaction

Based on the low existing ground-shaking hazard, sediment characteristics of the soils, and depth to groundwater, the liquefaction hazard to construction workers and users of project facilities is expected to be moderate. This impact is considered significant. As described above, Mitigation Measures GEO-1 and GEO-2 would reduce this impact to a less-than-significant level.

Impact GEO-4: Potential Structural Damage as a Result of Development on Expansive Soils

Although the likelihood of expansive soils is low, if present in the study area, they could compromise the structural integrity of proposed new facilities. This is considered a significant impact. As described above, Mitigation Measures GEO-1 and GEO-2 would reduce this impact to a less-than-significant level.

Impact GEO-5: Potential Accelerated Runoff, Erosion, and Sedimentation from Construction Activities

Construction activities could temporarily increase runoff, erosion, and sedimentation or result in soil compaction and wind erosion effects. This alternative would require construction of large areas of new pathway, often near existing drainages and creeks, thereby increasing the potential for these effects. This is considered a significant impact. However, the JPA or local jurisdictions will require grading and construction contractors to comply with the applicable county or city grading ordinances as a contract specification, which would minimize any adverse effects associated with erosion and sedimentation. Mitigation Measure HYD-1: Obtain and Implement the Requirements of the NPDES Construction General Permit, described in Chapter 10, Hydrology and Water Quality, would further reduce the impact to less than significant.

Impact GEO-6: Potential for Damage to or Destruction of Previously Undiscovered Buried Paleontological Sites

Project construction and staging activities could disturb buried, undiscovered paleontological sites. Additionally, portions of this alternative would require construction of new pathway, thereby increasing the potential for damage or destruction of unique paleontological resources, although the depth of construction would be less than roadway construction. The impact would be significant. As described above, Mitigation Measure GEO-3 would reduce this impact to a less than significant level.

8.3.5 Impacts of the Project Options

There would not be any additional adverse effects on geology, soils or paleontology as a result of any of the design options. Likewise, no geologic or seismic factors are anticipated to have adverse effects on any of the design options. There is no differentiation between the design options with respect to geologic or seismic conditions.

8.3.5.1 Kammerer Road Bypass Option

Impact GEO-1: Potential Structural Damage and Injury Caused by Fault Rupture

There are no known active faults in the project vicinity and the risk of fault rupture is low. The impact is less than significant.

Impact GEO-2: Potential Structural Damage and Injury from Ground Shaking

There are no known active faults in the project vicinity and the risk of groundshaking is low. The impact is less than significant.

Impact GEO-3: Potential Structural Damage and Injury from Development on Materials Subject to Liquefaction

Based on the low existing ground-shaking hazard, sediment characteristics of the soils, and depth to groundwater, the liquefaction hazard to construction workers and users of project facilities is expected to be moderate. This impact is considered significant. As described above, Mitigation Measures GEO-1 and GEO-2 would reduce this impact to a less-than-significant level.

Impact GEO-4: Potential Structural Damage as a Result of Development on Expansive Soils

Although the likelihood of expansive soils is low, if present in the Kammerer Bypass area, they could compromise the structural integrity of proposed new facilities (including roads). This is considered a significant impact. As described above, Mitigation Measures GEO-1 and GEO-2 would reduce this impact to a less-than-significant level.

Impact GEO-5: Potential Accelerated Runoff, Erosion, and Sedimentation from Construction Activities

Construction activities could temporarily increase runoff, erosion, and sedimentation or result in soil compaction and wind erosion effects. Portions of this option would require construction of new roadway, thereby increase the potential for these effects. This is considered a significant impact. However, the JPA or local jurisdictions will require grading and construction contractors to comply with the applicable county or city grading ordinances as a contract specification, which would minimize any adverse effects associated with erosion and sedimentation. Mitigation Measure HYD-1: Obtain and Implement the Requirements of the NPDES Construction General Permit, described in Chapter 10, Hydrology and Water Quality, would further reduce the impact to less than significant.

Impact GEO-6: Potential for Damage to or Destruction of Previously Undiscovered Buried Paleontological Sites

Project construction and staging activities could disturb buried, undiscovered paleontological sites. Additionally, portions of this option would require construction of new roadway, thereby increasing the potential for damage or destruction of unique paleontological resources. The impact would be significant. As described above, Mitigation Measure GEO-3 would reduce this impact to a less than significant level.

8.3.5.2 Deer Creek Causeway Options

Impact GEO-1: Potential Structural Damage and Injury Caused by Fault Rupture

There are no known active faults in the project vicinity and the risk of fault rupture is low. This impact is less than significant.

Impact GEO-2: Potential Structural Damage and Injury from Ground Shaking

There are no known active faults in the project vicinity and the risk of groundshaking is low. This impact is less than significant.

Impact GEO-3: Potential Structural Damage and Injury from Development on Materials Subject to Liquefaction

Based on the low existing ground-shaking hazard, sediment characteristics of the soils, and depth to groundwater, the liquefaction hazard to construction workers and users of project facilities is expected to be moderate. This impact is considered significant. As described above, Mitigation Measures GEO-1 and GEO-2 would reduce this impact to a less-than-significant level.

Implementation of this option would not reduce or avoid any impacts of the proposed project.

Impact GEO-4: Potential Structural Damage as a Result of Development on Expansive Soils

Although the likelihood of expansive soils is low, if present in the study area, they could compromise the structural integrity of proposed new facilities. This is considered a significant impact. As described above, Mitigation Measures GEO-1 and GEO-2 would reduce this impact to a less-than-significant level.

Impact GEO-5: Potential Accelerated Runoff, Erosion, and Sedimentation from Construction Activities

Construction activities could temporarily increase runoff, erosion, and sedimentation or result in soil compaction and wind erosion effects. This option would require major construction across Deer Creek and within the Cosumnes River watershed, thereby increasing the potential for these effects. This is considered a significant impact. However, the JPA or local jurisdictions will require grading and construction contractors to comply with the applicable county or city grading ordinances as a contract specification, which would minimize any adverse effects associated with erosion and sedimentation. Mitigation Measure HYD-1: Obtain and Implement the Requirements of the NPDES Construction General Permit, described in Chapter 10, Hydrology and Water Quality, would further reduce the impact to less than significant.

Impact GEO-6: Potential for Damage to or Destruction of Previously Undiscovered Buried Paleontological Sites

Project construction and staging activities could disturb buried, undiscovered paleontological sites. Additionally, this option would require construction of new roadway segments and installation of deep buried support structures for above-grade components, thereby increasing the potential for damage or destruction of unique paleontological resources. The impact would be significant. As described above, Mitigation Measure GEO-3 would reduce this impact to a less than significant level.

8.3.5.3 Sheldon Reduced Access Roadway Option

Impact GEO-1: Potential Structural Damage and Injury Caused by Fault Rupture

There are no known active faults in the project vicinity and the risk of fault rupture is low. This impact is less than significant.

Impact GEO-2: Potential Structural Damage and Injury from Ground Shaking

There are no known active faults in the project vicinity and the risk of groundshaking is low. This impact is less than significant.

Impact GEO-3: Potential Structural Damage and Injury from Development on Materials Subject to Liquefaction

Based on the low existing ground-shaking hazard, sediment characteristics of the soils, and depth to groundwater, the liquefaction hazard to construction workers and users of project facilities is expected to be moderate. This impact is considered significant. As described above, Mitigation Measures GEO-1 and GEO-2 would reduce this impact to a less-than-significant level.

Impact GEO-4: Potential Structural Damage as a Result of Development on Expansive Soils

Although the likelihood of expansive soils is low, if present in the study area, they could compromise the structural integrity of proposed new facilities. This is considered a significant impact. As described above, Mitigation Measures GEO-1 and GEO-2 would reduce this impact to a less-than-significant level.

Impact GEO-5: Potential Accelerated Runoff, Erosion, and Sedimentation from Construction Activities

Construction activities could temporarily increase runoff, erosion, and sedimentation or result in soil compaction and wind erosion effects. This option could require construction some new roadway, thereby increasing the potential for these effects. This is considered a significant impact. However, the JPA or local jurisdictions will require grading and construction contractors to comply with the applicable county or city grading ordinances as a contract specification, which would minimize any adverse effects associated with erosion and sedimentation. Mitigation Measure HYD-1: Obtain and Implement the Requirements of the NPDES Construction General Permit, described in Chapter 10, Hydrology and Water Quality, would further reduce the impact to less than significant. Implementation of this option would not reduce or avoid any impacts of the proposed project.

Impact GEO-6: Potential for Damage to or Destruction of Previously Undiscovered Buried Paleontological Sites

Project construction and staging activities could disturb buried, undiscovered paleontological sites. The impact would be significant. As described above, Mitigation Measure GEO-3 would reduce this impact to a less than significant level.

8.3.5.4 Sheldon High Access Roadway Option

Impact GEO-1: Potential Structural Damage and Injury Caused by Fault Rupture

There are no known active faults in the project vicinity and the risk of fault rupture is low. This impact is less than significant.

Impact GEO-2: Potential Structural Damage and Injury from Ground Shaking

There are no known active faults in the project vicinity and the risk of groundshaking is low. This impact is less than significant.

Impact GEO-3: Potential Structural Damage and Injury from Development on Materials Subject to Liquefaction

Based on the low existing ground-shaking hazard, sediment characteristics of the soils, and depth to groundwater, the liquefaction hazard to construction workers and users of project facilities is expected to be moderate. This impact is considered significant. As described above, Mitigation Measures GEO-1 and GEO-2 would reduce this impact to a less-than-significant level.

Impact GEO-4: Potential Structural Damage as a Result of Development on Expansive Soils

Although the likelihood of expansive soils is low, if present in the study area, they could compromise the structural integrity of proposed new facilities. This is considered a significant impact. As described above, Mitigation Measures GEO-1 and GEO-2 would reduce this impact to a less-than-significant level.

Impact GEO-5: Potential Accelerated Runoff, Erosion, and Sedimentation from Construction Activities

Construction activities could temporarily increase runoff, erosion, and sedimentation or result in soil compaction and wind erosion effects. This option could require construction some new roadway, thereby increasing the potential for these effects. This is considered a significant impact. However, the JPA or local jurisdictions will require grading and construction contractors to comply with the applicable county or city grading ordinances as a contract specification, which would minimize any adverse effects associated with erosion and sedimentation. Mitigation Measure HYD-1: Obtain and Implement the Requirements of the NPDES Construction General Permit, described in Chapter 10, Hydrology and Water Quality, would further reduce the impact to less than significant. Implementation of this option would not reduce or avoid any impacts of the proposed project.

Impact GEO-6: Potential for Damage to or Destruction of Previously Undiscovered Buried Paleontological Sites

Project construction and staging activities could disturb buried, undiscovered paleontological sites. The impact would be significant. As described above, Mitigation Measure GEO-3 would reduce this impact to a less than significant level.

Chapter 9
Hazards and Hazardous Materials

9.1 Introduction

This chapter describes the existing environment in the project area and the proposed project's consistency with relevant regulations and policies. This chapter also identifies potential impacts related to hazards and hazardous materials associated with the proposed project and options under the proposed project, and identifies mitigation measures to reduce significant impacts.

The following sources of information were reviewed to prepare the hazards and hazardous materials chapter:

- Draft ISA Capital SouthEast Connector Project (Parsons Brinkerhoff 2010b) (Appendix E)
- Sacramento County General Plan (Sacramento County 2011)
- El Dorado County General Plan (El Dorado County 2004)
- Elk Grove General Plan (City of Elk Grove 2009)
- Folsom General Plan (City of Folsom 1993)
- Rancho Cordova General Plan (City of Rancho Cordova 2006a)

As defined by Section 25501 of the California Health and Safety Code (HSC), hazardous materials are those "that, because of their quantity, concentration, or physical or chemical characteristics, pose a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment."

Hazardous waste is a subset of hazardous materials and defined as

> [W]astes 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 (HSC 101075).

Hazardous materials can be categorized as nonradioactive chemical materials, radioactive materials, and biohazardous materials. Nonradioactive chemical materials typically fall within the definitions of hazardous materials and hazardous waste, as defined above.

9.2 Environmental Setting

9.2.1 Existing Conditions

Hazardous materials can be found in naturally occurring materials such as asbestos found in rock and soil. They can be found in the ground or in groundwater as a legacy of prior methods of disposing of hazardous materials; and they can be a by-product of current business operations.

Worker health and safety and public safety are key issues when dealing with hazardous materials that may affect human health and the environment.

9.2.1.1 Sites Contaminated by Hazardous Materials

Numerous sites throughout the SACOG region have become contaminated over the years by the dumping of hazardous waste, both legally and illegally. These wastes have affected groundwater and soils throughout the area. Until the 1980s, the disposal of most chemical wastes on land was unregulated. As a result, many landfills and industrial sites became contaminated with toxic wastes. The largest and most contaminated of these became designated by the federal government as Superfund sites. The EPA maintains the list of national Superfund sites. In the state of California, the California Department of Toxic Substances Control (DTSC), which is part of the California Environmental Protection Agency (Cal/EPA), also maintains a list of contaminated sites.

9.2.1.2 Hazardous Waste Generation and Management

There are four general categories of waste management: source reduction, recycling, treatment, and residuals disposal. All of these activities can occur on site at the location where they are generated. Recycling, treatment, and disposal also can occur off site and would require additional intermediate support not only to store but also to transport the wastes.

Transportation projects, including the Capital SouthEast Connector Project, can generate hazardous wastes during construction activities. Common examples include oil, transmission fluids, fuels, solvents, and adhesives. Unless standard precautions are taken, these wastes can be released into the environment.

The potential harm that hazardous waste can cause to people and the environment has warranted concern of both the national and local governments on the safe transport of hazardous materials. Because hazardous materials are transported primarily on highways and local roads, there is greater public exposure to these materials.

9.2.1.3 Additional Sources of Hazardous Materials

A variety of sources of hazardous materials could result from the construction of the Capital SouthEast Connector. Unless precautions are taken to stabilize or remove these materials, construction can inadvertently release them by disturbing their existing states. Some of these materials are described below.

- **Transformers:** Pole-mounted, pad-mounted, and electrical transformers may be removed or relocated during demolition and/or construction. Old transformers have the potential to contain hazardous materials, specifically polychlorinated biphenyls (PCBs), in the oil. Most transformers with PCBs were changed out in the 1980s; however, it is possible that isolated units were missed.
- **Aerially deposited lead:** Aerially deposited lead (ADL) is known to exist in soils and attributed to the historic use of leaded gasoline. Soils along routes that have had high vehicle emissions from large traffic volumes or congestion during the time period when leaded gasoline was in use (generally prior to 1986) are of concern. Typically, ADL is found in the top two feet of soil along the unpaved shoulders of roadways.

- **Pavement Markings:** Some pavement markings, including yellow traffic stripes, are present along many local roadways. These markings may contain heavy metals such as lead and chromium at concentrations in excess of the hazardous waste thresholds established by the CCR and may produce toxic fumes when heated.
- **Asbestos-Containing Materials and Lead-Based Paint:** *Asbestos* is a commercial term used to identify a group of six fibrous silicate minerals that contain several properties that made the mineral very useful in manufactured products and industrial processes during the 20th century (California Geological Survey 2006). Exposure to asbestos may result in asbestos fibers being inhaled or ingested, which over time may result in damage to the lungs or membranes that cover the lungs, leading to illness or even death. Because of these health concerns related to asbestos exposure, the use of asbestos has decreased significantly. Asbestos is regulated by state and federal regulatory agencies and is known as a human carcinogen. The presence of naturally occurring asbestos (NOA) in the vicinity of the proposed and options is addressed in Chapter 4, "Air Quality."

  Structures, including buildings and bridges, are located within the proposed project area. Hazardous building materials including lead-based paint (LBP) and asbestos-containing materials (ACMs) may be present. Demolition and/or renovation of buildings and/or bridge structures could expose construction workers to hazardous wastes or materials, including LBP and ACMs during demolition and/or renovation activities.
- **Agricultural Chemicals:** Portions of the proposed project area have historically been used for agricultural activities. A few areas are still active agricultural fields. Activities conducted on agricultural use properties involve the use of agricultural chemicals (including pesticides, insecticides, and herbicides) which may have contaminated soils. Runoff from these properties may contain agricultural chemicals, which may have flowed on to the roadways and into drainages.
- **Railroad Right of Way:** Railroads are viewed as potential areas of hazardous materials concern due to soil contamination resulting from past weed abatement and wooden-tie treatment practices and spillage. Potentially contaminated soils are possible in areas within and adjacent to the Central California Traction Company (CCT), Southern Pacific Transportation Company (SPT), and the Union Pacific Railroad Company (UPRR) railroad right of way.
- **Dewatering Activities:** Construction of the proposed project will require excavation below the ground surface for support structures or foundations secured deep into the ground. Depending on the location, trenching and excavation associated with these projects may reach depths that can expose the water table and create a direct path to the groundwater basin for contaminants to enter the groundwater system. Primary construction-related contaminants that could thereby reach groundwater would include oil and grease, and construction-related hazardous materials and dewatering effluent.

  Absent controls, dewatering operations may temporarily impact existing beneficial uses of municipal and domestic supply, freshwater replenishment, and groundwater recharge in surface waters. Similarly, impacts on surface waters include discharge of pollutants and groundwater may be removed for construction purposes.

9.2.2 Regulatory Setting

Hazardous materials and hazardous wastes are regulated by various federal and state laws. These include not only specific statutes governing hazardous waste, but also a variety of laws regulating air and water quality, human health, and land use.

9.2.2.1 Federal

The primary federal laws regulating hazardous wastes/materials are the Resource Conservation and Recovery Act of 1976 (RCRA) and the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA). The purpose of CERCLA, often referred to as Superfund, is to clean up contaminated sites so that public health and welfare are not compromised. RCRA provides for "cradle to grave" regulation of hazardous wastes. Other federal laws include:

- Community Environmental Response Facilitation Act of 1992,
- Clean Water Act,
- Clean Air Act,
- Safe Drinking Water Act,
- Occupational Safety and Health Act,
- Atomic Energy Act,
- Toxic Substances Control Act, and
- Federal Insecticide, Fungicide, and Rodenticide Act.

In addition to the acts listed above, Executive Order 12088 (Federal Compliance with Pollution Control) mandates that necessary actions be taken to prevent and control environmental pollution when federal activities or federal facilities are involved.

The EPA is the principal federal regulatory agency responsible for the safe use and handling of hazardous materials. The key federal regulations pertaining to hazardous wastes are described below. Other applicable federal regulations are contained primarily in Titles 29, 40, and 49 of the CFR.

Resource Conservation and Recovery Act of 1976

The RCRA enables the EPA to administer a regulatory program that extends from the manufacture of hazardous materials to their disposal, thereby regulating the generation, transport, treatment, storage, and disposal of hazardous waste at all facilities and sites in the nation.

Comprehensive Environmental Response, Compensation, and Liability Act of 1980

The CERCLA, also known as Superfund, was enacted by Congress in 1980 to facilitate the cleanup of the nation's toxic waste sites. In 1986, Superfund was amended by the Superfund Amendment and Reauthorization Act Title III (SARA Title III), also called the Emergency Planning and Community Right-to-Know Act or Community Right-to-Know laws.

SARA Title III states that past and present owners of land contaminated with hazardous substances can be held liable for the entire cost of the cleanup even if the material was dumped illegally when the property was under different ownership. These regulations also establish reporting requirements that provide the public with important information on hazardous chemicals in their communities to enhance community awareness of chemical hazards and facilitate development of state and local emergency response plans.

Occupational Safety and Health Standards

Regulations for asbestos are contained in OSHA Standards (29 CFR). Regulations for lead-based paint are contained in the Lead-Based Paint Elimination Final Rule (24 CFR 33), governed by the U.S. Department of Housing and Urban Development.

Hazardous Materials Transportation Act

The transportation of hazardous materials is regulated by the Hazardous Materials Transportation Act (HMTA), which is administered by the Research and Special Programs Administration of the U.S. DOT. HMTA provides DOT with a broad mandate to regulate the transport of hazardous materials, with the purpose of adequately protecting the nation against risks to life and property that are inherent in the commercial transportation of hazardous materials. The HMTA governs the safe transportation of hazardous materials by all modes except for bulk transportation by water. The Research and Special Programs Administration carries out these responsibilities by prescribing regulations and managing a user-funded grant program for planning and training grants for states and Indian tribes. DOT regulations that govern the transportation of hazardous materials apply to any person who transports, ships, causes to be transported or shipped, or is involved in any way with the manufacture or testing of hazardous materials packaging or containers. DOT regulations pertaining to the actual movement govern every aspect of the movement, including packaging, handling, labeling, marking, placarding, operational standards, and highway routing. Additionally, DOT is responsible for developing curricula to train for emergency response and administers grants to states and Indian tribes for ensuring the proper training of emergency responders. HMTA was enacted in 1975 and was amended and reauthorized in 1990, 1994, and 2005.

9.2.2.2 State

California hazardous materials and wastes regulations are equal to or more stringent than federal regulations. The EPA has granted the state primary oversight responsibility to administer and enforce hazardous waste management programs. State regulations require planning and management to ensure that hazardous materials are handled, stored, and disposed of properly to reduce risks to human health and the environment. Several key state laws pertaining to hazardous materials and wastes are discussed below.

Title 22 of the California Code of Regulations

The DTSC regulates hazardous waste under the authority of the federal RCRA of 1976 and the HSC. The State of California has enacted legislation pertaining to the management of hazardous waste that is equivalent to, and in some cases more stringent than, corresponding federal laws and regulations. DTSC, a department of Cal/EPA, is responsible for the enforcement and implementation of hazardous waste laws and regulations. The state hazardous waste regulations are codified in 22 CCR, which addresses hazardous materials and wastes.

The Hazardous Waste Control Law of 1972 is the seminal hazardous waste control law in California. The Hazardous Materials Release Response Plans and Inventory Law of 1986 governs hazardous materials handling, reporting requirements, and local agency oversight programs. Additionally, Section 65962.5 of the California Government Code directs the DTSC to compile a list of all hazardous waste facilities subject to corrective action pursuant to HSC 25187.5 HSC.

Transportation of hazardous materials/wastes is regulated by Caltrans within California (26 CCR). The California Highway Patrol and Caltrans enforce both federal and state regulations and respond with the county fire departments to hazardous materials transportation emergencies. Emergency responses are coordinated as necessary among federal, state, and local government authorities and private persons through a state-mandated emergency response plan.

Health and Safety Code

HSC 19827.5 HSC requires that local agencies not issue demolition or alteration permits until an applicant has demonstrated compliance with notification requirements under applicable federal regulations regarding hazardous air pollutants, including asbestos.

Cal/EPA oversees the regulation and management of hazardous materials on a statewide level through the DTSC. In 1995, legislation went into effect that required Cal/EPA to consolidate permitting, inspection, and enforcement activities in several hazardous material and hazardous waste program areas.

9.2.2.3 Local

Certified Uniform Program Agency

Cal/EPA can delegate responsibility for many of its programs to a local government through certification as a certified uniform program agency (CUPA). A CUPA is responsible for implementing a unified hazardous materials and hazardous waste management program. HSC 25505 requires handlers of hazardous materials to submit business plans to the CUPA if hazardous materials inventories meet or exceed established thresholds. A CUPA can be a county, city, or JPA that demonstrates its ability to administer the program.

- The Sacramento County Environmental Management Department and the El Dorado County Environmental Management Department are the Cal/EPA-designated CUPAs for the project and project options area.

Sacramento County Environmental Management Department, Hazardous Materials Division

The Hazardous Materials Division of the Sacramento County Environmental Management Department (EMD) has been designated by the Cal/EPA as the CUPA for Sacramento County. As the CUPA, the Hazardous Materials Division is responsible for the implementation of the following six statewide environmental programs for Sacramento County:

- underground storage of hazardous substances,
- hazardous materials business plan requirements,
- hazardous waste generator requirements,
- California Accidental Release Prevention (CalARP) program,
- California Uniform Fire Code hazardous materials management plan, and
- aboveground storage tanks (spill prevention, control, and countermeasure [SPCC] plans only).

The Sacramento County EMD regulates more than 30,000 businesses in both incorporated cities and unincorporated areas of Sacramento County. As part of the Sacramento County EMD, the Hazardous Material advisory body has partial regulatory responsibility for the following programs: implementation of hazardous waste generators; under- and aboveground storage tanks; CalARP; solid waste facilities; land uses involving hazardous substances; and medical waste facilities (Sacramento County Environmental Management Department 2008).

El Dorado County Environmental Management Department, Solid Waste and Hazardous Materials Division

The Solid Waste and Hazardous Materials Division of the El Dorado County EMD has been designated by the Cal/EPA as the CUPA for El Dorado County. As the CUPA, the Solid Waste and Hazardous Materials Division is responsible for the implementation of the following six statewide emergency management programs for El Dorado County.

- hazardous materials release response plans and inventories (business plans),
- CalARP program,
- underground storage tank program,
- Aboveground Petroleum Storage Act requirements for SPCC plans,
- hazardous waste generator and on-site hazardous waste treatment (tiered permitting) programs, and
- California Uniform Fire Code (hazardous material management plans and hazardous material inventory statements).

The CUPA is intended to provide relief to businesses complying with the overlapping and sometimes conflicting requirements of formerly independently managed programs.

Fire Protection

Fire stations are typically the first responders to any hazardous material(s) spill incident. Fire suppression, including that relating to hazardous materials, is the responsibility of various fire districts. See Chapter 14, "Public Services and Utilities", for a discussion of local fire protection districts and departments throughout the study area.

Airport Land Use Compatibility Plans and Comprehensive Land Use Plans

SACOG is the designated airport land use commission (ALUC) for Sacramento County. The El Dorado County Transportation Committee has jurisdiction over airport land uses in El Dorado County. An ALUC is an agency established by state law in counties where there is an airport operated for the benefit of the general public. The purpose of the ALUC is to protect public health, safety, and welfare by ensuring the orderly development of airports and the adoption of land use measures that minimize the public's exposure to excessive noise and safety hazards in areas around public airports to the extent that these areas are not already devoted to incompatible uses. The ALUC is responsible for developing and maintaining Airport land use comprehensive plans (ALUCPs) for areas around each airport. City and county zoning and planning are required to conform to the ALUCP unless the city or county governing body specifically overrides the ALUCP by supermajority vote.

General Plans

Cities and counties have stated goals, objectives, and policies in their respective general plans related to hazards and hazardous materials. The proposed project must comply with the goals, objectives, and policies stated in respective city and/or county general plans. Table 9-1 lists the specific general plan elements/sections that apply to hazards and hazardous materials.

Revised Table 9-1. Applicable Local General Plans

Jurisdiction	Document	Section
El Dorado County	General Plan (2004)	Health, Safety, and Noise Elements
Sacramento County	General Plan (2011)	Hazardous Materials Element
City of Elk Grove	General Plan (2009)	Safety Element
City of Folsom	General Plan (1993)	Safety and Hazardous Materials Elements
City of Rancho Cordova	General Plan (2006a)	Safety Element

Sources: City and County general plans as noted.

9.3 Impact and Mitigation Discussion

9.3.1 Thresholds of Significance

Appendix G of the State CEQA Guidelines identifies environmental issues to be considered when determining whether a project could have significant impacts on the environment. The proposed project and/or its options would have a significant impact if it would:

- create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;
- 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;
- emit hazardous emissions or involve handling hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school;
- be located on a site that is included on a list of hazardous materials sites compiled pursuant to California Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment;
- be located within an airport land use plan area or, where such a plan has not been adopted, be within 2 miles of a public or private airport or public or private use airport, and result in a safety hazard for people residing or working in the proposed 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 and where residences are intermixed with wildlands.

9.3.2 Approach and Methods

This analysis is based on the ISA prepared for the proposed project and options. The ISA identified potential contaminant sources and/or recognized environmental conditions (RECs) that may adversely affect the Capital SouthEast Connector project and options. An REC is defined as the

> presence or likely presence of any hazardous substance or petroleum product 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, groundwater, or surface water of the property (ASTM E 1527-05).

The ISA also assessed the potential of encountering hazardous waste and chemically affected soil or groundwater, the potential usage of hazardous materials, and the generation of hazardous waste during construction. The ISA is a screening study conducted to identify potential RECs, determine the appropriate level of any subsequent studies that may be required, and has been prepared with guidance provided in applicable sections of the American Society of Testing and Materials (ASTM) Standard Practice for Environmental Site Assessments (E-1527-05), applicable sections of EPA Standards and Practices for All Appropriate Inquiries (40 CFR 312), and PRC 21092.6. The following steps were taken to establish existing conditions, evaluate the potential for impacts, and evaluate whether project-related activities have the potential to disturb hazardous materials.

9.3.2.1 Environmental Database Search

A limited database search was conducted using an Environmental Data Resources, Inc. (EDR) database dated July 26, 2010. At this stage of analysis for the EIR, only databases for major potential hazardous waste/materials risks were searched to determine the number of potential hazardous waste/materials sites that could affect the proposed project. These databases were searched within a study area of 250 feet from the centerline of the proposed project (500-foot corridor total) and are described as follows.

- **Federal National Priorities List (NPL)/Superfund:** This database lists those sites that pose an immediate public health hazard, and where an immediate response to the discovery was necessary. These listings are also found in the CERCLA database, also known as Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS).
- **State Response Sites (RESPONSE):** This database identifies confirmed release sites where the DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and have high potential risk. This database has replaced the Annual Work Plan (AWP) database. The AWP database is no longer active and previously was maintained by the DTSC to identify known hazardous substance sites targeted for cleanup.
- **State of California Solid Waste Facilities/Landfills (SWF/LF):** The sites listed in this database generally have been identified by the state as accepting solid wastes. The sites can be either active or closed.

Ranking

Hazardous waste and materials impacts were analyzed based on results of the EDR database search. Based on the result of the analysis, eight hazardous waste/materials sites were identified and are assumed to have potential impacts on the Capital Southeast Connector project. As a result, these sites are considered sites of concern and were evaluated and ranked as posing a high, medium, or low risk to the proposed project, as shown in Table 9-2.

Table 9-2. Sites of Concern Ranking

Rank	Represents
High	A site with contaminated soil or groundwater (an open case site) still under investigation to delineate the contamination.
Medium	A site with contaminated soil or groundwater (an open case site) currently undergoing remediation.
Low	A site that is closed with no open cases for soil or groundwater contamination, or a site that does not handle large or specialized hazardous waste and materials.

Source: Initial Site Assessment 2010 (Appendix E).

Environmental Data Resources Results

Table 9-3 lists the EDR sites identified in the ISA prepared for the proposed project (Appendix E) that may have the potential to affect the proposed project, alternatives, and design options. The list of sites includes the site name, address, the database where the site was listed, where within the project area the site is located, and rank. Listed hazardous materials sites were identified within 250-ft. from centerline on either side of the roadway corridor and the Off-Corridor Multi-Use Path.

Because preliminary right-of-way parcel acquisition determinations and engineering designs are not available at this stage of analysis, it is unknown whether a potential hazardous waste or material site will be fully or partially acquired, or whether it will be outside the eventual right-of-way. A determination of which sites will be fully or partially acquired will be made during site-specific environmental analysis.

Proposed Project

The results of the EDR database search identified three potential hazardous waste/materials sites in the proposed project area.

The Super Pallet Recycling (high risk site) is listed on the SWF/LF database, and is located at 10401 Grant Line Road in Elk Grove. According to the ISA, this landfill site is active and operates as a small volume construction and demolition wood debris chipping and grinding business. This landfill site is permitted to receive, process, handle, and dispose of construction, demolition, industrial, and mixed municipal waste. Site assessments are being conducted for this landfill facility to further investigate soil and groundwater contamination that had resulted from leaking underground storage tanks formerly operated by Transcon Lines.

The White Rock Road Disposal Site—North and White Rock Road Disposal Site—South (medium risk sites) are listed on the SWF/LF database, and are located northwest and southwest of the intersection of White Rock Road and Grant Line Road, respectively. Both landfill sites are closed. According to the Draft ISA (Environmental Data Resources 2010) remediation activities are being conducted for soil and groundwater contaminated with trichloroethylene (TCE), petroleum hydrocarbons, heavy metals, and waste oil.

Table 9-3. EDR Database–Identified Hazardous Waste/Material Sites

Site Name	Address	NPL/ Superfund	Response	SWF/LF	Location	Rank
Super Pallet Recycling	10401 Grant Line Road, Elk Grove, CA			X	**Proposed Project**, Bradshaw Road and Sunrise Boulevard Alignment Alternatives	High
Lopez Agricultural Services, Inc.	11499 Florin Road, Sacramento, CA			X	Off-Corridor Multi-Use Path	Low
Aerojet Investments, LTD	11505 Douglas Road, Rancho Cordova, CA		X		Bradshaw Road Alignment Alternative	High
Aerojet LRC Landfill	Aerojet Road off Hwy. 50, Rancho Cordova, CA			X	Off-Corridor Multi-Use Path	Low
Mather Air Force Base	Mather Air Force Base, Rancho Cordova, CA	X		X	Bradshaw Road and Sunrise Boulevard Alignment Alternatives and Off-Corridor Multi-Use Path	High
Elk Grove Disposal Site	Waterman Road/Bond Road, Elk Grove, CA			X	Off-Corridor Multi-Use Path	Low
White Rock Road Disposal—North	White Rock Road/ Grant Line Road, Rancho Cordova, CA			X	**Proposed Project**, Bradshaw Road and Sunrise Boulevard Alignment Alternative	Medium
White Rock Road Disposal—South	White Rock Road/ Grant Line Road, Rancho Cordova, CA			X	**Proposed Project**, Bradshaw Road and Sunrise Boulevard Alignment Alternative	Medium

Source: Environmental Data Resources 2010 (Appendix E).

Notes: NPL = National Priorities List.
SWF/LF = Solid Waste Facilities/Landfills.

Off-Corridor Multi-Use Path

The results of the EDR database search identified four potential hazardous waste/materials sites in the study area for the Off-Corridor Multi-Use Path.

Lopez Agricultural Services, Inc. (low risk site) is listed on the SWF/LF database, and is located at 11499 Florin Road in Sacramento. According to the draft ISA, this landfill site is active and operates as a composting business. This landfill facility is permitted to receive, process, handle, and/or dispose of agricultural, construction, demolition, and green materials waste.

The Aerojet LRC Landfill (low risk site) is listed on the SWF/LF database, and is located southeast of the intersection of Folsom Boulevard and Aerojet Road in Rancho Cordova. This landfill site has been closed since January 1, 1993.

The Elk Grove Disposal Site (low risk site) is listed on the SWF/LF database, and is located slightly southwest of the intersection of Waterman Road and Bond Road in Elk Grove. This landfill site has been closed since January 1, 1980.

The former Mather Air Force Base (MAFB) (high risk site) is listed on the NPL and SWF/LF databases. MAFB encompasses approximately 6,000 acres, and is located southwest of the intersection of US Highway 50 and Sunrise Boulevard. The MAFB was established in 1918 as an air training command base for navigators to learn how to operate warfare systems. Other activities formerly operated at the base consisted of maintenance of vehicles, aircrafts and weapons. The MAFB also included a landfill facility that was used to dispose spent trichloroethylene (TCE) between 1958 and 1966. In 1993, the MAFB was officially closed. According to the DTSC EnviroStor database (accessed September 2010), 89 potentially contaminated sites have been identified on the MAFB. Soil and groundwater are contaminated with TCE, perchloroethylene (PCE), volatile organic compounds (VOC), and hydrocarbons associated with fuels. Site investigation and remediation activities for soil and groundwater contamination are ongoing. Multiple land use restrictions have been placed upon the property.

9.3.2.2 Data Analysis and Report Preparation

The hazardous waste/materials analysis for this program-level EIR was focused on a quantitative comparison of potential impacts from hazardous waste/materials. This analysis was limited to 250 feet from the centerline (500-foot corridor total) of the proposed project and design options. Because preliminary right-of-way parcel acquisition determinations and engineering designs are not available at this stage of analysis, potential contaminant sources identified in the EDR database review are assumed to have a potential impact on the project. During the tiered or project-level environmental documentation phase for the Capital SouthEast Connector, a determination of which sites will be fully or partially acquired will be made, and sites identified by the EDR database search will be assessed.

9.3.3 Impacts of the Proposed Project

This section describes potential impacts related to hazards and hazardous materials that could result from implementation of the proposed project and project options. This evaluation of impacts is at a program level. Components of the proposed project and project options may require further project level environmental review at a later time.

Impact HAZ-1: Potential to Create a Significant Hazard to the Public or the Environment through the Routine Transport, Use, or Disposal of Hazardous Materials

One of the core goals of the proposed project is to facilitate the movement of goods while relieving congestion on heavily used local roadways that currently serve the corridor. This includes the transport of hazardous materials throughout the region. Anticipated growth in the volume of goods movement means that the volume of hazardous materials being moved along these routes is likely to increase as well. However, many of the proposed improvements address both safety and congestion relief. The project will improve traffic safety and reduce potential congestion through its design. This will minimize the potential for hazardous materials spills as a result of transport accidents. This would be considered a less-than-significant impact, based on the transport of hazardous materials under the regulations and oversight previously described. No mitigation is required.

Impact HAZ-2: Potential to 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

Based on the nature of hazardous materials that will be used, stored, or disposed of during construction (e.g., diesel-fueled equipment, contaminated soil) of the proposed project, there is a possibility that upset and accident conditions involving the release of hazardous materials into the environment could occur. Small quantities of potentially toxic substances (e.g., petroleum and other chemicals used to operate and maintain construction equipment) would be used in the project area and transported to and from the area during construction. Accidental releases of small quantities of these substances could contaminate soils and degrade the quality of surface water and groundwater, resulting in a public safety hazard. However, the handling and disposal of these materials would be governed according to regulations enforced by local fire departments, CUPAs, the California Division of Occupational Safety and Health, and the DTSC, as previously discussed. In addition, regulations under the federal CWA require contractors to avoid allowing the release of materials into surface waters as part of their SWPPP and NPDES permit requirements (see Chapter 10, "Hydrology and Water Quality," for a discussion of SWPPPs). Based on the regulatory scheme, this impact would be less than significant, and no mitigation is required.

Impact HAZ-3: Potential to Emit Hazardous Emissions or Involve Handling Hazardous or Acutely Hazardous Materials, Substances, or Waste within 0.25 Mile of an Existing or Proposed School

There are more than 10 elementary, middle, secondary, and post-secondary schools and colleges/university as well as special education and adult schools in the project area, as shown in Figure 14-1. Hazardous materials used in construction of the proposed project in the vicinity of a school, or other sensitive receptors such as hospitals and residences, accidentally could be released. In the event of a hazardous materials spill or release, notification and cleanup operations would be performed in compliance with applicable local government hazardous materials risk management plans. Also, implementation of the SWPPP by contractors would also reduce the potential of a spill incident from occurring. The project will not use large quantities of hazardous materials, and any uses will be transitory. This impact would be less than significant. No mitigation is required.

Impact HAZ-4: Potential to 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, Create a Significant Hazard to the Public or Environment.

As identified above, the proposed project corridor is adjacent to three hazardous materials sites. These three sites may also be included on a list of hazardous materials sites compiled pursuant to Government code Section 65962.5, and will be further evaluated during the tired or project-level environmental document phase of the capital Southeast Connector project. One area of potential or confirmed contamination within the boundaries of the study area defined for the ISA include potential soil and groundwater contamination from leaking underground storage tanks. If disturbance of soil and/or groundwater in these areas are required as part of construction activities, any contaminated soil or groundwater found could represent a significant risk to human health and the environment. This is a significant impact. Implementation of Mitigation Measure HAZ-1 would reduce this impact to a less-than-significant level.

Mitigation Measure HAZ-1: Perform a Phase I Environmental Site Assessment prior to Demolition and Construction Activities and Remediate If Required

Prior to construction, the JPA or local jurisdictions will conduct appropriate environmental review during the tiered or project-level environmental documentation phase, including a Phase I environmental site assessment in conformance with the ASTM Standard Practice E1527-05. All environmental investigation, sampling, and remediation activities associated with properties in the project area will be conducted under a work plan approved by the regulatory oversight agency and will be conducted by a registered environmental assessor (pursuant to 22 CCR 69200) consistent with Phase I and Phase II environmental site assessments as detailed below. The results of any investigation and/or remediation activities conducted in the project area will be included in the project-level EIR.

A Phase I environmental site assessment should, at a minimum, include:

- an on-site visit to determine current conditions (e.g., vegetative dieback, chemical spill residue, presence of above- or underground storage tanks, etc.);
- an evaluation of possible risks posed by neighboring properties;
- interviews with persons knowledgeable about the site's history (e.g., current or previous property owners, property managers, etc.);
- an examination of local planning files to check prior land uses and any permits granted.
- file searches with appropriate agencies (e.g., SWRCB, fire department, county health department) having oversight authority relative to water quality, groundwater and soil contamination;
- examination of historical aerial photography of the site and adjacent properties;
- review of Sanborn-Perris fire insurance maps;
- a review of current and historic topographic maps of the site to determine drainage patterns; and
- an examination of chain-of-title for environmental liens and/or activity and land use limitations.

If the Phase I environmental site assessment indicates likely site contamination, a Phase II environmental site assessment will be performed (also by a registered environmental assessor).

A Phase II environmental site assessment would include:

- collection of original surface and/or subsurface samples of soil, groundwater, and building materials to analyze for quantities of various contaminants; and
- an analysis to determine the vertical and horizontal extent of contamination (if the evidence from sampling shows contamination).

If contamination is uncovered as part of Phase I or II environmental site assessments, remediation will be required. If materials such as ACM, LBP, or other hazardous building materials like mercury switches, or PCB-containing equipment are identified, these materials will be properly managed and disposed of prior to or during the demolition process.

Any contaminated soil identified on a project site must be properly disposed of in accordance with DTSC regulations in effect at the time.

Hazardous wastes generated by the proposed project will be managed in accordance with the California Hazardous Waste Control Law (HSC, Division 20, Chapter 6.5) and the Hazardous Waste Control Regulation (Title 22, CCR, Division 4.5).

If, during construction/demolition of structures, soil or groundwater contamination is suspected the construction/demolition activities will cease and appropriate health and safety procedures will be implemented, including the use of appropriate personal protective equipment (e.g., respiratory protection, protective clothing, helmets, goggles).

Impact HAZ-5: Potential Safety Hazard for People Residing or Working in the Project Area Due to Vicinity of Project Within a Airport Land Use Plan, Public Airport or Private Airstrip.

The project could create a potential hazard because of the number of new or newly expanded transportation project facilities that would lie within 2 miles of an airport.

These airports include: Mosier Airport, Flying B Ranch Airport, and Mather Airport, formerly Mather Air Force Base. Nearly all of these airports have an adopted comprehensive land use compatibility plan (CLUP) or ALUCP. In general, hazards associated with airports can be grouped into two categories: air hazards and ground hazards.

Air hazards jeopardize the safety of an airborne aircraft and expose passengers, pilots, and crews to danger. Examples of air hazards include tall structures, glare-producing objects, bird and wildlife attractants, radio waves from communication centers, or other features that have the potential to interfere with takeoff or landing procedures, posing a risk to aircraft. Ground hazards jeopardize the safety of current and future residents or workers in the vicinity of an airport.

The most obvious ground hazard is a crash, which may produce a serious, immediate risk to those residing in or using areas adjacent to the airport. Most accidents occur during takeoff and landing. Therefore, the higher the density around an airport, including transportation facilities, the higher the risk associated with this type of hazard. This impact is considered to be significant. Implementation of Mitigation Measure HAZ-2 would reduce this impact to a less-than-significant level.

Mitigation Measure HAZ-2: Ensure Compliance with Emergency Response and Evacuation Plans

Prior to project-specific design approval, the JPA or local jurisdiction will confer with SACOG, as the designated ALUC, to ensure that the project is consistent with any CLUP or ALUCP in effect at the time of consideration of the project-specific design.

Impact HAZ-6: Impair Implementation of or Physically Interfere with an Adopted Emergency Response Plan or Emergency Evacuation Plan

During construction, emergency access to and in the vicinity of the proposed project potentially could be affected by lane closures, detours, and construction-related traffic. This is considered a significant impact. However, implementation of Mitigation Measure HAZ-3 would reduce this impact to a less-than-significant level.

Mitigation Measure HAZ-3: Prepare a Traffic Management Plan and Construction Scheduling

The JPA or local jurisdiction, as applicable, will require that the contractor(s) prepare a traffic management plan (TMP) during the final stage of project design to ensure there is no interference with emergency vehicles/services or response/evacuation plans. The plan will list procedures, specific emergency response, and evacuation measures to be followed during emergencies. The contractor will prepare this manual, subject to review and approval by the JPA or local jurisdiction, and distribute the approved plan to contract workers involved in the proposed project before construction and during operation of the project. Implementation of the approved plan will be a requirement of the construction contract. The JPA or local jurisdiction will provide project maps to emergency personnel (e.g., fire protection agencies, police and sheriff departments, California Highway Patrol) that describe construction activities as well as access roads to ensure proper emergency response to all parts of the proposed project.

Standards found in Caltrans' TMP guidelines (2009) outline the basic requirements for such plans. The JPA or local jurisdictions will require the following measures to be implemented as part of project construction.

- The contractor will be required to prepare and implement a TMP that identifies the locations of temporary detours and signage to facilitate local traffic/truck patterns and through-traffic requirements.
- The contractor will provide emergency service providers (i.e., law enforcement, fire protection, and ambulance services) adequate notice of any street closures during the construction phases of the proposed project.
- Construction activities will be coordinated to avoid blocking or limiting auto, truck, bike, and pedestrian access to homes and businesses to the extent possible. Residents will be notified in advance about potential access or parking effects before construction activities begin. Facilities such as traffic lights, turn pockets, or common driveway access will be provided continued access. Alternative methods of providing access could also be provided, such as relocation of existing access driveways and sidewalks, provision of frontage roads, construction of joint parking areas and pedestrian access from parking areas.
- A comprehensive marketing campaign throughout the larger market area will be provided to ensure that customers know that businesses are operating during construction, and how to reach them. This would include signage posted well outside the impacted area, on routes leading into the construction area.
- Any interchange, ramp, or road closures required during construction will, to the extent possible, be limited to nighttime hours to reduce effects on businesses within or adjacent to the project limits.
- Construction activities will be coordinated to avoid blocking or limiting access to businesses in or adjacent to the project area during business hours. Businesses will be notified in advance concerning construction activities before construction begins near businesses.
- The TMP will be prepared to address short-term disruptions in existing circulation patterns during construction. For example, the TMP will identify the locations of temporary detours or temporary roads to facilitate local traffic circulation and through-traffic requirements.

Impact HAZ-7: Expose People or Structures to a Significant Risk of Loss, Injury, or Death Involving Wildland Fires

According to the county Natural Hazards Disclosure maps of Sacramento and El Dorado counties, the easternmost portion of the project is in an area that may contain substantial forest fire risks and hazards (California Department of Forestry and Fire Protection 2000). There are two aspects considered regarding wildfires in the project area. The first is the potential for a construction-related wildfire. This would be addressed through adherence of BMPs throughout construction of the project. In addition, structures that would be constructed as part of the proposed project would be designed to meet all fire code requirements that would address ignition-resistive construction and sufficient water supply and pressure. The other aspect is a wildfire associated with road access (e.g., cigarette thrown from car window or vehicles in dry grass along shoulder). However, this potential impact is relatively low and routinely handled by fire protection agencies. Therefore, impacts associated with wildland fires would be less than significant. No mitigation is required.

9.3.4 Impacts of the Off-Corridor Multi-Use Path Alternative

Impact HAZ-1: Potential to Create a Significant Hazard to the Public or the Environment through the Routine Transport, Use, or Disposal of Hazardous Materials

As an expansion of existing recreational facilities, this implementation of this alternative would not increase the potential for hazardous materials spills as compared to the proposed project. Based on the transport of hazardous materials under the regulations and oversight previously described, this impact is considered less than significant.

Impact HAZ-2: Potential to 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

Although accidental releases of small quantities of hazardous materials could be released into the environment, state, and local regulations would require contractors to avoid allowing the release of materials into surface waters as part of their SWPPP and NPDES permit requirements. Therefore, this impact is less than significant.

Impact HAZ-3: Potential to Emit Hazardous Emissions or Involve Handling Hazardous or Acutely Hazardous Materials, Substances, or Waste within 0.25 Mile of an Existing or Proposed School

In the event of a hazardous materials spill or release, notification and cleanup operations would be performed in compliance with applicable local government hazardous materials risk management plans. Also, implementation of the SWPPP by contractors would also reduce the potential of a spill incident from occurring. The project will not use large quantities of hazardous materials, and any uses will be transitory. Therefore, this impact is considered less than significant.

Impact HAZ-4: Potential to 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, Create a Significant Hazard to the Public or Environment

There are four hazardous materials sites near the Off-Corridor Multi-Use Path. However, as described above, Mitigation Measure HAZ-1 would reduce this impact to less than significant.

Impact HAZ-5: Potential Safety Hazard for People Residing or Working in the Project Area Due to Vicinity of Project Within a Airport Land Use Plan, Public Airport or Private Airstrip

This alternative could create a potential hazard because of the number of new or newly expanded transportation project facilities that would lie within 2 miles of an airport. As described above, Mitigation Measure HAZ-2 would reduce this impact to less than significant.

Impact HAZ-6: Impair Implementation of or Physically Interfere with an Adopted Emergency Response Plan or Emergency Evacuation Plan

During construction, emergency access to and in the vicinity of the Off-Corridor Multi-Use Path Alternative potentially could be affected by lane closures, detours, and construction-related traffic. This is considered a significant impact. As described above, Mitigation Measure HAZ-3 would reduce this impact to a less-than-significant level.

Impact HAZ-7: Expose People or Structures to a Significant Risk of Loss, Injury, or Death Involving Wildland Fires

The easternmost segment of this alternative is located in an area that may contain substantial forest fire risks and hazards (California Department of Forestry and Fire Protection 2000). Regardless, adherence of BMPs as previously described throughout construction of the project would reduce this impact to less than significant.

9.3.5 Impacts of the Project Options

9.3.5.1 Kammerer Road Bypass Option

Impact HAZ-1: Potential to Create a Significant Hazard to the Public or the Environment through the Routine Transport, Use, or Disposal of Hazardous Materials

Implementation of the Kammerer Road Bypass Option would not reduce or avoid potential impacts in comparison to the proposed project. That is, like the proposed project, this design will help improve traffic safety and reduce potential congestion which, in turn, will minimize the potential for hazardous materials spills as a result of transport accidents. Based on the transport of hazardous materials under the regulations and oversight previously described, this impact is considered less than significant.

Impact HAZ-2: Potential to 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

Although accidental releases of small quantities of hazardous materials could be released into the environment, state, and local regulations would require contractors to avoid allowing the release of materials into surface waters as part of their SWPPP and NPDES permit requirements. Therefore, implementation of the Kammerer Road Bypass Option is considered less than significant.

Impact HAZ-3: Potential to Emit Hazardous Emissions or Involve Handling Hazardous or Acutely Hazardous Materials, Substances, or Waste within 0.25 Mile of an Existing or Proposed School

In the event of a hazardous materials spill or release, notification and cleanup operations would be performed in compliance with applicable local government hazardous materials risk management plans. Also, implementation of the SWPPP by contractors would also reduce the potential of a spill incident from occurring. The project will not use large quantities of hazardous materials, and any uses will be transitory. Therefore, this impact is considered less than significant.

Impact HAZ-4: Potential to 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, Create a Significant Hazard to the Public or Environment

No hazardous materials sites were identified within this option. Therefore, implementation of the Kammerer Road Bypass would have no impact regarding hazardous materials sites.

Impact HAZ-5: Potential Safety Hazard for People Residing or Working in the Project Area Due to Vicinity of Project Within a Airport Land Use Plan, Public Airport or Private Airstrip

This option could create a potential hazard because of the number of new or newly expanded transportation project facilities that would lie within 2 miles of an airport. As described above, Mitigation Measure HAZ-2 would reduce this impact to less than significant.

Impact HAZ-6: Impair Implementation of or Physically Interfere with an Adopted Emergency Response Plan or Emergency Evacuation Plan

During construction, emergency access to and in the vicinity of the proposed project potentially could be affected by lane closures, detours, and construction-related traffic. This is considered a significant impact. As described above, Mitigation Measure HAZ-3 would reduce this impact to a less-than-significant level.

Impact HAZ-7: Expose People or Structures to a Significant Risk of Loss, Injury, or Death Involving Wildland Fires

This option is not near a wildland fire area. Therefore, the implementation of the Kammerer Road Bypass would not increase the impact of significant risk of loss, injury or death involving wildland fires for people or structures. There is no impact.

9.3.5.2 Deer Creek Causeway Options 1 and 2

Impact HAZ-1: Potential to Create a Significant Hazard to the Public or the Environment through the Routine Transport, Use, or Disposal of Hazardous Materials

The implementation of the Deer Creek Causeway Options would have essentially the same impact as the proposed project, although the level of risk would be slightly higher because of the work would occur primarily within the floodplain and Deer Creek. However, because of the regulations in place, the impact would be less than significant.

Impact HAZ-2: Potential to 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

Although accidental releases of small quantities of hazardous materials could be released into the environment, state, and local regulations would require contractors to avoid allowing the release of materials into surface waters as part of their SWPPP and NPDES permit requirements. Therefore, this impact is less than significant.

Impact HAZ-3: Potential to Emit Hazardous Emissions or Involve Handling Hazardous or Acutely Hazardous Materials, Substances, or Waste within 0.25 Mile of an Existing or Proposed School

In the event of a hazardous materials spill or release, notification and cleanup operations would be performed in compliance with applicable local government hazardous materials risk management plans. Also, implementation of the SWPPP by contractors would also reduce the potential of a spill incident from occurring. The project will not use large quantities of hazardous materials, and any uses will be transitory. Therefore, this impact is considered less than significant.

Impact HAZ-4: Potential to 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, Create a Significant Hazard to the Public or Environment

There are no hazardous materials sites within the Deer Creek Causeway Options. There is no impact.

Impact HAZ-5: Potential Safety Hazard for People Residing or Working in the Project Area Due to Vicinity of Project Within a Airport Land Use Plan, Public Airport or Private Airstrip

This option could create a potential hazard because of the number of new or newly expanded transportation project facilities that would lie within 2 miles of an airport. As described above, Mitigation Measure HAZ-2 would reduce this impact to less than significant.

Impact HAZ-6: Impair Implementation of or Physically Interfere with an Adopted Emergency Response Plan or Emergency Evacuation Plan

During construction, emergency access to and in the vicinity of the proposed project potentially could be affected by lane closures, detours, and construction-related traffic. This is considered a significant impact. As described above, Mitigation Measure HAZ-3 would reduce this impact to a less-than-significant level.

Impact HAZ-7: Expose People or Structures to a Significant Risk of Loss, Injury, or Death Involving Wildland Fires

This option is not near a wildland fire area. Therefore, the implementation of the Deer Creek Causeway Options would not increase the impact of significant risk of loss, injury or death involving wildland fires for people or structures. There is no impact.

9.3.5.3 Sheldon Reduced Access Roadway Option

Impact HAZ-1: Potential to Create a Significant Hazard to the Public or the Environment through the Routine Transport, Use, or Disposal of Hazardous Materials

Implementation of the Reduced Access Roadway Option would not reduce or avoid potential impacts in comparison to the proposed project. That is, like the proposed project, this design will help improve traffic safety and reduce potential congestion which, in turn, will minimize the potential for hazardous materials spills as a result of transport accidents. Based on the transport of hazardous materials under the regulations and oversight previously described, this impact is considered less than significant.

Impact HAZ-2: Potential to 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

Although accidental releases of small quantities of hazardous materials could be released into the environment, state, and local regulations would require contractors to avoid allowing the release of materials into surface waters as part of their SWPPP and NPDES permit requirements. Therefore, this impact is less than significant.

Impact HAZ-3: Potential to Emit Hazardous Emissions or Involve Handling Hazardous or Acutely Hazardous Materials, Substances, or Waste within 0.25 Mile of an Existing or Proposed School

In the event of a hazardous materials spill or release, notification and cleanup operations would be performed in compliance with applicable local government hazardous materials risk management plans. Also, implementation of the SWPPP by contractors would also reduce the potential of a spill incident from occurring. The project will not use large quantities of hazardous materials, and any uses will be transitory. Therefore, this impact is considered less than significant.

Impact HAZ-4: Potential to 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, Create a Significant Hazard to the Public or Environment

No hazardous materials sites were identified within this option. Therefore, implementation of this option would have no impact regarding hazardous materials sites.

Impact HAZ-5: Potential Safety Hazard for People Residing or Working in the Project Area Due to Vicinity of Project Within a Airport Land Use Plan, Public Airport or Private Airstrip

This option could create a potential hazard because of the number of new or newly expanded transportation project facilities that would lie within 2 miles of an airport. As described above, Mitigation Measure HAZ-2 would reduce this impact to less than significant.

Impact HAZ-6: Impair Implementation of or Physically Interfere with an Adopted Emergency Response Plan or Emergency Evacuation Plan

During construction, emergency access to and in the vicinity of the proposed project potentially could be affected by lane closures, detours, and construction-related traffic. This is considered a significant impact. As described above, Mitigation Measure HAZ-3 would reduce this impact to a less-than-significant level.

Impact HAZ-7: Expose People or Structures to a Significant Risk of Loss, Injury, or Death Involving Wildland Fires

This option is not near a wildland fire area. Therefore, the implementation of the Reduced Access Roadway Option would not increase the impact of significant risk of loss, injury or death involving wildland fires for people or structures. There is no impact.

9.3.5.4 Sheldon High Access Roadway Option

Impact HAZ-1: Potential to Create a Significant Hazard to the Public or the Environment through the Routine Transport, Use, or Disposal of Hazardous Materials

Implementation of the Sheldon High Access Roadway would not reduce or avoid potential impacts in comparison to the proposed project. This design, like the proposed project, will help improve traffic safety and reduce potential congestion which, in turn, will minimize the potential for hazardous materials spills as a result of transport accidents. Based on the transport of hazardous materials under the regulations and oversight previously described, this impact is considered less than significant.

Impact HAZ-2: Potential to 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

Although accidental releases of small quantities of hazardous materials could be released into the environment, state, and local regulations would require contractors to avoid allowing the release of materials into surface waters as part of their SWPPP and NPDES permit requirements. Therefore, this impact is less than significant.

Impact HAZ-3: Potential to Emit Hazardous Emissions or Involve Handling Hazardous or Acutely Hazardous Materials, Substances, or Waste within 0.25 Mile of an Existing or Proposed School

In the event of a hazardous materials spill or release, notification and cleanup operations would be performed in compliance with applicable local government hazardous materials risk management plans. Also, implementation of the SWPPP by contractors would also reduce the potential of a spill incident from occurring. The project will not use large quantities of hazardous materials, and any uses will be transitory. Therefore, this impact is considered less than significant.

Impact HAZ-4: Potential to 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, Create a Significant Hazard to the Public or Environment

There are three hazardous materials sites near the Off-Corridor Multi-Use Path. However, as described above, Mitigation Measure HAZ-1 would reduce this impact to less than significant.

Impact HAZ-5: Potential Safety Hazard for People Residing or Working in the Project Area Due to Vicinity of Project Within a Airport Land Use Plan, Public Airport or Private Airstrip

This option could create a potential hazard because of the number of new or newly expanded transportation project facilities that would lie within 2 miles of an airport. As described above, Mitigation Measure HAZ-2 would reduce this impact to less than significant.

Impact HAZ-6: Impair Implementation of or Physically Interfere with an Adopted Emergency Response Plan or Emergency Evacuation Plan

During construction, emergency access to and in the vicinity of the proposed project potentially could be affected by lane closures, detours, and construction-related traffic. This is considered a significant impact. As described above, Mitigation Measure HAZ-3 would reduce this impact to a less-than-significant level.

Impact HAZ-7: Expose People or Structures to a Significant Risk of Loss, Injury, or Death Involving Wildland Fires

The easternmost segment of this option is located in an area that may contain substantial forest fire risks and hazards (California Department of Forestry and Fire Protection 2000). Regardless, adherence of BMPs as previously described throughout construction of the project would reduce this impact to less than significant.

Chapter 10
Hydrology and Water Quality

10.1 Introduction

This chapter describes the environmental setting for regional hydrology and water quality within the project area. The chapter also presents the federal, state, and local policies and regulations that determine mitigation requirements and identifies impacts on hydrology and water quality that may result from implementation of the proposed project, and mitigation measures to reduce these impacts where necessary. The following sources of information were reviewed to prepare this chapter:

- Draft Capital SouthEast Connector Location Hydraulic Study, Parsons Brinckerhoff (2010c)
- Draft Capital SouthEast Connector Floodplain Evaluation Report, Parsons Brinckerhoff (2010d)
- Sacramento County General Plan, Sacramento County (2011)
- El Dorado County General Plan, County of El Dorado (2004)
- Elk Grove General Plan, City of Elk Grove (2009)
- Folsom General Plan, City of Folsom (1993)
- Rancho Cordova General Plan, City of Rancho Cordova (2006a)
- Central Valley Regional Water Quality Control Board, Basin Plan for the Sacramento and the San Joaquin River Basins, with 2009 revisions
- State Water Resources Control Board Geotracker database (2010)
- United States Geological Survey Sacramento Basin National Water Quality Assessment Program (2007)

10.2 Environmental Setting

10.2.1 Existing Conditions

10.2.1.1 Climate and Topography

The topography in the project area varies from relatively flat areas in the Sacramento portion of the California Central Valley (at or below sea level) to slightly steeper slopes and greater elevations in the Sierra Nevada foothills in the east (approximately 218 feet above mean sea level [amsl]).

In general, the project area experiences a typical Mediterranean climate with hot, dry summers and cool, wet winters. Average high temperatures during the summer range from 90–100°F in the Sacramento Valley (National Oceanic and Atmospheric Administration 2006). During winter, average low temperatures in the Sacramento Valley range from 40–55°F (National Oceanic and Atmospheric Administration 2006).

The Sacramento Valley has mild winters with low annual precipitation. Precipitation usually takes place from October–May and virtually none occurs from June–September. The average annual precipitation in Sacramento is 18 inches (United States Geological Survey 2007).

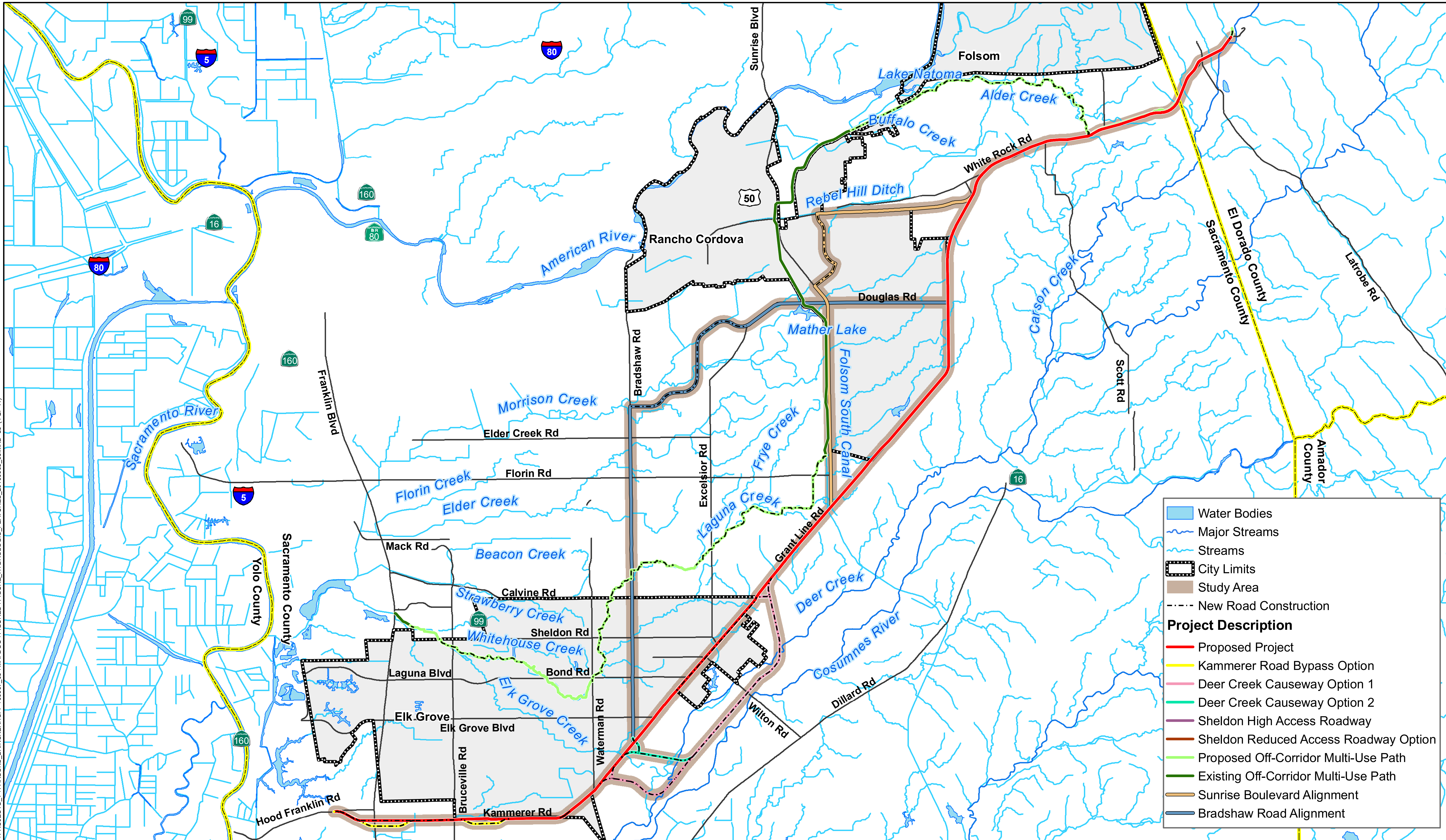
10.2.1.2 Surface Water Hydrology

Surface Waters

The Sacramento River Hydrologic Region encompasses an area of approximately 17.4 million acres (27,200 square miles) and contains all or large portions of Modoc, Siskiyou, Lassen, Shasta, Tehama, Glenn, Plumas, Butte, Colusa, Sutter, Yuba, Sierra, Nevada, Placer, Sacramento, El Dorado, Yolo, Solano, Lake, and Napa Counties (California Department of Water Resources 2003). Most of northern California is located in the Sacramento River Hydrologic Region, which encompasses several watersheds of various sizes.

Major watersheds in the Sacramento River Hydrologic Region and the project area include the American River, Cosumnes River, and Sacramento River. Ultimately, these watersheds drain to the Sacramento–San Joaquin River Delta. These watersheds and their major surface watershed are shown in Figure 10-1 and are listed below.

- American River Watershed
  - Lower American River (below Folsom Lake to Sacramento River)
  - Alder Creek
  - Lake Natoma
  - Buffalo Creek
  - Mather Lake
  - Rebel Hill Ditch
  - Folsom South Canal
- Cosumnes River Watershed
  - Cosumnes River
  - Deer Creek
  - Carson Creek
- Sacramento River Watershed
  - Sacramento River (Sacramento to the San Joaquin Delta)
  - Elk Grove Creek
  - Frye Creek
  - Beacon Creek
  - Strawberry Creek
  - Morrison Creek
  - Florin Creek



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Data Layers Provided by Sacramento County GIS Department, Sacramento County Planning Department, SACOG, El Dorado County, El Dorado County Planning Department, The US Fish and Wildlife Service, and USGS

CAPITAL | SOUTHEAST CONNECTOR
Connecting Communities

Water Bodies

Figure 10-1

Plot Date
January 27, 2011

- White House Creek
- Laguna Creek
- Elder Creek
- Gerber Creek

The American River Watershed overlies Placer, El Dorado, and Sacramento Counties. This watershed originates in the Sierra Nevada, west of Lake Tahoe, and drains east until it ultimately discharges into the Sacramento River near Discovery Park in Sacramento. Major rivers and tributaries draining the watershed include the North, Middle, and South Forks of the American River; the Rubicon River; and Silver Fork Creek. Several major reservoirs in this watershed provide water storage and flood control, including Folsom Lake, Lake Natoma, Lake Clementine, Union Valley Reservoir, and Ice House Reservoir. Within the project area, the Folsom South Canal is a major canal originating at Lake Natoma that distributes water for municipal and industrial use in Sacramento and San Joaquin counties. Alder Creek discharges to Lake Natoma, Buffalo Creek discharges to the American River below Lake Natoma, and the Rebel Hill Ditch (a canal) discharges into Buffalo Creek.

The Cosumnes River Watershed overlies the southwestern portion of the project area and is located in El Dorado and Sacramento Counties. The Cosumnes River originates on the western slopes of the central Sierra Nevada and converges with the Mokelumne River in San Joaquin County before draining to the Sacramento–San Joaquin River Delta. It is the last river without major dams on the western slope of the Sierra Nevada. Within the project area, Deer Creek is a major tributary of the Cosumnes River and Carson Creek flows into Deer Creek.

The largest watershed in the project area is the Sacramento River Watershed. The Sacramento River is the main drainage in this watershed and originates near Mount Shasta in the Cascades Range (Domagalski 2000). Tributaries to the Sacramento River include the Feather River, Cache Creek, Putah Creek, Dry Creek, American River, Arcade Creek, Morrison Creek, and Laguna Creek. The Sacramento River drains an area of approximately 70,000 square kilometers including all or parts of six landforms or physiographic provinces—the Great Basin, the Middle Cascade Mountains, the Sierra Nevada, the Klamath Mountains, the Coast Ranges, and the Sacramento Valley (Domagalski 2000). It flows south from the northern mountain ranges through the project area before discharging into the Sacramento–San Joaquin River Delta. Laguna and Morrison Creeks are of the larger Mokelumne watershed tributaries in the project area. It flows southwesterly from its headwaters at the eastern watershed boundary through Elk Grove to its confluence with Morrison Creek. Downstream of the Morrison Creek confluence, water is either pumped to the Sacramento River or, during winter storms, may travel to the Beach Lake–Stone Lake system. Tributaries to Laguna Creek include the Frye, Elk Grove, and Whitehouse Creeks. Tributaries to Morrison Creek include the Strawberry, Beacon, Elder, Florin, Unionhouse, and Gerber Creeks.

10.2.1.3 Surface Water Quality

Generally, surface water quality in the project area is considered sufficient for municipal, agricultural, wildlife, and recreational uses (California Department of Water Resources 2003); however, several of the larger water bodies in the project area are listed as impaired as defined under Section 303(d) of the Clean Water Act (CWA) (see Section 10.2.2, “Regulatory Setting,” below). Beneficial use impairments can result from several factors, but are generally a result of pollutant discharges from point and nonpoint sources. Point sources of pollutants include discharges of treated effluent from municipal wastewater treatment plants and wastewater discharges from industrial and commercial facilities. Nonpoint pollutant sources include urban runoff, construction runoff, livestock and animal wastes, and runoff from agricultural areas. Water quality is expected to reflect the land uses in the watershed. Land uses surrounding the project area include open space, urban, and agricultural uses. However, open space is not anticipated to contribute pollutants above ambient levels, with the exception of grazing, which has the potential to elevate nutrients. Urban and agricultural land uses typically contribute sediment, hydrocarbons and metals, pesticides, nutrients, bacteria, and trash. The proposed project would be expected to contribute similar contaminants.

The current CWA Section 303(d) list was approved by the EPA in 2006. However, the 303(d) list is being updated through the development of a 2008/2010 California Integrated Report which is scheduled to be brought before the State Water Resources Control Board (SWRCB) at a public hearing in 2010 for potential approval and will be submitted to the EPA following SWRCB approval. The list of impaired water bodies presented in Table 10-1 is based on the upcoming 2010 303(d) list because it is likely to be established by the time the proposed program is implemented. Table 10-1 summarizes water quality impairments in surface waters in the project area and the sources of these impairments.

Table 10-1. CWA Section 303(d)-listed Impaired Water Bodies and Associated Potential Sources within the Project Area

Water Body	Listed Pollutants	Associated Potential Sources
American River, Lower	Mercury PCBs Unknown Toxicity	Resource Extraction Unknown Unknown
Carson Creek	Aluminum Manganese	Unknown Unknown
Natoma, Lake	Mercury	Resource Extraction
Elder Creek	Chlorpyrifos Diazinon Pyrethroids Sediment Toxicity	Storm Sewers Urban Runoff/Storm Sewers/Agriculture Urban Runoff/Storm Sewers Unknown
Cosumnes River, Lower	E. coli Invasive Species Sediment Toxicity	Unknown Unknown Agriculture
Cosumnes River, Upper	Invasive Species	Unknown
Deer Creek	Iron	Unknown
Morrison Creek	Diazinon Pyrethroids PCP Sediment Toxicity	Agriculture Urban Runoff/Storm Sewers/Agriculture Unknown Unknown
Sacramento River, Knights Landing to the Delta	Chlordane DDT Dieldrin Mercury PCBs Unknown Toxicity	Agriculture Agriculture Agriculture Resource Extraction Unknown Unknown

Notes: PCBs = Polychlorinated biphenyls.
PCP = Pentachlorophenol.
DDT = dichlorodiphenyltrichloroethane.

In addition, based on the highway stormwater runoff data collected by the Federal Highway Administration Storm Water Research and Monitoring Program, pollutants that are expected to be found in runoff from roadways include conventional constituents (biochemical oxygen demand [BOD], calcium carbonate [$CaCO_3$], chemical oxygen demand [COD], total dissolved solids [TDS], total organic carbon [TOC], total suspended solids [TSS] and total volatile suspended solids [TVSS], etc.), hydrocarbons, metals, microbial agents, nutrients, volatile and semivolatile organics, pesticides, and herbicides. Pollutants are usually deposited on the roadway as a result of fuel combustion processes, lubrication system losses, tire and brake wear, transportation load losses, paint from infrastructure, and atmospheric fallout. Sources of specific pollutants are outlined in Table 10-2.

Table 10-2. Typical Roadway Pollutant Sources

Constituents	Primary Sources
Particulates	Pavement wear, vehicles, atmosphere, maintenance, snow/ice abrasives, sediment disturbance
Nitrogen, Phosphorus	Atmosphere, roadside fertilizer application, sediments
Lead	Auto exhaust, tire wear, lubricating oil and grease, bearing wear, atmospheric fallout
Zinc	Tire wear, motor oil, grease
Iron	Auto body rust, steel highway structures, moving engine parts
Copper	Metal plating, bearing and bushing wear, moving engine parts, brake lining wear, fungicide and insecticide application
Cadmium	Tire wear, insecticide application
Chromium	Metal plating, moving engine parts, brake lining wear
Nickel	Diesel fuel and gasoline, lubricating oil, metal plating, bushing wear, brake lining wear, asphalt paving
Manganese	Moving engine parts
Bromide	Exhaust
Cyanide	Anticake compound used to keep deicing salt granular
Sodium, Calcium	Deicing salts, grease
Chloride	Deicing salts
Sulphate	Roadway bed, fuel, deicing salts
Petroleum	Spills, leaks or blow-by of motor lubricants, antifreeze and hydraulic fluids, asphalt leachate
PCBs, Pesticides	Spraying of highway rights-of-way, atmospheric deposition, PCB catalyst in synthetic tires
Pathogenic Bacteria	Soil litter, bird droppings, trucks hauling livestock/stockyard waste
Rubber	Tire wear
Asbestos[a]	Clutch and brake lining wear

Source: United States Department of Transportation. Federal Highway Administration. Publication No. FHWA-PD-96-032. June 1996.

[a] No mineral asbestos has been identified in runoff; however, some breakdown products of asbestos have been measured.

10.2.1.4 Groundwater Hydrology and Quality

The proposed project overlies the South American Subbasin and Cosumnes River Subbasin. The South American Subbasin (Basin Number 5-21.65) has a total surface area of 248,000 acres (388 square miles). The South American Subbasin is bounded on the east by the Sierra Nevada, on the west by the Sacramento River, on the north by the American River, and on the south by the Cosumnes and Mokelumne Rivers. These perennial rivers generally create a groundwater divide in the shallow subsurface. It is clear that there is interaction between groundwater of adjacent subbasins at greater depths (California Department of Water Resources 2004).

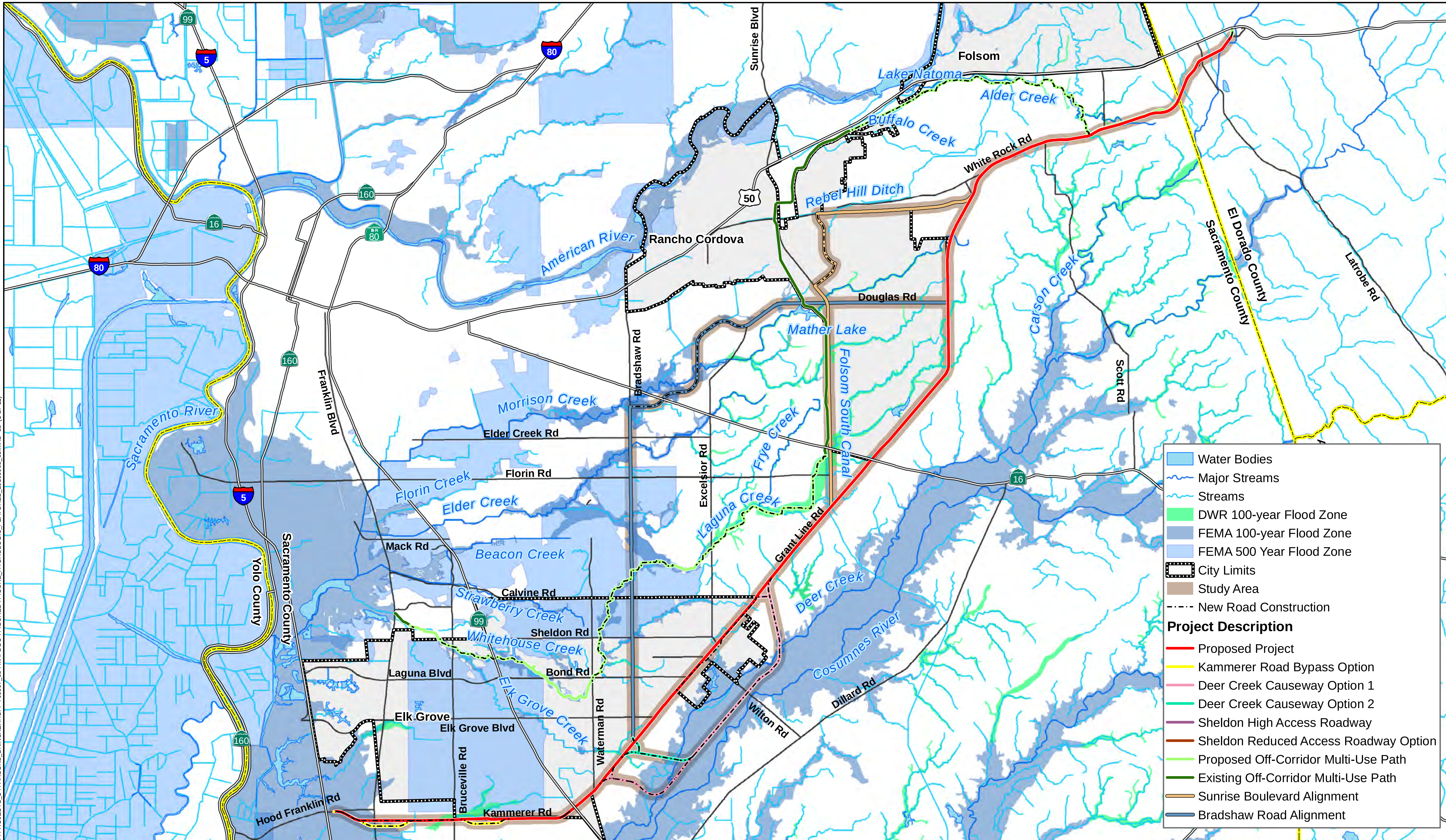
A review of 18 long-term hydrographs dating back to the 1960s indicates a consistent pattern of water level trends through most of the basin. Groundwater elevations generally declined consistently from the mid-1960s to about 1980 on the order of 20 feet. From 1980–1983 water levels recovered by about 10 feet and remained stable until the beginning of 1987 through the 1992 drought. By 1995, water levels declined again by about 15 feet and then recovered by almost 20 feet by 2000 (California Department of Water Resources 2004). There is no published data on the estimated storage capacity of the South American Subbasin. However, based on available information from Olmstead and Davis (1961), the California Department of Water Resources (DWR) calculated groundwater storage capacity at 4,816,000 acre feet (California Department of Water Resources 2004).

Groundwater quality in the South American Subbasin is generally of good to excellent quality. The groundwater is typically a calcium magnesium bicarbonate or magnesium calcium bicarbonate type. The quantity of total dissolved solids (TDS) ranges from 24 to 581 milligrams per liter (mg/L) and averages 221 mg/L based on 462 records (California Department of Water Resources 2004). However, there are seven listed sites in the South American Subbasin with significant groundwater contamination (California Department of Water Resources 2004). These sites include three Superfund sites—Aerojet, Mather Field, and the Sacramento Army Depot. The other impaired sites are the Kiefer Boulevard Landfill, an old PG&E site on Jibboom Street near Old Sacramento, and the Southern Pacific and Union Pacific Rail yards in downtown Sacramento (California Department of Water Resources 2004). Of the 144 wells sampled from 1994 through 2000, maximum contaminant level (MCL) exceedances were measured for primary inorganics (two wells), radiological constituents (one well), nitrates (one well), and volatile organic compounds (VOCs) and semivolatile organic compounds (SVOCs) (eight wells) (California Department of Water Resources 2004). This basin is predominantly characterized by calcium-magnesium bicarbonate or magnesium calcium bicarbonate with magnesium-sodium bicarbonate dominant in Elk Grove (California Department of Water Resources 2004).

10.2.1.5 Floodplains

Potential flood hazards in the project area are related to 100-year flood events, dam failures, and the failure of levees located along several of the major rivers. Federal Emergency Management Agency (FEMA) 100- and 500-year flood zones and the DWR 100-year flood zones within the project area are shown in Figure 10-2. A portion of the project area, the Cosumnes River/Deer Creek Floodplain, lies in a FEMA-Zone A 100-year floodplain, as shown in Figure 10-3. Recently, the U.S. Army Corps of Engineers (USACE) and DWR have advised local communities that there is a greater potential for levee failure than previously thought. This is as a result of preliminary tests of levees for potential below levee seepage. Dams and some of the levees that provide flood protection to the region could potentially fail and inundate portions of the project area.

Flood events can result in damage to structures or infrastructure, injury or loss of human and animal life, and the spread of waterborne diseases. In addition, standing floodwater can destroy agricultural crops and contaminate groundwater. Flooding can also contribute to mudslides and slope



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Data Layers Provided by Sacramento County GIS Department, Sacramento County Planning Department, SACOG, El Dorado County, El Dorado County Planning Department, The US Fish and Wildlife Service, and USGS

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Flood Zones

Figure 10-2

Plot Date
January 27, 2011

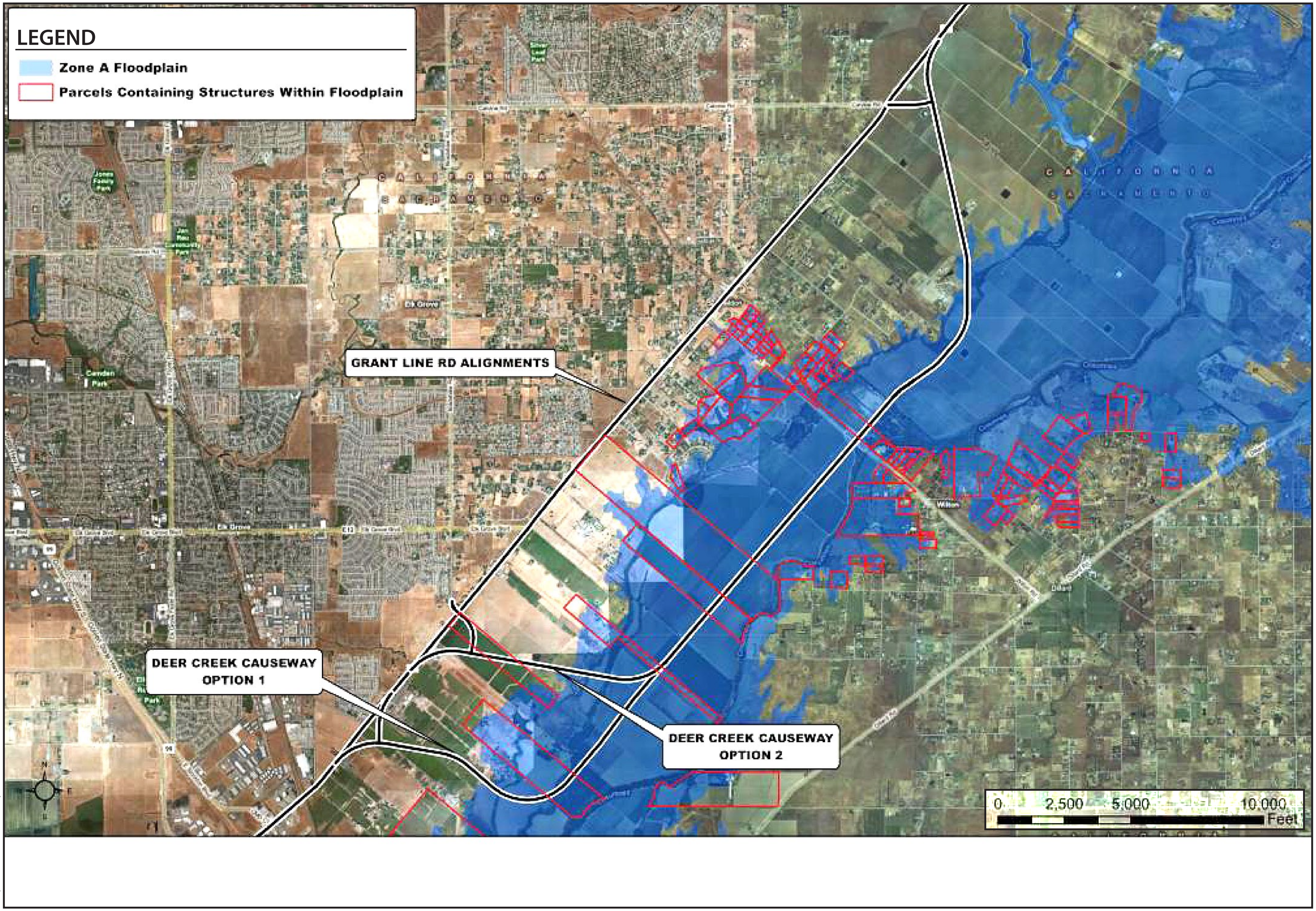

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Figure 10-3
Deer Creek Causeway and the Cosumnes River/Deer Creek Floodplain

instability. In urbanized areas, flood events can also overwhelm stormwater drainage systems resulting in additional flooding.

Because of the potential flood hazards in the project area and the severe consequences of flooding, flood protection features have been implemented in and upstream of the project area. Along the Sacramento and American Rivers and various other rivers and creeks in the project area there is a system of flow bypasses, dams, levees, and reservoirs to control flooding. Two key elements of this flood protection system are the Yolo and Sutter bypasses, which function as flood basins and divert floodwaters away from populated areas during the winter storm season. The Sacramento River and Putah and Cache Creeks drain floodwaters into these bypasses. There are several dams located near the project area and upstream on the major rivers that provide flood protection. The most significant of these dams are the Folsom, Natoma, Englebright Narrows, Sly Park, Ice House, Camp Far West North Fork, Union Valley Reservoir, and New Bullards Bar dams.

10.2.2 Regulatory Setting

10.2.2.1 Federal Regulations

Clean Water Act

Enacted by Congress in 1972 as the first comprehensive national clean water legislation to protect our nation's waters, the CWA mandates cooperative effort by federal, state, and local governments to implement its pollution control measures. The law is intended to improve the quality of the nation's waters using a framework of standards, technical tools, and financial assistance to address pollution and poor water quality.

The CWA is the primary federal law that protects the quality of the nation's surface waters, including lakes, rivers, and coastal wetlands. It operates on the principle that all discharges into the nation's waters are unlawful unless specifically authorized by a permit; permit review is the CWA's primary regulatory tool. The CWA requires that National Pollutant Discharge Elimination System (NPDES) permits be obtained for any discharges to surface waters by a point source and for municipal and industrial stormwater discharges. The following provides additional details on NPDES permits and specific sections of the CWA that could apply to specific activities related to the project area, including construction and effluent discharge.

Impaired Water Bodies

Under CWA Section 303(d) and California's Porter-Cologne Water Quality Control Act of 1969 (Porter-Cologne Act) (see below), the State of California is required to establish beneficial uses of state waters and to adopt water quality standards to protect those beneficial uses. Section 303(d) establishes the total maximum daily load (TMDL) process to assist in guiding the application of state water quality standards, requiring the states to identify streams whose water quality is "impaired" (affected by the presence of pollutants or contaminants) and to establish the TMDL, or the maximum quantity of a particular contaminant that a water body can assimilate without experiencing adverse effects. CWA Section 303(d) also requires the state to identify water bodies that do not meet water quality standards and thus exhibit impaired beneficial uses. As such, every two years the SWRCB releases a list of impaired waters and proposes a completion date for a TMDL to address the identified impairment. Most of the proposed project would be located within areas that discharge to impaired waters, as identified in the *2006 Clean Water Act Section 303(d) List of Water Quality*

Limited Segments (State Water Resources Control Board 2006). Impaired waters in the project area are shown in Table 10-1 and discussed in Section 10.2.1, "Existing Conditions," above.

Projects are required to comply with requirements of approved TMDLs, as regulated in the program area by the Central Valley Regional Water Quality Control Board (Central Valley RWQCB) through issuance of Waste Discharge Requirements (WDRs) and NPDES permit amendments.

Water Quality Certification

Under CWA Section 401, applicants for a federal license or permit to conduct activities that may result in the discharge of a pollutant into waters of the United States must obtain certification from the state in which the discharge would originate, or, if appropriate, from the interstate water pollution control agency with jurisdiction over affected waters at the point where the discharge would originate. Therefore, all projects that have a federal component and may affect the quality of the state's waters (including projects that require federal agency approval, such as issuance of a Section 404 permit) must also comply with CWA Section 401. Section 401 certification or waiver is under the jurisdiction of the RWQCB.

Surface Water Discharges

CWA Section 402 regulates discharges to surface waters through the NPDES program, administered by the EPA. In California, the SWRCB is authorized by the EPA to oversee the NPDES program through RWQCBs (see related discussion under "Porter-Cologne Water Quality Control Act" below).

The NPDES program provides for both general permits (those that cover a number of similar or related activities) and individual permits.

Construction Activities

As of February 2003, the EPA requires that a project proponent apply for an NPDES stormwater permit and develop a Storm Water Pollution Prevention Plan (SWPPP) for ground-disturbing activities that would affect 1 acre or more. The Central Valley RWQCB administers the NPDES stormwater permitting program for construction activities in the Central Valley region. For the purposes of the NPDES, construction activities are defined as clearing, excavating, grading, or other land-disturbing activities.

The Central Valley RWQCB authorizes stormwater discharges to waters of the United States under the SWRCB's General Construction Permit. For qualifying projects, project applicants must submit to the Central Valley RWQCB a Notice of Intent (NOI) to be covered by the General Construction Permit before the beginning of construction. The General Construction Permit requires the preparation and implementation of a SWPPP, which must be completed before construction begins.

A new Construction General Permit (2009-0009-DWQ) was adopted on September 2, 2009, and became effective July 1, 2010. The new General Permit takes a risk-based permitting approach that establishes three levels of risk possible for a construction site. Risk is calculated in two parts: (1) Project Sediment Risk, and (2) Receiving Water Risk. Some of the new requirements under this General Permit include: more minimum BMPs and requirements that were previously only required as elements of the SWPPP, submittal of the SWPPP to the RWQCB, Technology-Based Numeric Action Levels, Technology-Based Numeric Effluent Limitations, Receiving Water Monitoring and Reporting, Post-Construction Storm Water Performance Standards, a Rain Event Action Plan, and Certification/Training Requirements for Key Project Personnel.

Dewatering Activities

While small amounts of construction-related dewatering are covered under the General Construction Permit, the Central Valley RWQCB has also adopted a General Order for Dewatering and Other Low Threat Discharges to Surface Waters (General Dewatering Permit). This permit applies to various categories of dewatering activities and would likely apply to the project area, if construction of specific projects required dewatering in greater quantities than that allowed by the General Construction Permit and discharged the effluent to surface waters. The General Dewatering Permit contains waste discharge limitations and prohibitions similar to those in the General Construction Permit.

Municipal Activities

CWA Section 402 mandates permits for municipal stormwater discharges, which are regulated under the NPDES General Permit for Municipal Separate Storm Sewer Systems (MS4) (MS4 Permit). Phase 1 MS4 regulations cover municipalities with populations greater than 100,000, certain industrial processes, or construction activities disturbing an area of 5 acres or more. Phase 2 (Small MS4) regulations require that stormwater management plans be developed by municipalities with populations smaller than 100,000 and construction activities disturbing 1 or more acres of land area.

Several of the cities and counties within the project area issue their own NPDES municipal stormwater permits for the regulation of stormwater discharges. Relative to the project, Elk Grove, Folsom, and Rancho Cordova, as well as Sacramento County and Western El Dorado County are permit holders.

These permits require that controls are implemented to reduce the discharge of pollutants in stormwater discharges to the maximum extent possible, including management practices, control techniques, system design and engineering methods, and other measures as appropriate. As part of permit compliance, these permit holders have created stormwater management plans for their respective locations. These plans outline the requirements for municipal operations, industrial and commercial businesses, construction sites, and planning and land development. These requirements may include multiple measures to control pollutants in stormwater discharge. During implementation of specific projects under the program, project applicants will be required to follow the guidance contained in the stormwater management plans as defined by the permit holder in that location.

The SWRCB is advancing Low Impact Development (LID) in California as a means of complying with municipal stormwater permits. LID incorporates site design, including among other things the use of vegetated swales and retention basins and minimizing impermeable surfaces, to manage stormwater to maintain a site's predevelopment runoff rates and volumes. These measures can also help comply with the California Valley RWQCB Basin Plan for the Sacramento and San Joaquin Rivers, which specifies water quality objectives and beneficial use requirements.

Fill Placement in Waters and Wetlands

CWA Section 404 regulates the discharge of dredged and fill materials into waters of the United States, which include oceans, bays, rivers, streams, lakes, ponds, and wetlands. Project applicants must obtain a permit from the USACE for all discharges of dredged or fill material into waters of the United States, including wetlands, before proceeding with a proposed activity. Before any actions that may adversely affect surface waters are carried out, a delineation of jurisdictional waters of the United States must be completed, following USACE protocols, to determine whether the permit study area encompasses wetlands or other waters of the United States that qualify for CWA protection. These include any or all of the following:

> Areas within the ordinary high water mark of a stream, including non-perennial streams with a defined bed and bank and any stream channel that conveys natural runoff, even if it has been realigned. Seasonal and perennial wetlands, including coastal wetlands.

Wetlands are defined for regulatory purposes as areas "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" (33 CFR 328.3, 40 CFR 230.3). Refer to Chapter 5, "Biological Resources," for more information on wetlands regulation.

Federal Flood Insurance Program

Alarmed by increasing costs of disaster relief, Congress passed the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. The intent of these acts was to reduce the need for large, publicly funded flood control structures and disaster relief by restricting development on floodplains.

FEMA administers the National Flood Insurance Program (NFIP) to provide subsidized flood insurance to communities that comply with FEMA regulations that limit development in floodplains. FEMA issues flood insurance rate maps (FIRMs) for communities participating in the NFIP. These maps delineate flood hazard zones in the community. These community maps are updated annually through the flood map revision process, which includes three primary methods: (1) FEMA-initiated study or restudy of flood hazards and subsequent revision of the NFIP flood maps; (2) Community-initiated revision under Part 65 of the NFIP regulations; (3) Community-initiated revision through the Cooperating Technical Partners (CTP) initiative. During the FEMA-initiated map update process, FEMA prioritizes study and restudy needs based on a cost-benefit approach whereby the highest priority is given to studies where development is greatest and where the maps are most outdated. FEMA has a special task force that reviews community mapping needs and captures their findings in the Mapping Needs Update Support System.

The Community-initiated revision process under NFIP regulations involves community updates to FEMA in order to ensure that the flood hazard maps present flood risk information that is correct and up to date. FEMA relies heavily on communities to provide notification of changing flood hazard information and to submit the technical support data needed to reflect the updated flood hazards on the NFIP maps. The Community-initiated revision process through the CTP Initiative is an innovative program created to foster partnerships between FEMA and participating NFIP communities, as well as regional and State agencies that have the capability to become more active participants in the FEMA Flood Hazard Mapping Program. Communities can participate in a number of ways, which may include development of updated hydrologic and hydraulic modeling, and mapping, refinement of approximate Zone A floodplain boundaries, digital base map data sharing, and digital topographic data development. Participating communities adopt floodplain management ordinances that implement the requirements of the NFIP at the permit level. Elk Grove, Folsom, and Rancho Cordova, as well as El Dorado and Sacramento Counties have adopted floodplain management ordinances.

The flood hazard maps are revised by one of two methods: Physical Map Revision (PMR) and Letter of Map Revision (LOMR). A LOMR is a document that officially revises a portion of the effective NFIP map according to requirements and procedures outlined in Part 65 of the NFIP regulations. A LOMR allows FEMA to revise flood hazard information on an NFIP map via letter without physically revising and reprinting the entire map panel.

Executive Order 11988

Executive Order 11988 (Floodplain Management) addresses floodplain issues related to public safety, conservation, and economics. It generally requires federal agencies constructing, permitting, or funding to:

- avoid incompatible floodplain development,
- be consistent with the standards and criteria of the NFIP, and
- restore and preserve natural and beneficial floodplain values.

This order would apply to any proposed projects, if outfall construction related to the CWA Section 404 permit falls under any of the bulleted categories listed above, or if federal funds are used for construction.

10.2.2.2 State Regulations

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (California Water Code Section 13000 et seq.), passed in 1969, articulates with the federal CWA (see "Clean Water Act" above) and provides the basis for water quality regulation within California. The act requires a Report of Waste Discharge for any discharge of waste (liquid, solid, or otherwise) to land or surface waters that may impair a beneficial use of surface water or groundwater of the state. WDRs resulting from the report are issued by the RWQCB. In practice, these requirements are typically integrated with the NPDES permitting process.

The Porter-Cologne Act established the SWRCB and divided the state into nine regions, each overseen by a RWQCB. The SWRCB is the primary state agency responsible for protecting the quality of the state's surface and groundwater supplies, but much of its daily implementation authority is delegated to the nine RWQCBs, which are responsible for implementing CWA Sections 401, 402, and 303(d). In general, the SWRCB manages both water rights and statewide regulation of water quality, while the RWQCBs focus exclusively on water quality within their regions. The Central Valley RWQCB is responsible for regulating discharges in the project area.

Beneficial Uses and Water Quality Objectives

The Central Valley RWQCB is responsible for the protection of beneficial uses of water resources within the Central Valley Region. Beneficial uses are those desired resources, services, and qualities of the aquatic system that are supported by achieving and protecting high water quality. The Central Valley RWQCB uses planning, permitting, and enforcement authorities to meet this responsibility, and has adopted the fourth edition of the Basin Plan for the Sacramento River Basin and San Joaquin River Basin (Basin Plan) (Central Valley Regional Water Quality Control Board 2009) to implement plans, policies, and provisions for water quality management. Beneficial uses are described in the Basin Plan and are designated for major surface waters and their tributaries, as well as groundwater. Beneficial uses of water bodies within the project area are described in Table 10-3 below.

Table 10-3. Beneficial Uses of Water Bodies within the Project Area

Water Body	Existing Beneficial Uses
American River (Folsom Lake Dam to Sacramento River)	MUN, AGR—Irrigation, IND, POW, REC-1, REC-1—Canoeing and Rafting, REC-2, WARM, COLD, MIGR—Cold, SPWN—Warm/Cold, WILD
Cosumnes River (Source to Delta)	MUN, AGR—Irrigation, AGR—Stock Watering, REC-1, REC-1—Canoeing and Rafting, REC-2, WARM, COLD, MIGR—Warm/Cold, SPWN—Warm/Cold, WILD
Deer Creek	MUN, AGR—Irrigation, AGR—Stock Watering, REC-1, REC-1—Canoeing and Rafting, REC-2, WARM, COLD, MIGR—Cold, SPWN—Warm/Cold, WILD

Source: Central Valley Regional Water Quality Control Board 2009.

Key:
AGR: Agricultural Water Supply
COLD: Cold Freshwater Habitat
GWR: Groundwater Recharge
FRESH: Freshwater Replenishment
IND: Industrial Service Supply
MIGR: Fish Migration
MUN: Municipal & Domestic Supply
POW: Industrial Power Supply
PRO: Industrial Process Supply
RARE: Preservation of Rare and Endangered Species
REC-1: Water Contact Recreation
REC-2: Noncontact Water Recreation
SPWN: Fish Spawning
WARM: Warm Freshwater Habitat
WILD: Wildlife Habitat

In addition to identifying beneficial uses, the Basin Plan contains water quality objectives that are intended to protect the beneficial uses of the basins. The Central Valley RWQCB has region-wide and water body/beneficial use–specific water quality objectives; and has set water quality objectives for all surface waters in its region for the following substances and parameters: ammonia, bacteria, biostimulatory substances, chemical constituents, color, dissolved oxygen, floating material, oil and grease, pH, pesticides, radioactivity, salinity, sediment, settleable material, suspended material, tastes and odors, temperature, toxicity, and turbidity. Specific objectives for concentrations of chemical constituents are applied to bodies of water based on their designated beneficial uses (Central Valley Regional Water Quality Control Board 2009). Water quality objectives applicable to all groundwaters in the region have been set for bacteria, chemical constituents, radioactivity, tastes and odors, and toxicity (Central Valley Regional Water Quality Control Board 2009).

Basin plans are primarily implemented by using the NPDES permitting system to regulate waste discharges so that water quality objectives are met (see discussion of the NPDES permits in "Clean Water Act" above). Basin plans are updated every 3 years, and provide the technical basis for determining WDRs and taking enforcement actions. The water quality objectives of the water bodies in the project area are listed below, per the Central Valley RWQCB (2009).

- **Bacteria (applies to water bodies with REC-1 beneficial uses):** Fecal coliform concentration based on a minimum of not less than five samples for any 30-day period shall not exceed a geometric mean of 200/100 ml, nor shall more than 10% of the total number of samples taken during any 30-day period exceed 400/100 ml.
- **Biostimulatory substances:** Water shall not contain biostimulatory substances which promote aquatic growths in concentrations that cause nuisance or adversely affect beneficial uses.

- **Chemical constituents (applies to Sacramento River from Keswick Dam to I Street Bridge in Sacramento, and American River from Folsom Dam to Sacramento River):** Waters shall not contain chemical constituents in concentrations that adversely affect beneficial uses. At a minimum, water designated for use as domestic or municipal supply (MUN) shall not contain concentrations of chemical constituents in excess of the MCLs.

Chemical	Concentration (mg/L)
Arsenic	0.01
Cyanide	0.1
Manganese	0.01
Zinc	0.3
Barium	0.05
Iron	0.01
Silver	0.1
Lead[a]	0.015

[a] Lead concentration applies to water designated for use as MUN.

- **Color:** Water shall be free of discoloration that causes nuisance or adversely affects beneficial uses.
- **Dissolved oxygen (applies to surface water bodies outside the legal boundaries of the Delta):** The monthly median of the mean daily dissolved oxygen concentration shall not fall below 85% of the saturation in the main water mass, and 95% percentile concentration shall not fall below 75% saturation. Dissolved oxygen concentrations shall not be reduced below the following minimum levels:
    - Waters designated WARM: 5.0 mg/L
    - Waters designated COLD: 7.0 mg/L
    - Waters designated SPWN: 7.0 mg/L
- **Floating material:** Water shall not contain floating material in amounts that cause nuisance or adversely affect beneficial uses.
- **Mercury:** 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.
- **Oil and grease:** 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.
- **Pesticides:** No individual pesticide or combination of pesticides shall be present in concentrations that adversely affect beneficial uses. Discharges shall not result in pesticide concentrations in bottom sediment or aquatic life that adversely affect beneficial uses. Total identifiable persistent chlorinated hydrocarbon pesticides shall not be present in the water column at concentration detectable within the accuracy of analytical methods approved by the EPA or the Executive Officer. Pesticide concentrations shall not exceed those allowable by

applicable antidegradation policies (SWRCB Resolution 68-16 and 40 CFR 131.12.). Pesticide concentrations shall not exceed the lowest levels technically and economically achievable.

Water bodies with MUN beneficial use shall not contain concentration of pesticides in excess of the MCLs set forth in 22 CCR and shall not contain concentrations of thiobencarb in excess of 1.0 microgram per liter (µg/l).

- **pH:** The pH shall not be depressed below 6.5 nor raised above 8.5.
- **Radioactivity:** Shall not be present in concentrations that are harmful to human, plant, animal, or aquatic life, or that result in accumulation of radionuclides in the food web in an extent that presents a hazard to human, plant, animal, or aquatic life.

  At a minimum water bodies with MUN beneficial use shall not contain concentrations of radionuclides in excess of the MCLs specified in 22 CCR.
- **Sediment:** The suspended sediment load and suspended sediment discharge rate of surface waters shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses.
- **Settleable material:** Waters shall not contain suspended material in concentrations that cause nuisance or adversely affect beneficial uses.
- **Suspended material:** Waters shall not contain substances in concentrations that result in the deposition of material that causes nuisance or adversely affect beneficial uses.
- **Tastes and odors:** Waters shall not contain taste- or odor-producing substances in concentrations that impart undesired tastes or odors to domestic or municipal water supplies, or to fish flesh or other edible products of aquatic origin, or that cause nuisance, or otherwise adversely affect beneficial uses.
- **Temperature:** Natural receiving water temperature shall not be altered unless it can be demonstrated to the satisfaction of the RWQCB that such alteration does not adversely affect beneficial uses.

Date	Daily Maximum (°F)	Monthly Average (°F)
January and February	63	58
March	65	60
April	71	64
May	77	68
June	81	74
July to September	81	77
October	77	72
November	73	65
December	65	58

  At no time or place shall temperature of water bodies with COLD and WARM beneficial uses be increased more than 5°F above natural receiving water temperature.

- **Total dissolved solids (applies to American River from Folsom Dam to Sacramento River):** Shall not exceed 125 mg/l (90th percentile).

- **Toxicity:** All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life. This objective applies regardless of whether the toxicity is caused by a single substance or the interactive effect of multiple substances.
- **Turbidity:** Waters shall be free of changes in turbidity that cause nuisance or adversely affect beneficial uses. Increases in turbidity attributable to controllable water quality factors shall not exceed the following limits:
  - Where natural turbidity is less than 1 Nephelometric Turbidity Unit (NTU), controllable factors shall not cause downstream turbidity to exceed 2 NTU.
  - Where natural turbidity is between 1 and 5 NTUs, increases shall not exceed 1 NTU.
  - Where natural turbidity is between 5 and 50 NTUs, increases shall not exceed 20%.
  - Where natural turbidity is between 50 and 100 NTUs, increase shall not exceed 10 NTUs.
  - Where natural turbidity is greater than 100 NTUs, increases shall not exceed 10%.

  Exceptions to the above limits will be considered when a dredging operation can cause an increase in turbidity. In those cases, an allowable zone of dilution within which turbidity in excess of the limits may be tolerated will be defined for the operation and prescribed in a discharge permit.

  Deer Creek (a source to the Cosumnes River): When the dilution ratio for discharges is less than 20:1 and where natural turbidity is less that 1 NTU, discharges shall not cause the receiving water daily average turbidity to exceed 2 NTUs or daily maximum turbidity to exceed 5 NTUs. Where natural turbidity is between 1 and 5 NTUs, dischargers shall not cause receiving water daily average turbidity to increase more than 1 NTU or daily maximum turbidity to exceed 5 NTUs. Where discharge dilution ratio is 20:1 or greater, or where natural turbidity is greater than 5 NTUs, the general turbidity objectives shall apply.

California Fish and Game Code Section 1600 et seq. (Lake- or Streambed Alteration Agreement Program)

Under Sections 1600–1616 of the California Fish and Game Code, DFG regulates projects that affect the flow, channel, or banks of rivers, streams, and lakes. Projects in the project area that involve construction near or across a river, stream, or lake would be required to comply with these regulations. Section 1602 requires public agencies and private individuals respectively to notify and enter into a streambed or lakebed alteration agreement with DFG before beginning construction of a project that will:

- divert, obstruct, or change the natural flow or the bed, channel, or bank of any river, stream, or lake; or
- use materials from a streambed.

Section 1602 contains additional prohibitions against the disposal or deposition of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into any river, stream, or lake.

Sections 1601–1607 may apply to any work undertaken within the 100-year floodplain of any body of water or its tributaries, including intermittent stream channels. In general, however, the sections are considered to apply to work within the active floodplain or associated riparian habitat of a wash, stream, or lake that provides benefit to fish and wildlife. Sections 1601–1607 typically do not apply to drainages that lack a defined bed and banks, such as swales, or to very small bodies of water and wetlands such as vernal pools.

Central Valley Flood Protection Board

Any project that proposes to work in a regulated stream, designated floodway on federal flood control project levee slopes, or within 10 feet of the levee toe requires a permit from the Central Valley Flood Protection Board. Such activities/features might include but are not limited to: boat docks, ramps, bridges, sand and gravel mining, placement of fill, fences, landscaping, and irrigation facilities. The Central Valley Flood Protection Board regulates streams listed in Table 8.1 in Title 23 of the California Code of Regulations. Many of the rivers and streams in the project area are regulated by the board, including the Cosumnes River and Laguna, Deer, and Elk Grove Creeks. A permit from the board is required for any project or plan of work that:

- is within federal flood control project levees and within a Central Valley Flood Protection Board easement, or
- may have an effect on the flood control functions of project levees, or
- is within a Central Valley Flood Protection Board designated floodway, or
- is within regulated Central Valley streams listed in Table 8.1 in Title 23 of the California Code of Regulations.

If there are levees affected by the project or if the project would be located within a "designated floodway," then the project would also be subject to Central Valley Flood Protection Board jurisdiction.

10.2.2.3 Local Regulations

Sacramento County General Plan

The Sacramento County General Plan has several policies and implementation measures to achieve the goal to "minimize the loss of life, injury, and property damage due to flood hazards" within the Safety Element of the General Plan (County of Sacramento 2011). In addition, there are several policies and implementation measures related to water quality protection and wastewater runoff in the Public Facilities Element of the General Plan. Proponents of specific program projects within Sacramento County must comply with these policies and regulations related to flooding issues in the Safety Element and water quality issues in the Public Facilities Element.

In addition, the county has adopted a Flood Management Ordinance, which was last amended on April 24, 2010. The purpose of the amendment is to promote the public health, safety, and general welfare and to minimize public and private losses caused by flood conditions in specific areas. The amendment includes methods of reducing flood losses, including provisions to restrict or prohibit dangerous development; require vulnerable development be protected; control the alteration of natural floodplains, channels, and barriers; control development that increases flood damage; and prevent/regulate construction of flood barriers.

Sacramento Stormwater Quality Improvement Program and Stormwater Ordinances

The Sacramento Stormwater Quality Improvement Program (SQIP) was established in 1990 to reduce the pollution carried by stormwater into local creeks and rivers. The SQIP is based on the NPDES municipal stormwater discharge permit (MS4 Permit) for Citrus Heights, Elk Grove, Folsom, Galt, Rancho Cordova, and Sacramento, and Sacramento County (Sacramento Stormwater Quality Partnership). The SQIP includes pollution reduction activities for construction sites, industrial sites, illegal discharges and illicit connections, new development, and municipal operations. The SQIP also includes an extensive public education effort, target pollutant reduction strategy, and monitoring program. The SQIP (July 2007) outlines the priorities, key elements, strategies, and evaluation methods of the city's Stormwater Management program for 2007–2011 (City of Sacramento 2010).

The following stormwater ordinances were established by Sacramento's SQIP:

- Stormwater Management and Discharge Control ordinance: prohibits the discharge of nonstormwater (with some exceptions) and acts potentially resulting in a violation of the CWA or the Porter-Cologne Act, and requires reductions of pollutants in stormwater, compliance with BMPs, and containment and notification of spills.
- Grading, Erosion and Sediment Control ordinance: requires grading permit for construction activities.

El Dorado County General Plan

The El Dorado County General Plan has several objectives and policies relating to water quality and surface water drainage, as described in the Public Services and Utilities Element (El Dorado County 2004). In addition, there are two objectives and several policies to achieve the county's goal of "protecting the residents of El Dorado County from flood hazards" in the Health, Safety and Noise Element (El Dorado County 2004). Proponents of specific program projects within El Dorado County must comply with the objectives and policies stated in El Dorado County's General Plan.

In addition, El Dorado County has adopted a Flood Damage Prevention Ordinance (Zoning Ordinance Chapter 17.25) to implement General Plan Policy 6.4.1.1, which requires continued participation in the National Flood Insurance Program to promote the public health, safety, and general welfare, and to minimize public and private losses caused by flood conditions in specific areas. This ordinance serves to provide legally enforceable regulations applied uniformly throughout the community to all publicly and privately owned land within flood-prone areas.

Western El Dorado County Stormwater Management Plan

The Western El Dorado County Stormwater Management Plan was developed in August 2004 to comply with the Small MS4 General Permit.

City Flood and Stormwater Plans

Elk Grove is currently developing a Flood Control and Storm Drainage Master Plan. Quarterly public workshops are being held, but no plan has yet been adopted. Folsom's Stormwater Ordinance is located in Chapter 8.70 of the city's Municipal Code, and Rancho Cordova's Stormwater Ordinance is located in Chapter 15.12.020 of that city's Municipal Code. These ordinances were established to protect water quality in the storm drain system and set requirements to reduce the discharge of pollutants in stormwater to the maximum extent practicable.

10.3 Impact and Mitigation Discussion

This section describes potential impacts on hydrology and water quality that could result from the proposed project. Construction activities would include short-term soil-disturbing activities including cut and fill, grading, trenching, boring, and removal of vegetation. Prior to final approval of each project considered, the implementing agency (JPA or local agency) would conduct the appropriate project-specific CEQA review. Significant impacts would be considered and feasible mitigation measures adopted as a result of those project-level reviews.

10.3.1 Thresholds of Significance

Appendix G of the State CEQA Guidelines identifies environmental issues that may be considered when determining whether a project could have significant impacts on the environment. Appendix G suggests that a project would have a significant impact on hydrology and water quality if it would:

- violate any water quality standards or WDRs;
- substantially deplete groundwater supplies or interfere substantially with groundwater recharge, resulting in a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of preexisting nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted);
- 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 onsite or offsite;
- substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding onsite or offsite;
- create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff;
- otherwise substantially degrade water quality;
- place housing within a 100-year flood hazard area, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map;
- place within a 100-year flood hazard area structures that would impede or redirect floodflows;
- 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; or
- contribute to inundation by seiche, tsunami, or mudflow.

The issues identified in Appendix G do not necessarily apply to every project. The proposed project is a regional expressway employing the water conservation features described in Chapter 14, “Public Services and Utilities,” and would not require substantial groundwater supplies. Therefore, that issue is not applicable and will not be analyzed further. The area within which the project would be located is not subject to seiche, tsunami, or mudflow (see Chapter 8, “Geology, Soils, and

Paleontological Resources”), so that issue also is not applicable and will not be analyzed further. Similarly, the project will not place housing within a 100-year flood hazard area, so that issue will not be analyzed further. Several of the impacts also vary in severity. For example, although new proposed project roadways are likely to prevent some infiltration and cause an increase in runoff, the amount of new impervious cover is relatively small. The issue of increased runoff exceeding stormwater drainage systems is addressed in Chapter 14, “Public Services and Utilities.”

For purposes of the evaluation of the hydrology and water quality impacts in this section, the following pertinent issues are analyzed. The related Appendix G issues are listed in parentheses.

- Surface Water Quality Degradation Caused by Construction Activities (Violate any water quality standards or WDRs)
- Water Quality Degradation Caused by Construction Activities below the Water Table (Violate any water quality standards or WDRs)
- Water Quality Degradation from Urban Runoff Caused by Increased Impervious Surfaces (Otherwise substantially degrade water quality)
- Substantial Increased Runoff Resulting in Flooding (Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding onsite or offsite)
- Reduction in Groundwater Recharge Caused by Increased Impervious Surfaces (Interfere substantially with groundwater recharge, resulting in a net deficit in aquifer volume or a lowering of the local groundwater table level)
- Discharges of Constituents to 303(d) Listed Water Bodies (Otherwise substantially degrade water quality)
- Changes to Floodplain from Construction Activities (Place within a 100-year flood hazard area structures that would impede or redirect floodflows)
- Potential for Inundation by Dam or Levee Failure (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)

10.3.2 Approach and Methodology

The evaluation of the hydrology and water quality impacts in this section assumes that the Capital SouthEast Connector Project will conform to the latest requirements described in Section 10.2.2, “Regulatory Setting,” as appropriate.

10.3.3 Impacts of the Proposed Project

This section describes potential impacts on hydrology and water quality that could result from the proposed project. Construction activities may result in short-term impacts, such as the input of sediment loads and spills into water bodies. Long-term impacts include the increased potential for polluted runoff into water bodies. The following identifies the impacts of the project to the extent that they are reasonably foreseeable given the general level of project detail that is available at this time. More information would become available as the individual project segments within the proposed project are designed and constructed. Prior to final approval of each of the individual projects, the implementing JPA or local agency would determine whether the activity is covered under this Program EIR and, where necessary, conduct additional project-specific CEQA review. This program-level analysis would be used as the basis for that later CEQA review. Significant impacts described in this program would be considered, and feasible mitigation measures would be refined and adopted as a result of the project-level review.

Impact HYD-1: Surface Water Quality Degradation Caused by Construction Activities

Construction-related earth-disturbing activities of highway, interchange, street, and other various improvement projects included in the proposed project would introduce the potential for increased erosion and sedimentation, with subsequent effects on water quality and storm drain capacity. During site grading, trenching, and other construction activities, areas of bare soil would be exposed to erosive forces during rainfall events. Bare soils are much more likely to erode than vegetated areas because bare areas lack dispersion, infiltration, and retention properties covering vegetation provides. Absent actions to minimize erosion, the extent of the impacts would be dependent on soil erosion potential, type of construction practice, extent of disturbed area, timing of precipitation events, and topography and proximity to drainage channels.

In addition, construction equipment and activities would have the potential to leak hazardous materials, such as oil and gasoline, and potentially affect surface water or groundwater quality. Improper use or accidental spills of fuels, oils, and other construction-related hazardous materials, such as pipe sealant, solvents, and paints, could also pose a threat to the water quality of local water bodies. These potential leaks or spills, if not contained, would be considered a potentially significant impact on ground- and surface water quality. Without precautions to contain or capture sediments or accidental hazardous spills, construction activities could produce substantial pollutants in stormwater runoff and result in a significant impact on the existing surface water quality.

Construction of bridge crossings along the Connector near water bodies may result in discharges of sediment and mobilization of metals in existing sediments along with hydrophobic contaminants such as organo-chlorine pesticides. Concrete, vehicle fluids, and other fluids may be released into the creek during construction as well. Without precautions, these discharges would have significant impacts on beneficial uses. This impact is considered significant.

Implementation of Mitigation Measure HYD-1 would ensure that this impact is reduced to a less-than-significant level.

Mitigation Measure HYD-1: Obtain an NPDES Construction General Permit and Incorporate its Requirements as Well as Those of Other Water Quality Regulations in Site-Specific Project Designs

The JPA or local agency undertaking later projects will implement the following actions either directly or through contract specifications:

1. During the design of individual projects, in consultation with the applicable regulatory agencies, develop specific design and construction standards for stream crossings, including, but not limited to, maintaining open surface (bridged versus closed culvert) crossings, infrastructure setbacks, erosion control measures, sediment controlling excavation/fill practices, and other BMPs as described in item 4 below.
2. In subsequent analysis, during individual project design or preparation of CEQA documents, include, for example, field surveys of potential surface water resources to further analyze

potential impacts on water quality. The JPA or local agency will obtain the required permits from the appropriate agencies based on the results of the field surveys.

3. During and after construction activities, monitor and ensure compliance with water quality objectives outlined in the Central Valley RWQCB Basin Plan.

4. Minimize sediment transport caused by construction by following BMPs undertaken as part of NPDES Permit and SWPPP requirements that will be included in construction permits. The BMPs will be designed so that, when employed in concert, they will meet the requirement of the NPDES permit and avoid the transport of sediment from the project site. BMPs may include, but are not limited to, measures such as the following:

    a. providing permeable surfaces where feasible and where this would not result in erosion or the release of sediment;

    b. retaining and treating stormwater on site using catch basins and filtering wet basins;

    c. minimizing the contact of construction materials, equipment, and maintenance supplies with stormwater;

    d. reducing erosion through soil stabilization, watering for dust control, installing perimeter silt fences, placing rice straw bales, and installing sediment basins; and

    e. maintaining water quality by using infiltration systems, detention systems, retention systems, constructed wetland systems, filtration systems, biofiltration/bioretention systems, grass buffer strips, ponding areas, organic mulch layers, planting soil beds, sand beds, and vegetated systems such as swales and grass filter strips that are designed to convey and treat either fallow flow (swales) or sheetflow (filter strips) runoff.

5. Develop and implement a procedure for spill prevention and control to minimize the potential for, and effects from, spills of hazardous, toxic, or petroleum substances during all construction activities. If a spill should occur during construction that causes a release of a hazardous material, including oil and radioactive materials, the proper agencies will be notified and an Emergency Release Follow-up Notice Reporting Form will be submitted no more than 30 days following the release.

6. Use methods such as habitat restoration, reconstruction of [habitat] on site, and habitat replacement off site to minimize surface water quality impacts.

7. Comply with conditions included in permits issued under Sections 404 and 401 of the federal CWA.

8. Comply with requirements of Section 10 of the federal Rivers and Harbors Act for work required around a water body designated as navigable (and applicable permit requirements).

9. Comply with the requirements of a state Streambed Alteration Agreement for work along the banks of various surface water bodies.

10. Where feasible, avoid significant development of facilities in areas that may have substantial erosion risk, including areas with erosive soils or steep slopes.

Impact HYD-2: Water Quality Degradation Caused by Construction Activities below the Water Table

Construction of the proposed project will require extensive foundational support. Overpasses, underpasses, grade separations, highway interchanges, and rail crossing structures would require excavation below the ground surface, or support structures or foundations secured deep into the ground. Projects that excavate or secure foundations deep in the ground may encounter groundwater.

Depending on the location, trenching and excavation associated with these projects may reach depths that can expose the water table and create a direct path to the groundwater basin for contaminants to enter the groundwater system. Primary construction-related contaminants that could thereby reach groundwater would include oil and grease, and construction-related hazardous materials and dewatering effluent.

Absent controls, dewatering operations may temporarily impact existing beneficial uses of municipal and domestic supply, freshwater replenishment, and groundwater recharge in surface waters. Similarly, impacts on surface waters include discharge of pollutants and groundwater may be removed for construction purposes. The impact would be significant.

Implementation of Mitigation Measures HYD-1, as described above, and HYD-2, below, would reduce the impact to less than significant by requiring that future contractors meet all regulatory requirements for avoidance of surface water impacts.

Mitigation Measure HYD-2: Comply with Provisions for Dewatering

The JPA or local agency will require the following actions as part of construction contract specifications. Before discharging any dewatered effluent to surface water the contractor will determine whether the volume of water from the dewatering operation is covered under the NPDES Construction General Permit. If it is deemed that the volume is greater than the Construction General Permit allows, the contractor will obtain coverage under an NPDES Low Threat Discharge and Dewatering Permit from the Central Valley RWQCB. The NPDES Low Threat Discharge and Dewatering Permit will require the water from the dewatering operation to be treated prior to discharge to any local water way.

Impact HYD-3: Water Quality Degradation from Urban Runoff Caused by Increased Impervious Surfaces

Project activities such as road widenings, interchange construction, railway crossing installation, and others would create new impervious surfaces. This would result in an incremental reduction in the amount of natural soil surfaces available for infiltration of rainfall and runoff, potentially generating additional runoff during storm events. In addition, the increase in impervious surfaces, along with the increase in surface water runoff, could increase the nonpoint source discharge of pollutants such as sediment, pesticides, oil and grease, nutrients, metals, bacteria, and trash. Contributions of these contaminants to stormwater and other runoff would degrade the quality of receiving waters. During the dry season, vehicle use and other urban activities release contaminants onto the impervious surfaces, where they can accumulate until the first storm event. During this initial storm event, or first flush, the concentrated pollutants are transported via runoff to stormwater drainage systems. Absent controls, contaminated runoff waters could flow into the stormwater drainage systems that discharge into rivers, agricultural ditches, sloughs, and channels and ultimately could degrade the water quality of any of these water bodies. The impact would be significant.

Implementation of Mitigation Measures HYD-3, HYD-4, and HYD-5 would reduce the impact to less than significant by establishing standards for post-construction runoff/drainage control and management. This would include LID techniques designed to clean first flush runoff and reduce the volume of runoff from the facilities.

Mitigation Measure HYD-3: Implement Measures to Maintain Water Quality after Construction

The design of individual projects will include, and the JPA or local agency will implement, either directly or through contract specifications, source and treatment control measures contained in County Stormwater Management Plans or EPA and other related guidance documents. General site housekeeping and design control measures incorporated into the project design can include, but are not limited to, conserving natural areas, protecting slopes and channels, and minimizing impervious areas. Treatment control measures may include use of vegetated swales and buffers, detention basins, wet ponds, or constructed wetlands, infiltration basins, and other measures. LID approaches will be incorporated into site design and stormwater management to maintain the site's predevelopment runoff rates and volumes. Examples of such measures include, but are not limited to, sidewalk storage, vegetated swales, landscaped buffers and strips, tree preservation, permeable pavers, and impervious surface reduction and disconnection. The JPA or local agency will select and implement specific LID measures and techniques depending on project size and stormwater treatment needs.

Mitigation Measure HYD-4: Conduct Project-Level Drainage Studies for Project Design

The JPA or local agency will conduct drainage studies for later projects on a site-specific basis. The results of the studies will be integrated into the design of the later project's drainage systems. The studies will address county and city drainage study requirements that typically include the following topics:

- A calculation of predevelopment runoff conditions and post-development runoff scenarios using appropriate engineering methods. This analysis will evaluate potential changes to runoff through specific design criteria and account for increased surface runoff.
- An assessment of existing drainage facilities within the project area and an inventory of necessary upgrades, replacements, redesigns, or rehabilitation, including the sizing of onsite stormwater detention features and pump stations.
- A description of the proposed maintenance program for the onsite drainage system.
- Standards for drainage systems to be installed on a project-/parcel-specific basis.
- Design measures to ensure structures will not impact 100-year floodplain areas.

Drainage systems for the individual project will be designed in accordance with the findings of the studies, the requirements of the applicable local flood control agencies, and flood control design criteria established under applicable local ordinances. As a performance standard, the systems will provide for no net increase in peak stormwater discharge relative to current conditions to ensure that 100-year flooding and its potential impacts are maintained at or below current levels and that people and structures are not exposed to additional flood risk.

Mitigation Measure HYD-5: Design and Install Infiltration Systems

The design of individual projects will include infiltration systems, where feasible. Infiltration devices will be installed to replace the natural recharge rate of the soil to be paved over, reduce stormwater peak discharges and volumes to downstream catchments, and improve the quality of stormwater discharged to water bodies. Examples of infiltration devices include, but are not limited to, infiltration basins, pervious concrete, retention trenches, and bioretention measures. As discussed in Mitigation Measure HYD-3, LID techniques will be implemented to increase soil infiltration. Much of the proposed project is located within areas with Hydrologic Soil Group (HSG) D soils where certain infiltration devices do not work well. In these cases, other measures such as detention basins or vegetative barriers that will help retain waters.

Impact HYD-4: Substantial Increased Runoff Resulting in Flooding

The proposed project could potentially alter surface drainage patterns by adding impermeable surfaces, directly altering flow patterns, or placing structures in a floodway, all of which could yield increased amounts of stormwater runoff. Project activities such as road widening, interchange construction, railway crossing installation, and others that convert permeable surfaces or install permanent structures would require stormwater drainage management measures to avoid flooding impacts. Given that much of the project alignment is along existing roadways, flow patterns are not expected to be significantly altered or cause a substantial increase in impervious surfaces that would result in flooding, the impact would be less than significant with mitigation.

As described above, implementation of Mitigation Measures HYD-4 would reduce the impact to less than significant by requiring individual project-specific drainage studies where appropriate, and storm drainage improvements designed to avoid this impact.

Impact HYD-5: Reduction in Groundwater Recharge Caused by Increased Impervious Surfaces

The proposed project would include activities such as road widenings, interchange construction, railway crossing installation, and others that would result in new impervious surfaces and could reduce rainwater infiltration and groundwater recharge. Infiltration rates vary depending on the overlying soil types. In general, sandy soils have higher infiltration rates and can contribute to significant amounts of groundwater recharge, clay soils tend to have lower percolation potentials, and impervious surfaces such as pavement significantly reduce infiltration capacity and increase surface water runoff. The amount of new pavement and the extent to which it affects infiltration depends on the site-specific soil type. Projects located in urban areas would have less of an impact than projects converting open lands and spaces. The proposed project is located in urban areas and along existing highways, streets, and roads where many of the surfaces are already paved or impervious. The project would increase this impervious area through new facilities. The impact would be significant.

As described above, implementation of Mitigation Measure HYD-5 would reduce the impact to less than significant by requiring the design and installation of infiltration systems.

Impact HYD-6: Discharges of Contaminants to 303(d) Listed Water Bodies

Several water bodies in the project area, including major rivers, creeks, and tributaries (see Table 10-1) have been identified under CWA Section 303(d) as impaired by a variety of contaminants, including pesticides (chlorpyrifos, DDT, diazinon, and Group A pesticides), mercury, copper, zinc, pathogens, and exotic species. These constituents originate from a variety of sources, but generally include agricultural activities, such as irrigation runoff, and urban nonpoint sources of runoff from landscaping, rooftops, trash, and illicit dumping. Use of aquatic pesticides for weed control and concrete lining for maintenance along bridge crossings may also cause discharges. Under the CWA listing, these water bodies have no remaining assimilative capacity or ability to accommodate additional quantities of these contaminants, irrespective of concentration. Projects are required to comply with requirements of approved TMDLs by the Central Valley RWQCB through issuance of WDRs and NPDES permit amendments. The impact from discharge of contaminants would be significant.

As described above, implementation of Mitigation Measures HYD-1 and HYD-3 would reduce the impact to less than significant by requiring compliance with contaminant control requirements.

Impact HYD-7: Changes to Floodplain from Construction Activities

Segments of the proposed project would be constructed within the 100-year flood zone, thus increasing the potential to obstruct or exacerbate floodwaters. The construction of projects involving support structures in the floodway could obstruct floodwaters at some locations. Absent careful design, the placement of structures within a floodplain can displace floodwaters and alter the base flood elevations in the surrounding areas. Structures can form a backwater effect, resulting in an increase in the flood elevation level upstream and in neighboring areas. Likewise, floodwater can cause scour effects, resulting in erosion and sedimentation problems downstream from structures. Drainage areas could be altered by highway corridors, in which floodwaters could be detained by medians and along the roadside. Proposed bridge supports could block debris in waterways, creating obstructions and further elevating upstream flood levels. The impact would be significant.

Potential impacts of flooding that could result from the proposed project would be alleviated through the FEMA Letter of Map Revision (LOMR) approval process, as well as the requirements of the Central Valley Flood Protection Board, when applicable.

Implementation of Mitigation Measure HYD-6 would reduce the impact less than significant.

Mitigation Measure HYD-6: Avoid Restriction of Flood Flows and Obtain Agency Approval of Construction within 100-Year Floodplains

The design of individual projects will proceed in accordance with the best available mapping from DWR, FEMA, and USACE. The project design will comply with the requirements of the applicable local flood control agencies, and flood control design criteria established under applicable local ordinances. If unavoidable construction would occur within a 100-year floodplain, the JPA or local agency will prepare a letter of map amendment and submit to FEMA before construction of the project. The LOMR will include revised local base flood elevations for projects constructed within flood-prone areas. If the LOMR is approved, the design will reflect its provisions.

Impact HYD-8: Potential for Inundation by Dam or Levee Failure

Significant precipitation or major storm events have the potential to cause levee failure within the project area. Any projects constructed within areas subject to flooding caused by dam failure, as mapped by FEMA, would be built following standard building codes and federal, state, and local regulations, all of which would be adequate to protect against personal injury or death. The impact would be significant. While there are no state or federal levees in the project area, there are several local levees along the Cosumnes River and Deer, Morrison, and Laguna Creeks, as well as other creeks in the project area.

Implementation of Mitigation Measure HYD-7 would reduce the impact to less than significant.

Mitigation Measure HYD-7: Design Projects to Pass Flows in the Event of Levee or Dam Failure

During the design of individual projects, the JPA or local agency will consult with the applicable flood control agencies to ensure that the flooding risks of pre-project conditions will not increase as a result of construction of the individual projects. If a project has the potential to impede or redirect flows from a levee or dam failure, such that there would be less than a 1% chance that flooding would extend to areas not previously mapped as inundation areas, the project will be redesigned to the maximum extent practicable so that the project would not expand the area subject to pre-project inundation conditions. This may be achieved through incorporation of culverts or bridges into the project design.

10.3.4 Impacts of the Off-Corridor Multi-Use Path Alternative

Overall, implementation of the Off-Corridor Multi-Use Path Alternative would not reduce or avoid any impacts of the proposed project and would introduce new impacts on hydrology and water quality resources where it runs outside of existing roads. This alternative would include additional impacts on water bodies along the Laguna Creek and other water bodies along the path. Potential impacts were evaluated within a study area that extends 25 feet on both sides of the proposed segment.

Impact HYD-1: Surface Water Quality Degradation Caused by Construction Activities

Implementation of the Off-Corridor Multi-Use Path Alternative would not reduce or avoid potential impacts on hydrology and water quality and would potentially introduce new impacts from construction activities. The multi-use path is located along Laguna Creek, and is in the vicinity of Elk Grove, Whitehouse, and Strawberry Creeks. These creeks flow into Beach Lake and ultimately into the Sacramento River. Construction of bridge crossings along the path may result in discharges of sediment and mobilization of metals in sediment into Laguna Creek and other creeks in the vicinity of construction activities. This impact is considered significant.

As described above, implementation of Mitigation Measure HYD-1 would reduce this impact to less than significant.

Impact HYD-2: Water Quality Degradation Caused by Construction Activities below the Water Table

Little to no excavation will be required to construct the Off-Corridor Multi-Use Path. Therefore, this impact is considered to be less than significant.

Impact HYD-3: Water Quality Degradation from Storm Runoff Caused by Increased Impervious Surfaces

Although the proposed Off-Corridor Multi-Use Path Alternative has a smaller footprint than the design options described below, there is still the potential for impacts from increased polluted runoff. The primary pollutant type potentially found as a result of this proposed alternative is trash or pollutants caused by bicycle and pedestrian traffic. This impact is considered significant.

As described above, implementation of Mitigation Measure HYD-3 would reduce this impact to less than significant.

Impact HYD-4: Substantial Increased Runoff Resulting in Flooding

The Off-Corridor Multi-Use Path may result in a small increase in localized flooding along Laguna Creek. The north access/entrance route to the park near the existing bicycle/pedestrian Laguna Creek trail regularly floods during two to three months of the winter season. Because the trail is rather low, it becomes submerged and impassible, resulting in temporary trail access restrictions. As a result, this impact is considered to be significant if measures minimizing the flood runoff from bridge crossings or other ways to increase the height of the trail are not included in the design.

As described above, implementation of Mitigation Measures and HYD-4 would reduce this impact to less than significant.

Impact HYD-5: Reduction in Groundwater Recharge Caused by Increased Impervious Surfaces

It is unlikely that the small paved area of the proposed Off-Corridor Multi-Use Path Alternative would result in a large increase in impervious area that would affect groundwater recharge in the area. In addition, Laguna Creek is likely the source of area groundwater recharge, and would maintain its soil infiltration ability. Therefore, this impact is considered less than significant.

Impact HYD-6: Discharges of Contaminants to 303(d) Listed Water Bodies

Although there are no 303(d) listed waters along the multi-use path, the tributaries that flow into the Sacramento River will have to comply with TMDLs for the Sacramento River because of the tributary rule.[1] The Sacramento River is impaired for chlordane, DDT, dieldrin, mercury, PCBs, and unknown toxicity. Many of these contaminants are contained in sediments, and therefore the mobilization of sediment during construction of the multi-use path could increase contaminants loads in nearby water bodies and ultimately the Sacramento River. This impact is considered significant.

As described above, implementation of Mitigation Measure HYD-1 and HYD-3 would reduce this impact to less than significant.

Impact HYD-7: Changes to Floodplain from Construction Activities

The Off-Corridor Multi-Use Path Alternative is not located within a FEMA 100-year regulatory flood zone**.** Therefore, there is no impact.

Impact HYD-8: Potential for Inundation by Dam or Levee Failure

Because implementation of the Off-Corridor Multi-Use Path Alternative may cause flood flows to expand along Laguna Creek, intense storm events may cause overtopping of existing local levees along the creek. This impact is considered significant.

As described above, implementation of Mitigation Measure HYD-7 would, if needed, guide design of this alternative to minimize inundation, thereby reducing this impact to less than significant.

10.3.5 Impacts of the Project Options

10.3.5.1 Kammerer Road Bypass Option

Overall, implementation of the Kammerer Road Bypass Option would not reduce or avoid any impacts of the proposed project and would introduce new impacts on hydrology and water quality, including additional impacts on water bodies. Potential impacts were evaluated within a study area that extends 800 feet on both sides of the proposed segment.

Impact HYD-1: Surface Water Quality Degradation Caused by Construction Activities

Implementation of the Kammerer Road Bypass Option would not reduce or avoid potential impacts on surface water quality in comparison to the proposed project. This option would potentially introduce new impacts from construction activities. Although there are no major water bodies along the proposed Kammerer Road Bypass, tributaries of the Sacramento River are located within the potential area of impact. This impact is considered significant.

As described above, implementation of Mitigation Measure HYD-1 would reduce this impact to less than significant.

Impact HYD-2: Water Quality Degradation Caused by Construction Activities below the Water Table

Groundwater aquifers within the area of this project option may be exposed during construction activities, which make them vulnerable to spills of construction-related contaminants. Although there are no known contaminated groundwater sites along this segment, dewatering activities may result in contamination of surface waters if not properly treated. This impact is considered significant.

As described above, implementation of Mitigation Measure HYD-2 would reduce this impact to less than significant.

Impact HYD-3: Water Quality Degradation from Storm Runoff Caused by Increased Impervious Surfaces

Increased impervious surface can concentrate and redirect stormwater runoff, and can also result in increased volumes of polluted runoff. The primary pollutant types resulting from this option would be consistent with those identified in Table 10-2, and would typically consist of oil and grease, metals, and other pollutants from vehicles. This impact is considered significant.

As described above, implementation of Mitigation Measures HYD-3, HYD-4, and HYD-5 would reduce this impact to less than significant.

Impact HYD-4: Substantial Increased Runoff Resulting in Flooding

The Kammerer Road Bypass Option would not greatly increase impervious surfaces in the area since much of the bypass would be construction in areas that are already impervious, and therefore would not likely increase the potential for localized flooding if proper construction and operation drainage features are not installed. This impact is considered less than significant.

Impact HYD-5: Reduction in Groundwater Recharge Caused by Increased Impervious Surfaces

Increased impervious surfaces block stormwater from infiltrating into the aquifer, resulting in a decrease in the ability for groundwater to be recharged. The extent of the four-lane bypass would result in increased impervious surface in the area. This impact is considered significant.

As described above, implementation of Mitigation Measure HYD-5 would reduce this impact to less than significant.

Impact HYD-6: Discharges of Contaminants to 303(d) Listed Water Bodies

There are no 303(d) listed waters along this proposed segment. The tributaries that flow into the Sacramento River will have to comply with TMDLs for the Sacramento River because of the “tributary rule.”[1] The Sacramento River is impaired for chlordane, DDT, cieldrin, mercury, PCBs, and unknown toxicity. Many of these contaminants are contained in sediments, and therefore the mobilization of sediment during construction of the Kammerer Road Bypass could increase contaminants loads in nearby water bodies and ultimately the Sacramento River. This impact is considered significant.

As described above, implementation of Mitigation Measures HYD-1 and HYD-3 would reduce this impact to less than significant.

Impact HYD-7: Changes to Floodplain from Construction Activities

Segments of the Kammerer Road Bypass Option would be constructed within a FEMA-designated 100-year flood zone as well as the DWR 100-year flood zone, thus increasing the potential to obstruct or exacerbate floodwaters. Although the area of the 100-year flood zone is relatively small, the construction of projects involving support structures in the floodway could obstruct floodwaters at some locations. Absent careful design, the placement of structures within a floodplain can displace floodwaters and alter the base flood elevations in the surrounding areas. Structures can form a backwater effect, resulting in an increase in the flood elevation level upstream and in neighboring areas. Likewise, floodwater can cause scour effects, resulting in erosion and sedimentation problems downstream from structures. Drainage areas could be altered by the four-

[1] The tributary rule states that upstream tributaries shall not affect downstream tributaries that are listed as being impaired on the CWA Section 303(d) List.

lane highway corridor proposed for the Kammerer Road Bypass Option in which floodwaters could be detained by medians and along the roadside. The impact would be significant.

Potential impacts of flooding that could result from the proposed project would be alleviated through the FEMA Letter of Map Revision (LOMR) approval process, as well as the requirements of the Central Valley Flood Protection Board, when applicable, and the affected Reclamation District.

As described above, implementation of Mitigation Measure HYD-6 would reduce the impact less than significant.

Impact HYD-8: Potential for Inundation by Dam or Levee Failure

In addition, if storm events were intense enough, flooding sheet-flow could impact the project area from the Cosumnes or Sacramento Rivers if a levee were to fail. It is possible that the proposed Kammerer Road Bypass Option could redirect flood flows substantially if a dam or levee were to fail. This impact is considered significant.

As described above, implementation of Mitigation Measure HYD-7 would, if needed, guide design of this option to minimize inundation, thereby reducing this impact to less than significant.

10.3.5.2 Deer Creek Causeway Options

Overall, implementation of Deer Creek Causeway Options 1 and 2 would not reduce or avoid any impacts of the proposed project and would introduce new impacts on hydrology and water quality conditions in the area. This option would include additional impacts on wetlands by introducing a segment of new road to the southeast of Grant Line Road in an area with wetlands and other habitat. Potential impacts were evaluated within a study area that extends 800 feet on both sides of the proposed segment.

Impact HYD-1: Surface Water Quality Degradation Caused by Construction Activities

Implementation of Deer Creek Causeway Options 1 and 2 would not reduce or avoid potential impacts on hydrology and water quality conditions and would potentially introduce new impacts during construction activities. The proposed options are located along Deer Creek, which flows into the Cosumnes River. Construction of an elevated, divided, two-lane causeway built on concrete piers and bridge slabs along the wetland may result in discharges of sediment and mobilization of metals in sediment into Deer Creek and other nearby creeks. This impact is considered significant.

As described above, implementation of Mitigation Measure HYD-1 would reduce this impact to less than significant.

Impact HYD-2: Water Quality Degradation Caused by Construction Activities below the Water Table

Groundwater aquifers within the project area may be exposed during construction activities, making them vulnerable to spills of construction-related contaminants. According to the SWRCB Geotracker database, a land disposal site is located near the proposed options that may have contaminated groundwater aquifers and could contaminate surface water during dewatering activities. This impact is considered significant.

As described above, implementation of Mitigation Measure HYD-2 would reduce this impact to a less-than-significant level.

Impact HYD-3: Water Quality Degradation from Urban Runoff Caused by Increased Impervious Surfaces

As shown in Appendix I, Deer Creek Causeway Options 1 and 2 would be elevated directly over a wetland; therefore, stormwater runoff is likely to flow directly into the wetland from the causeway. Although the volume of runoff may not increase, the volume of contaminated runoff is expected to. The primary pollutant types resulting from this option would be consistent with those identified in Table 10-2, such as oil and grease, metals, and other pollutants from vehicle use. This impact is considered significant.

As described above, implementation of Mitigation Measure HYD-3 would reduce this impact to a less-than-significant level.

Impact HYD-4: Substantial Increased Runoff Resulting in Flooding

Runoff volumes are not expected to increase substantially with this option along the elevated portion of the causeway because the volume of rainfall runoff is essentially linked to rainfall amount, duration, and intensity. Along the non-elevated portions of the causeway, runoff volumes are expected to increase, but these increases are expected to be minor. However, because the causeway would be constructed in a floodway, a drainage study may need to be prepared.

As described above, implementation of Mitigation Measure HYD-4 would reduce this impact to a less-than-significant level.

Impact HYD-5: Reduction in Groundwater Recharge Caused by Increased Impervious Surfaces

Increased impervious surfaces block stormwater from infiltrating into the aquifer, resulting in a decrease in the ability for groundwater to be recharged. The Deer Creek Causeway would increase impervious surfaces in areas where the road is on land. This impact is considered significant.

As described above, implementation of Mitigation Measure HYD-5 would reduce this impact to a less-than-significant level.

Impact HYD-6: Discharges of Contaminants to 303(d) Listed Water Bodies

Deer Creek is listed as a 303(d) impaired water body for iron. Metals are often contained in sediments, and therefore the mobilization of sediment during construction of the Deer Creek Causeway could increase iron loads in nearby water bodies and could result in a violation of the TMDL. This impact is considered significant.

As described above, implementation of Mitigation Measures HYD-1 and HYD-3 would reduce this impact to less than significant.

Impact HYD-7: Changes to Floodplain from Construction Activities

The proposed Deer Creek Causeway Options 1 and 2 are located within the Cosumnes River/Deer Creek floodplain. The floodplain is identified as Zone A (Base Flood Elevations not Determined) on the FEMA FIRMs. A floodplain analysis for the options indicated the causeway could result in an increase in the Cosumnes River 100-year water surface elevation by a maximum of 0.6 foot over existing conditions due to a pier width of 3 feet. FEMA requirements allow a maximum increase of up to 1 foot in the 100-year floodplain. The increase in water surface elevation could result in a significant risk to people and existing structures in the floodplain (structures in the floodplain are shown in Figure 10-2). Floodplain impacts may be minimized or eliminated during the project's design phase. However, this impact is considered significant.

As described above, implementation of Mitigation Measure HYD-6 would reduce this impact to less than significant.

Impact HYD-8: Potential for Inundation by Dam or Levee Failure

Because there is the potential for a 0.6-foot increase in the Cosumnes River 100-year water surface elevation, intense storm events may cause overtopping of local levees along Deer Creek. In addition, if storm events were intense enough, flooding sheet-flow could affect the project area from the Cosumnes or Sacramento Rivers if a levee were to fail. This impact is considered significant.

As described above, implementation of Mitigation Measure HYD-7 would reduce this impact to less than significant.

10.3.5.3 Sheldon Reduced Access Roadway Option

Overall, implementation of the Sheldon Reduced Access Roadway Option would not reduce or avoid any impacts of the proposed project and would introduce new impacts on hydrology and water quality conditions. This option also could result in additional impacts on water bodies along the segment of new road to the southeast of Grant Line Road. Potential impacts were evaluated within a study area that extends 800 feet on both sides of the proposed segment.

Impact HYD-1: Surface Water Quality Degradation Caused by Construction Activities

Implementation of the Sheldon Reduced Access Roadway Option would not reduce or avoid potential impacts on hydrology and water quality conditions in comparison to the proposed project, and would potentially introduce new impacts from construction activities. This impact is considered significant.

Implementation of Mitigation Measure HYD-1 would reduce this impact to less than significant.

Impact HYD-2: Water Quality Degradation Caused by Construction Activities below the Water Table

Groundwater aquifers in the area may be exposed during construction activities, leaving them vulnerable to construction-related contaminant spills. Although there are no known contaminated groundwater sites along this segment, dewatering activities may result in contamination of surface waters if not properly treated. This impact is considered significant.

As described above, implementation of Mitigation Measure HYD-2 would reduce this impact to less than significant.

Impact HYD-3: Water Quality Degradation from Urban Runoff Caused by Increased Impervious Surfaces

Increased impervious surfaces can also result in increased volumes of polluted runoff. The primary pollutant types resulting from this option would be consistent with those identified in Table 10-2, and would typically consist of oil and grease, metals, and other pollutants from vehicle use. This impact is considered significant.

As described above, implementation of Mitigation Measure HYD-3 would reduce this impact to less than significant.

Impact HYD-4: Substantial Increased Runoff Resulting in Flooding

This elevated two-lane roadway would slightly increase impervious surfaces, but the increase is unlikely to cause localized flooding in the project area. Therefore, implementation this option would be less than significant.

Impact HYD-5: Reduction in Groundwater Recharge Caused by Increased Impervious Surfaces

Increased impervious surfaces block stormwater from infiltrating into the aquifer, resulting in a decrease in the ability for groundwater to be recharged. The extent of the roadway would result in increased impervious surface. The Sheldon Reduced Access Roadway Option would increase impervious surfaces, and therefore could decrease the ability for groundwater to be recharged in the area. This impact is considered significant.

As described above, implementation of Mitigation Measure HYD-5 would reduce this impact to less than significant.

Impact HYD-6: Discharges of Contaminants to 303(d) Listed Water Bodies

The proposed Sheldon Reduced Access Roadway Option is located within the vicinity of Deer Creek and adjacent to several of its tributaries. Deer Creek is listed as a 303(d) impaired water body for iron. Metals are often contained in sediments, and therefore the mobilization of sediment during construction of the roadway could increase iron loads in nearby water bodies and could result in a violation of the TMDL. This impact is considered significant.

As described above, implementation of Mitigation Measures HYD-1 and HYD-3 would reduce this impact to less than significant.

Impact HYD-7: Changes to Floodplain from Construction Activities

Although located near Deer Creek, the proposed option is not located within a FEMA-designated 100-year floodplain. There would be no impact.

Impact HYD-8: Potential for Inundation by Dam or Levee Failure

In addition, if storm events were intense enough, flooding sheet-flow could affect the project area from the Cosumnes or the Sacramento Rivers if a levee were to fail. The proposed Sheldon Reduced Access Roadway Option is located near Deer Creek, where local levees are situated. This impact is considered significant.

As described above, implementation of Mitigation Measure HYD-7 would reduce this impact to a less-than-significant level.

10.3.5.4 Sheldon High Access Roadway Option

Implementation of the Sheldon High Access Roadway Option would reduce the impacts of the proposed project by avoiding impacts on water bodies located in Sheldon along Grant Line Road between Bond and Calvine Roads. However, water bodies located within Elk Grove may be affected where Grant Line Road would be widened from four to six lanes in the future. Potential impacts were evaluated within a study area that extends 800 feet on both sides of the proposed segment.

Impact HYD-1: Surface Water Quality Degradation Caused by Construction Activities

Implementation of the Sheldon High Access Roadway Option would not reduce or avoid potential impacts on hydrology and water quality conditions in comparison to the proposed project and would potentially introduce new impacts during construction activities. Grant Line Road is located in the vicinity of tributaries of Deer Creek. This impact is considered to be significant.

As described above, implementation of Mitigation Measure HYD-1 would reduce this impact to less than significant.

Impact HYD-2: Water Quality Degradation Caused by Construction Activities below the Water Table

Groundwater aquifers in the area may be exposed during construction activities, making them vulnerable to construction-related contaminant spills. Although there are no known contaminated groundwater sites along this segment, dewatering activities may result in contamination of surface waters if not properly treated. This impact is considered significant.

As described above, implementation of Mitigation Measure HYD-2 would reduce this impact to less than significant.

Impact HYD-3: Water Quality Degradation from Urban Runoff Caused by Increased Impervious Surfaces

Increased impervious surface can concentrate and redirect stormwater runoff. Increased impervious surfaces can also result in increased volumes of polluted runoff. The primary pollutant types resulting from this option would be consistent with those identified in Table 10-2, and would typically consist of oil and grease, metals, and other pollutants from vehicle use. This impact is considered to be significant.

As described above, implementation of Mitigation Measure HYD-3 would reduce this impact to less than significant.

Impact HYD-4: Substantial Increased Runoff Resulting in Flooding

The Sheldon High Access Roadway Option would increase impervious surfaces with road widening, and, although the increase is expected to be minor, it could increase the potential for localized flooding in the area if proper construction and operation drainage features are not installed. This impact is considered significant.

As described above, implementation of Mitigation Measures HYD-3 and HYD-4 would reduce this impact to less than significant.

Impact HYD-5: Reduction in Groundwater Recharge Caused by Increased Impervious Surfaces

Increased impervious surface area prevents stormwater from infiltrating into the aquifer, resulting in a decrease in the ability for groundwater to be recharged. The Sheldon High Access Roadway Option would increase impervious surfaces in the area. This impact is considered significant.

As described above, implementation of Mitigation Measure HYD-5 would reduce this impact to less than significant.

Impact HYD-6: Discharges of Contaminants to 303(d) Listed Water Bodies

The proposed Sheldon High Access Roadway Option is located within the vicinity of Deer Creek, and adjacent to small tributaries of the creek. Deer Creek is listed as a 303(d) impaired water body for iron. Metals are often contained in sediments, and therefore the mobilization of sediment during construction of the roadway could increase iron loads in nearby water bodies and could result in a violation of the TMDL. This impact is considered significant.

Implementation of Mitigation Measures HYD-1 and HYD-3 would reduce this impact to a less-than-significant level.

Impact HYD-7: Changes to Floodplain from Construction Activities

Although located relatively close to Deer Creek, the proposed option is not located within a FEMA-designated 100-year floodplain**.** Therefore, there would be no impact.

Impact HYD-8: Potential for Inundation by Dam or Levee Failure

In addition, if storm events were intense enough, flooding sheet-flow could affect the project area from the Cosumnes or the Sacramento Rivers if a levee were to fail. The proposed Sheldon High Access Roadway Option is located near Deer Creek, where local levees are situated. This impact is considered significant.

As described above, implementation of Mitigation Measure HYD-7 would reduce this impact to a less than significant level.

Chapter 11
Land Use

11.1 Introduction

This chapter describes the existing environmental and regulatory settings related to land use and agricultural resources in the project area. It begins with a description of existing land uses and agriculture and then summarizes applicable federal, state, and local planning documents. Impacts related to land use and agriculture that may result from implementation of the proposed project, as well as mitigation measures to reduce these impacts, are also presented.

The following sources of information were reviewed to prepare this chapter:

- Environmental Screening Analysis Final Technical Report, URS Corporation (2006)
- Sacramento County General Plan, Sacramento County (2011)
- El Dorado County General Plan, El Dorado County (2004)
- Elk Grove General Plan, City of Elk Grove (2009)
- Folsom General Plan, City of Folsom (1993)
- Rancho Cordova General Plan, City of Rancho Cordova (2006a)

In addition, numerous other plans were reviewed to identify relevant policies and determine the Connector project's overall consistency. These plans are described below.

11.2 Environmental Setting

This section provides a regional overview of existing land uses in the project vicinity, as well as in the study area (Figure 11-1). For the purposes of this analysis, the land use study area is defined as 400 feet in either direction from the center line of the project corridor.

11.2.1 Existing Land Uses

11.2.1.1 Regional Overview

Sacramento County

Sacramento County extends from the low delta lands between the Sacramento and San Joaquin Rivers north to about 10 miles beyond the city of Sacramento and east to the foothills of the Sierra Nevada. Two of the three major regional employment centers are located in Sacramento County, one in downtown Sacramento and the more recent along the US 50 Corridor in the cities of Rancho Cordova and Folsom. Land in the southern region of the county is predominantly low-suburban to rural-density residential land. Agricultural uses and the Cosumnes River dominate the southwestern portion of the county.

While it is the most urbanized of the counties in the region, Sacramento County has a long history of agricultural activity. The majority of agricultural lands and activities are located in the south and east county areas, including the Delta region. In 2008 the county grossed more than $357 million in agricultural products (Sacramento County Agricultural Commissioner 2008). Top income-producing crops in the county are wine grapes, milk, nursery products, and pears.

El Dorado County

El Dorado County extends from Sacramento County on the west to the summit of the Sierra Nevada on the east. From west to east, the geography of El Dorado County progresses from foothill to mountainous terrain. Existing land uses include residential, commercial, and industrial urban development; rural and agricultural lands used for resource extraction; open space; and recreation. Residential and commercial development is concentrated primarily on the west side of the county in clusters along US 50, including Placerville and the unincorporated communities of El Dorado Hills and Cameron Park.

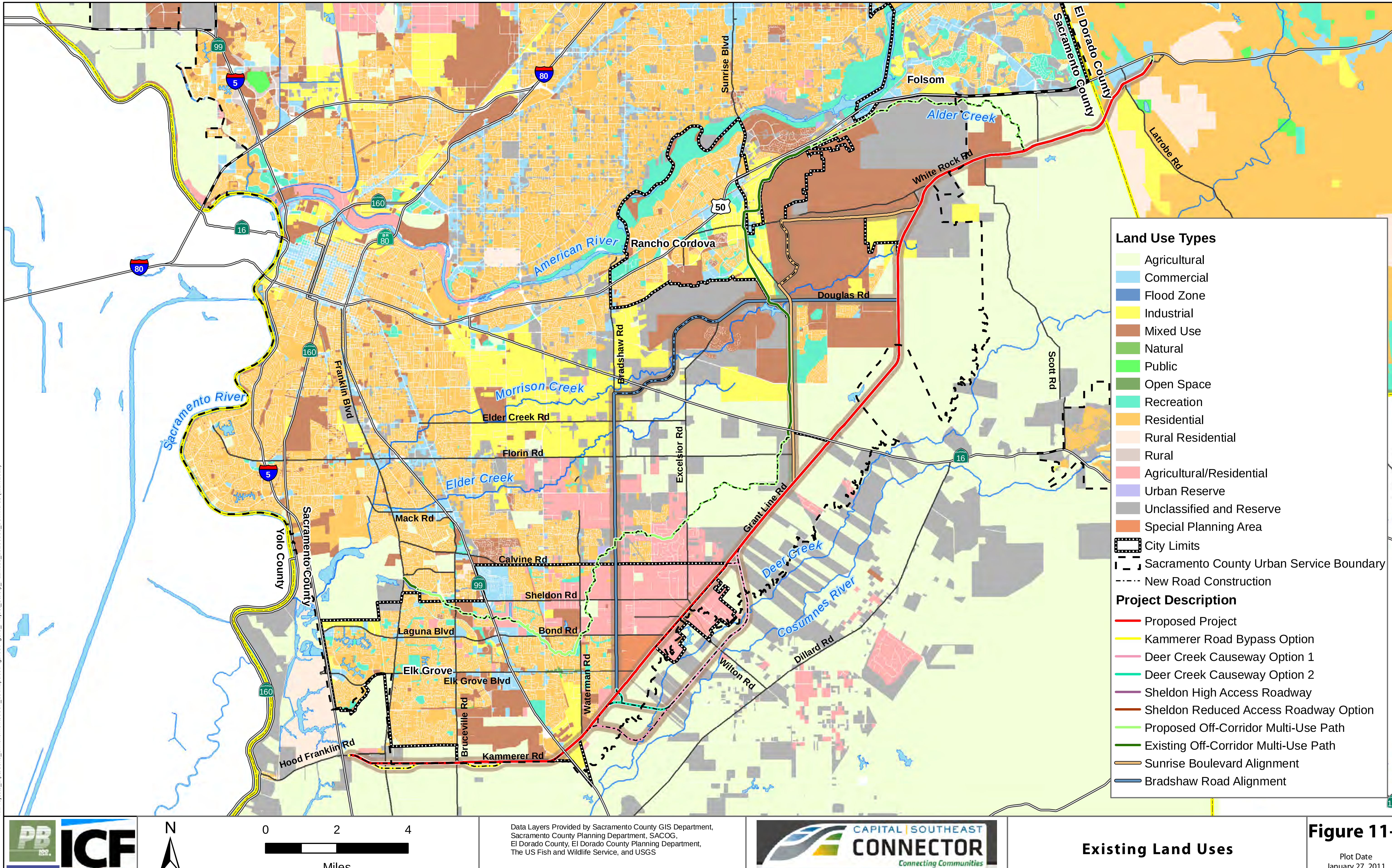
Agricultural lands and forestlands make up a large percentage of the undeveloped lands in El Dorado County. Agricultural influences and activities contribute to the economic stability of the county through crop production, serve as the foundation of the county's rural lifestyle, and serve as a key element in the sense of community of many rural regions. In 2009, the county had a gross crop value of $37.4 million, including timber (El Dorado County Department of Agriculture 2009). Forest lands, including National Forests, occupy 636,000 acres (55%) of the county. Lands on the west slope of the county are considered the most valuable for agriculture because of the area's gentler slopes and richer soils. Historically, grazing of cattle and other livestock was the primary economic contributor in El Dorado County. The production of fruit (including wine grapes) and nuts has become a major contributor to the county's agricultural production value.

11.2.1.2 Study Area

As shown in Figure 11-1, the project corridor extends from the I-5/Hood Franklin Road interchange in southwest Sacramento County east and north approximately 35 miles, terminating at US 50 approximately 3 miles past the El Dorado County line. The majority of the land is used for agriculture, rural and open space, residential, commercial, industrial, and mixed-use. Table 11-1 shows the acreages of land-use types in the study area.

Near the I-5/Hood Franklin Road interchange, the project alignment runs adjacent to the southern boundary of the city of Elk Grove. Agriculture and residential land uses dominate the project area. The Sheldon community of Elk Grove, which is bisected by the existing alignment of Grant Line Road, is characterized by large-lot residential uses and small clusters of commercial land uses. The southern border of the proposed roadway is bordered by unincorporated Sacramento County and is used primarily for general agriculture.

Between the cities of Elk Grove and Rancho Cordova, the project alignment runs through unincorporated Sacramento County. As shown in Figure 11-1, agriculture and rural lands border the project alignment on both the northern and southern edges.



Data Layers Provided by Sacramento County GIS Department, Sacramento County Planning Department, SACOG, El Dorado County, El Dorado County Planning Department, The US Fish and Wildlife Service, and USGS

CAPITAL SOUTHEAST CONNECTOR Connecting Communities

Figure 11-1

Existing Land Uses

Plot Date January 27, 2011

K:\Projects_1\parsons_brinckerhoff\00907_08\mapdoc\Figures\Figure_Project_Safety_Facilities_20100908_93.mxd ds (1/27/2011)

Revised Table 11-1. Existing Land Uses within the Study Area[a]

Proposed Project/ Design Option	Land Use	Sacramento County (acres)	El Dorado County (acres)	Elk Grove (acres)	Rancho Cordova (acres)
	Agricultural	2,527	228	178	421
	Agricultural/Residential	4	–	467	–
	Commercial	–	17	20	–
	Industrial	75	57	116	12
	Mixed	3	–	85	113
	Recreation	7	–	–	–
	Residential	–	160	17	0
	Unclassified	1,176	–	224	–
Off Corridor Multi-Use Path Alternative	Agricultural	2,160	227	167	–
	Agricultural/Residential	473		850	–
	Commercial	5	29	27	–
	Industrial	18	59	1	
	Mixed	1		72	38
	Recreation	–		337	–
	Residential	61	208	381	–
	Unclassified	1,963		207	2
	Urban Reserve	110			
Deer Creek Causeway Option 1	Agricultural	1,156			–
	Agricultural/Residential	3		15	–
	Mixed			21	
	Residential			8	–
	Unclassified	465			–
Deer Creek Causeway Option 2	Agricultural	948			
	Agricultural/Residential	3		37	
	Recreation			1	
	Residential			4	
	Unclassified	469		7	
Sheldon Reduced Access Roadway Option	Agricultural	56		0	
	Agricultural/Residential			384	
	Commercial			8	
	Industrial			10	
	Mixed			16	
	Unclassified	18		41	
Sheldon High Access Roadway Option	Agricultural	49		0	
	Agricultural/Residential			390	
	Commercial			15	
	Industrial			9	
	Mixed			6	
	Unclassified	18		39	

[a] Acreages based on land use zoning codes.

Near the eastern terminus of the project corridor, agricultural and unclassified land uses parallel the project corridor to the south and north, respectively. The Cosumnes community, a Sacramento County planning area, also encompasses a large portion of land south of Grant Line Road. The City of Folsom has recently annexed lands south of US 50, east of Prairie City Road, north of White Rock Road, and west of the Sacramento County–El Dorado County Line. LAFCO approved the City's application to annex 3,585 acres south of Highway 50 into its Sphere of Influence (SOI) on January 18, 2012.

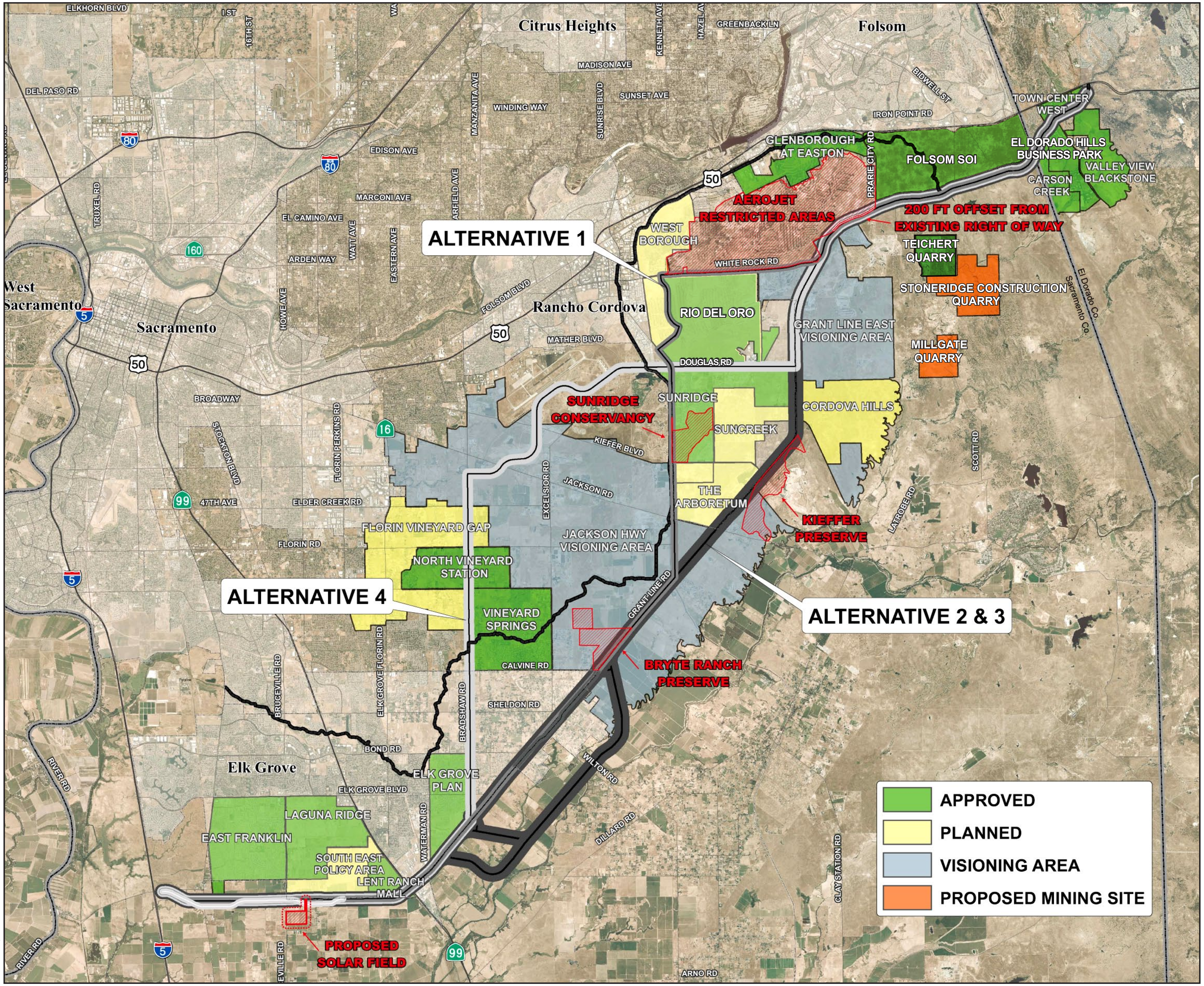
For the approximately 3 miles of the project corridor located within El Dorado County, the project traverses a variety of land uses, including El Dorado Hills, which has experienced steady residential and commercial land use development over the past several years, and pockets of industrial and commercial uses.

Because the proposed project follows the alignments of existing roadways, it falls within the development pattern of the urbanized and rural communities it traverses. Grant Line Road's alignment, for example, predates most development in the project study area. Land uses and development patterns are built around the existing roadway alignments. In the Sheldon area, because the community is older and because of the rural nature of the community, a large number of local residences and businesses, as well as local roadways have direct access to Grant Line Road, functions in some limited ways as the "Main Street" of this rural community.

11.2.2 Planned Development

SACOG has identified several areas in the Sacramento Metropolitan Area where significant growth is expected to occur from 2005 to 2035. Along the project corridor, the city of Rancho Cordova and the Vineyard area are identified as having the highest potential for population, housing, and employment growth (Sacramento Area Council of Governments 2008:7-2). Characteristics of planned development in the corridor are listed in Table 11-2 and shown in Figure 11-2.

As shown in Table 11-2 and Figure 11-2, the project corridor has been and continues to be the site of significant regional development. As described above, the City of Folsom's application for annexation of its SOI south of Highway 50 was recently approved by LAFCO. This annexed area will have a variety of land uses, including open space, schools, retail, residential, and commercial (City of Folsom 2011)).



Graphics\Projects\00907.08 EIR (rev. 2-2012) JD

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Revised Figure 11-2
Proposed Area Developments

Revised Table 11-2. Summary of Planned Development in the Project Vicinity

Proposed Development	Description
East Franklin Specific Plan	Approximately 2,474 acres located 10 miles south of downtown Sacramento; calls for the development of 10,103 dwellings supported by retail, commercial, parks, open spaces, schools, and public support facilities (Sacramento County 2000:ES-4).
South East Policy Area	Approximately 1,194 acres in southern Elk Grove; calls for the development of mixed-use community with a variety of residential neighborhoods, office and commercial uses, parks, open space, educational facilities, and public/quasi-public uses (Sacramento Metropolitan Air Quality Management District 2009b).
Laguna Ridge Specific Plan	Approximately 1,900 acres located in the south of Elk Grove Boulevard; calls for the development of a mix of land uses, including low-, medium- and high-density residential, neighborhood and community commercial, parks, open space, schools, and infrastructure (City of Elk Grove 2004:2.0-1–2.0-2)
Lent Ranch	Approximately 294.8 acres located in Elk Grove; calls for the development of six land use districts with regional shopping, community commercial, neighborhood commercial, office and entertainment, visitor commercial, and multi-use family residential uses (City of Elk Grove 2001:2.0-1)
Glenborough at Easton Project	Approximately 6,400-acres located along the south side of Highway 50 between Hazel Avenue and Prairie City Road; calls for the development of residential, recreation, and commercial uses (Sacramento County 2010d. The Easton Project. Available: http://www.msa2.saccounty.net/planning/Pages/TheEastonProject.aspx. Accessed December 16, 2010).
Jackson Highway Visioning Area	Approximately 22,000 acres, of which 12,000 acres is included in the expansion of the Urban Policy Area (UPA) identified in the County of Sacramento General Plan. Located in Sacramento county along Jackson Road (Sacramento County 2010. The Easton Project. Available: http://www.msa2.saccounty.net/planning/Pages/JacksonHighwayVisioningArea.aspx. Accessed December 16, 2010d).
East Elk Grove Specific Plan	Approximately 1,440 acres located in eastern Elk Grove; calls for the development of 4,300 dwellings (maximum) and various residential, commercial, industrial, parks, educational, and open spaces (Sacramento County 1996:1-2)
Vineyard Springs Comprehensive Plan	Approximately 2,650 acres located southeast of downtown Sacramento; calls for the development of residential, agricultural, educational, and parkland (Sacramento County 2010).
Florin Vineyard Gap Community Plan	Approximately 3,766 acres located in south Sacramento; calls for the development of agricultural, commercial and office, industrial, residential, recreation, and urban development areas (Sacramento County 2009:2-4).
North Vineyard Station Specific Plan	Approximately 1,597 acres located 13 miles southeast of downtown Sacramento; calls for the development of 6,050 housing units, 78 acres of parkland, 22 acres of schools, 39 acres of business and professional, a 20-acre golf course, a 5-acre regional transit site, and 293 acres of open space, parkway, landscape, street, public services, and railroad right-of-way (Economic & Planning Systems, Inc. 2004:1)
Arboretum-Waegell Specific Plan	Approximately 1,349 acres located east of Sunrise Boulevard; calls for the development of 5,037 dwellings, 48 acres of retail and commercial uses, 450 acres of stream corridor, reserves, and vernal pools, and a joint junior high and high school site (City of Rancho Cordova 2010a)

Proposed Development	Description
Suncreek Specific Plan	Approximately 1,253 acres located east of Sunrise Boulevard; calls for the development of 5,500 dwelling units, five schools, 218 acres of wetland preserves, 123.9 acres of park and trail system, and 22 acres of commercial and village commercial opportunities (City of Rancho Cordova 2010b).
Westborough Specific Plan	Located south of US 50 and north of White Rock Road. The plan is in the initial planning stages and no specific developments have been proposed.
Rio del Oro Specific Plan	Approximately 3,828 acres located south of White Rock Road; calls for the development of 11,601 dwelling units, a variety of commercial land uses, business parks, industrial parks, parks facilities (public and private), open space areas, a 507-acre wetland preserve area, and two elderberry preserve areas (City of Rancho Cordova 2010c).
Heritage Falls Project	Approximately 238 acres located west of Grant Line Road; calls for the development of 960 dwellings, a 5.5-acre school site, five private parks, a recreation center, a public park, a creekway, and pedestrian paseos (City of Rancho Cordova 2008:2.0-2).
North Douglas Project	Approximately 42 acres located 0.8 miles north of Douglas Road; calls for the development of 153 dwellings, 20 acres of wetland preserve, and a 4-acre neighborhood (City of Rancho Cordova 2006b:2.0-3).
Grant Line East Visioning Area	Approximately 8,000 acres in southeast Sacramento County. The project is in the initial planning stages and no specific developments have been proposed.
Cordova Hills Community Plan	Approximately 2,419 acres in southeastern Sacramento County; calls for the development of 1,104 acres of residential, 87.2 acres of mixed use, 67.8 acres of retail, 33.8 acres of mixed use/office/retail, and 1,126.3 acres of school, parks, road/utilities, detention basins, and open space (Sacramento County 2008:3).
Folsom Area Plan Specific Plan	Approximately 3,585 acres located south of Highway 50 and north of White Rock Road; calls for the development of 10,210 residential units on 1,474 acres, 510 acres of retail and wholesale commercial, light industrial and office based land uses, 301 acres of parks, schools and other community-serving uses and 1,053 acres of open space (City of Folsom 2011).
Carson Creek Specific Plan	Approximately 710 acres in El Dorado County located south of Highway 50 east f the El Dorado Hills Business Park; calls for developing 1,700 housing units, 1.3 million square feet of commercial office, and industrial uses, and 237 acres of open space and parks (El Dorado County 1999).

11.2.3 Regulatory Setting

The most direct regulation of land use and development in the project area is provided by city and county governments, but state statutes and regulations also influence land use planning. An overview of land use regulation in the project area is provided below.

11.2.3.1 State

The California Land Conservation Act of 1965

The California Land Conservation Act of 1965, commonly referred to as the Williamson Act, is the state's primary program for the conservation of private land in agricultural and open space use (Government Code Section 51200 *et seq*.). It is a voluntary, locally administered program that offers reduced property taxes on lands that have enforceable restrictions on their use through contracts between individual landowners and local governments.

Farmland Mapping and Monitoring Program Classification

The Department of Conservation (DOC) Farmland Mapping and Monitoring Program (FMMP) tracks changes in agricultural land use on a regular basis. This information is available for planning purposes, but the FMMP is not a regulatory program. The FMMP prepares important farmland maps periodically for most of the state's agricultural areas based on information from Natural Resources Conservation Service (NRCS) soil survey maps, Land Inventory and Monitoring (LIM) criteria developed by NRCS, and land use information mapped by the DWR. These criteria generally are expressed as definitions that characterize the land's suitability for agricultural production, physical and chemical characteristics of the soil, and actual land use. Important farmland maps and statistical summaries generally are updated every 2 years.

The important farmland mapping system incorporates eight mapping categories, five categories relating to farmland and three categories associated with lands used for nonagricultural purposes. The five farmland mapping categories are summarized below.

- **Prime Farmland:** Lands with the combination of physical and chemical features best able to sustain long-term production of agricultural crops. The land must be supported by a developed irrigation water supply that is dependable and of adequate quality during the growing season. It also must have been used for the production of irrigated crops at some time during the 4 years before mapping data were collected.
- **Farmland of Statewide Importance:** Lands with agricultural land use characteristics, irrigation water supplies, and physical characteristics similar to those of prime farmland but with minor shortcomings, such as steeper slopes or less ability to retain moisture.
- **Unique Farmland:** Lands with lesser-quality soils used for the production of California's leading agricultural cash crops. These lands usually are irrigated but may include nonirrigated orchards or vineyards, as found in some of the state's climatic zones.
- **Farmland of Local Importance:** Lands of importance to the local agricultural economy, as determined by each county's board of supervisors and a local advisory committee.
- **Grazing Land:** Lands in which the existing vegetation is suited to the grazing of livestock.

Prime farmland, farmland of statewide importance, farmland of local importance, and grazing land are located in the project vicinity (California Department of Conservation 2009). Figure 11-3 shows designated farmland located in the vicinity of the study area.

11.2.3.2 Local

General Plans

The most comprehensive land use planning for the project area is provided by city and county general plans, which local governments are required by state law to prepare as a guide for future development. The general plan contains goals and policies concerning topics that are mandated by state law or that the jurisdiction has chosen to include. Although each general plan must be internally consistent, city and county general plans are not required to be consistent with each other. Most general plans include areas outside of city limits; however, they have no legal effect outside their city's or county's jurisdiction other than that accorded the designations by cooperating agencies on a policy basis. Table 11-3 lists the specific general plan elements/sections that apply to the proposed project with respect to land use.

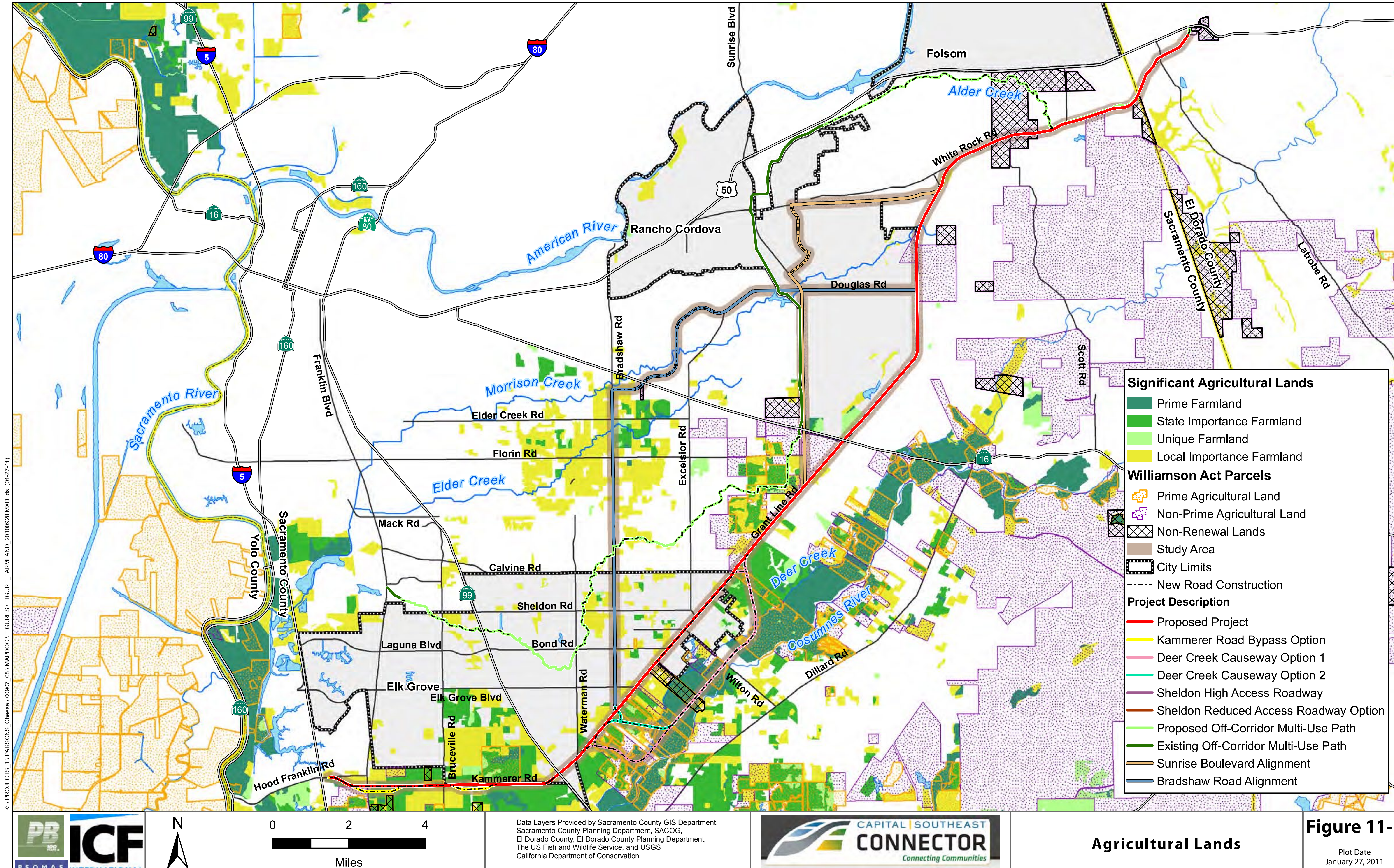
Revised Table 11-3. Applicable Local General Plans

Jurisdiction	Document	Section
El Dorado County	General Plan (2004)	Land Use, Transportation and Circulation, Conservation and Open Space, Agriculture and Forestry, and Parks and Recreation Elements
Sacramento County	General Plan (2011)	Land Use, Circulation, Open Space, Agriculture, and Safety Elements; Transit Oriented Development Design Guidelines
City of Elk Grove	General Plan (2009)	Circulation, Conservation, Economic Development, Land Use, Parks/Trails/Open Space, and Safety Elements
City of Folsom	General Plan (1993)	Land Use, Transportation and Circulation, Open Space and Conservation, Safety, and Parks and Recreation Elements.
City of Rancho Cordova	General Plan (2006a)	Land Use, Urban Design, Economic Development, Circulation, Open Space Parks and Trails, Natural Resources, and Safety Elements.

Sources: City and County general plans as noted.

Community and Specific Plans

As an adjunct to its general plan, a city or county may adopt community or specific plans for smaller, more specific areas within their jurisdiction. These more localized plans provide for focused guidance for developing a specific area, with development standards tailored to the area, as well as systematic implementation of the general plan. Community and specific plans of importance to the proposed project include the general plans described above as well as Sacramento County's Florin-Vineyard, Laguna, Rio Linda/Elverta, and South Sacramento Community Plans and the North Vineyard Station, and Mather Specific Plans, as well as the Folsom Area Plan Specific Plan, and El Dorado County's El Dorado Hills and Carson Creek Specific Plans.



Data Layers Provided by Sacramento County GIS Department, Sacramento County Planning Department, SACOG, El Dorado County, El Dorado County Planning Department, The US Fish and Wildlife Service, and USGS
California Department of Conservation

CAPITAL SOUTHEAST CONNECTOR Connecting Communities

Figure 11-3

Agricultural Lands

Plot Date
January 27, 2011

South Sacramento Habitat Conservation Plan

The South Sacramento Habitat Conservation Plan (SSHCP) is in preparation. The SSHCP area encompasses 345,000 acres in southern Sacramento County. Sacramento County is partnering with the incorporated cities of Rancho Cordova and Galt and is seeking to include the city of Elk Grove to further the regional planning goals of the SSHCP.

The SSHCP has not been implemented and an implementation date has not been identified, but the intent is to provide a regional approach to balancing development against conservation and protection of habitat, open space, and agricultural lands in the plan area.

The SSHCP would be implemented through an agreement between state/federal resource agencies (anticipated to be the USFWS, DFG, the USACE, and the State Water Board) and the plan participants (currently identified as Sacramento County, City of Elk Grove, City of Rancho Cordova, and the Capital Southeast Connector JPA). The SSHCP would protect 30 species of plants and wildlife, including 10 that are listed as threatened or endangered under the ESA or CESA. The SSHCP also protects vernal pool, wetland, and stream habitats that are subject to the federal CWA and California's Porter-Cologne Water Quality Control Act. The SSHCP also seeks a programmatic Streambed Alteration Agreement under Fish and Game Code Sections 1600*, et seq*.

Sacramento Area Council of Governments Preferred Blueprint Scenario for 2050

SACOG is the regional transportation planning organization for Sacramento County. As an association of local governments, its members include the six counties in the Sacramento region—El Dorado, Placer, Sacramento, Sutter, Yolo and Yuba Counties—and 22 cities**.** The Preferred Blueprint Scenario serves as a framework to guide local government decisions related to growth and transportation planning through 2050 and is the basis for SACOG's Metropolitan Transportation Plan (MTP) for 2035, the long-range transportation plan for the region. The blueprint was developed through an extensive program of community involvement and describes a scenario by which the region may develop in a more compact pattern to the benefit of air quality, transportation access, farmland protection, and resource conservation goals.

The blueprint (and SACOG itself) exerts no authority over county and city land use decisions. However, most of the counties and cities in the region consider the blueprint in their planning and land use decisions.

Since adoption of the blueprint, SACOG has incorporated its growth scenario and assumptions into the 2035 MTP. The scenarios and assumptions will be refined as SACOG prepares the next edition of its MTP and complies with the “sustainable communities strategy” requirements enacted by Senate Bill (SB) 375 of 2008. In brief, the updated MTP will include a sustainable communities strategy intended to establish a pattern of land uses that will result in a reduction in regional GHG emissions from automobiles and light trucks of 7% by 2020 and 16% by 2035.

11.3 Impact and Mitigation Discussion

11.3.1 Thresholds of Significance

Appendix G of the State CEQA Guidelines identifies environmental issues to be considered when determining whether a project could have significant impacts on the environment. The project would have a significant impact on land use or agriculture if it would:

- physically divide an established community;
- conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect;
- conflict with any applicable HCP or NCCP;
- 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 nonagricultural use;
- conflict with existing zoning for agricultural use, or a Williamson Act contract; or
- involve other changes in the existing environment which, because of their location or nature, could result in conversion of farmland to nonagricultural use.

11.3.2 Approach and Methodology

The land use analysis focuses on land uses most likely to be affected by the construction and implementation of the proposed project, potential conflicts or inconsistencies between the proposed plan and adopted land use policies of the various jurisdictions in the study area, and potential conflicts or inconsistencies between the proposed project and adopted HCPs or NCCPs of the various jurisdictions in the study area.

The agricultural resources analysis focuses on agricultural resources most likely to be affected by the construction and implementation of the proposed project. Agricultural resources impacts are evaluated by identifying the particular type of resource that could be affected by the projects. To conduct the farmland analysis, the project alignment was compared with the farmland maps previously referenced to determine the extent of the physical impacts of the proposed project on important agricultural lands.

11.3.3 Impacts of the Proposed Project

This section describes potential impacts on land use and planning that could result from implementation of the proposed project and options, and mitigation to reduce significant impacts. Components of the proposed project will be subject to further environmental review at such time as they are proposed for local approval.

Impact LU-1: Physically Divide an Established Community

The proposed project would include the development of thoroughfare, expressway, and rural road segments. Additionally, it would include sidewalks and Class II bike lanes within the right-of-way.

Grade-separated interchanges also would be included along the proposed expressway segments. The proposed project would improve mobility within and between established communities.

As indicated in Table 11-1 and accompanying discussion, existing land uses in the project study area include primarily agricultural uses followed by unclassified uses. Smaller areas of commercial, industrial, mixed-use, recreational, and residential uses also are located adjacent to the proposed corridor.

Road widening or other capacity increases included under the proposed project would involve existing rights-of way and would require acquisition of adjacent parcels. Proposed construction of interchanges would also require land acquisition adjacent to the rights-of way. Proposed acquisition of adjacent parcels would result in the loss of a particular land use. The proposed project may limit or block existing residential driveways or commercial access to the existing roadway along various portions of the proposed alignment.

Proposed road widening may result in blocked access for bicyclists and pedestrians where access points are removed. However, as described in the project description, the project would incorporate sidewalks and bike lanes within the rights-of-way for the Sheldon area and thoroughfare segments.

The potential for temporary disruption of local access would be considered a potentially significant impact. Mitigation Measure Haz-3, "Implement a Traffic Management Plan and Construction Scheduling", which includes provisions for maintaining access to businesses and residences during construction and noticing potential customers, would reduce this impact to a less-than-significant level. This mitigation measure is described in detail in Chapter 9.

Impact LU-2: Conflict with Applicable Land Use Plans and Policies

The proposed project would be subject to various regional and local plans and policies as described under Regional Overview. The proposed project is included in the adopted MTP and therefore would be considered consistent. Specifically, the proposed project includes fewer lanes than envisioned in the current MTP. As discussed above, SACOG is in the process of updating the MTP and the proposed project has been included in the draft scenarios of the MTP. Furthermore, the local jurisdictions in which the proposed alignments are located are participants in the MTP. Therefore, the proposed project is anticipated to be consistent with local plans and policies. There would be no impact.

Impact LU-3: Conflict with Habitat Conservation Plan or Natural Community Conservation Plan

As previously indicated, the proposed SSHCP is in preparation. The geographic scope of the SSHCP would include the project study area, except for the city of Folsom and El Dorado County. As part of the proposed project, the JPA has approved participation in the preparation of the proposed SSHCP. This participation would help meet the project objective related to open space acquisition and habitat preservation. Once approved, the SSHCP will be an agreement between state/federal wildlife and wetland regulators and local jurisdictions that provides a regional approach to addressing issues related to urban development, habitat conservation, and agricultural protection. Project implementation is not anticipated to conflict with the SSHCP. No impact would occur.

Impact LU-4: Convert Farmland to Nonagricultural Uses

The proposed project would traverse approximately 3,237 acres of FMMP classified farmland as summarized in Table 11-4.

Table 11-4. Farmland Mapping and Monitoring Program Classified Land—Proposed Project

Farmland Mapping and Monitoring Program Classification	Acreage	% of Total Area
Urban and Built-Up Land	306.42	9
Grazing Land	1,519.48	47
Farmland of Local Importance	471.35	15
Prime Farmland	3.91	.1
Farmland of Statewide Importance	526.02	16
Unique Farmland	64.75	2
Other Land	344.55	11

Source: California Department of Conservation 2010.

The proposed project would require the acquisition of land in the study area for roadway expansion and construction of other project components. Therefore, construction and operation of the project could result in the conversion of up to 1,066 acres of important farmland, of which 3.91 acres are prime farmland, and more than 1,500 acres of grazing land, to roadway uses. The actual amount of farmland acquired and used for roadway expansion could be less, as specific roadway design could potentially avoid areas of important farmland. However, as discussed in Chapter 18, Sacramento County has had substantial losses of farmland over the past decade. In the context of county trends in agricultural conversion, this is considered a significant impact. Mitigation Measure LU-1 would reduce this impact, but not to a less-than–significant level.

Mitigation Measure LU-1: The Proponent Agency Will Implement All of the Following Measures Prior to Construction to Reduce Impacts on Significant Farmland

- Design the proposed project to avoid or minimize the direct conversion of important farmland to nonagricultural uses and indirect conversion of farmland through severance or fragmentation. During preliminary design, the JPA or member agencies will locate the proposed project to avoid or minimize loss of agricultural lands and the potential for fragmenting agricultural lands or production in a manner that would make them uneconomical to farm, to the extent that doing so would not compromise safety or standard design criteria for a road of this type.
- For important farmland (prime, statewide, unique, and local) converted by the project, either directly or indirectly as described above, important farmland of the same category will be permanently protected from development at a minimum ratio of 1:1. Productive off-site agricultural land subject to conversion will be protected through the purchase or transfer of its development rights and establishment of a farmland conservation easement over the agricultural land pursuant to California Civil Code Section 815, et seq. or other statute providing for its conservation in perpetuity for agricultural use. The JPA or member agencies will provide funds to an agricultural land trust or similar nongovernmental entity for the purchase of agricultural land or development rights on agricultural and establishment of a farmland conservation easement. The JPA or member agencies shall fund only a land trust or nongovernmental entity with an established record of responsible agricultural land stewardship.

Impact LU-5: Conflict with Existing Zoning for Agricultural Use or a Williamson Act Contract

Several parcels containing Williamson Act contracts are located along the project alignment. As shown in Figure 11-3, the project would traverse parcels designated prime farmland, non-prime farmland (nonrenewal) and non-prime farmland totaling 591.67 acres. Approximately 301.87 acres are designated non-prime farmland, 151.49 acres are designated non-prime farmland (nonrenewal), and 138.31 acres are designated prime farmland.

Although proposed development would occur mostly in existing right-of-way, it would require the acquisition of adjacent land for proposed roadway expansion and construction of other project components. This could result in the loss of farmland, including land subject to Williamson Act contracts. The impact would be considered significant. As described above, Mitigation Measure LU-1 would reduce the impact, but, depending on the specific project design, potentially not to a less-than–significant level.

Impact LU-6: Involve Other Changes That Could Result in Conversion of Farmland

As previously described, potential acquisition of agricultural lands for project development would result in the direct conversion of farmland to transportation-related uses. Because the proposed project would run along existing roadway alignments for most of the corridor, land acquisition for the project would not generally result in the division of parcels used for agriculture, a common cause of indirect conversion of farmland. Some farming operations involve multiple parcels and need to cross the rural roads in the project area. The project would reduce immediate access between such parcels, but is not expected to eliminate access to the extent that the land would be isolated, no longer viable to farm, and eventually convert to another use as a result. Therefore, the proposed project would not involve other changes that could result in the conversion of farmland. Because the proposed project could inadvertently affect farming operations for adjacent parcels, this would be considered a potentially significant impact. As described above, Mitigation Measure LU-1 would reduce this impact to a less-than–significant level.

11.3.4 Impacts of the Off-Corridor Multi-Use Path Alternative

Impact LU-1: Physically Divide an Established Community

The construction of the off-corridor multi-use path would not itself result in any division of an existing community, as it will be constructed along existing waterways. This alternative would not add impacts in this area. There is no impact.

Impact LU-2: Conflict with Applicable Land Use Plans and Policies

The construction of the off-corridor multi-use path would not itself result in any conflicts with plans and policies, as it will implement regional policies for trail connectivity. This alternative would not add impacts in this area. There is no impact.

Impact LU-3: Conflict with Habitat Conservation Plan or Natural Community Conservation Plan

Similar to the proposed project, the design alternative area is located within the boundaries of the proposed SSHCP. The geographic scope of the SSHCP would include the trail alignment. Trail completion is not anticipated to conflict with the SSHCP. No impact would occur.

Impact LU-4: Convert Farmland to Nonagricultural Uses

This design would traverse approximately 2,878 acres of FMMP classified farmland as summarized in Table 11-5, of which 411.32 acres are important farmlands.

Table 11-5. Farmland Mapping and Monitoring Program Classified Land—Off Corridor Multi-Path Design Alternative

Farmland Mapping and Monitoring Program Classification	Acreage	% of Total Area
Urban and Built-Up Land	634.74	22
Grazing Land	1,371.77	48
Farmland of Local Importance	320.63	11
Farmland of Statewide Importance	83.84	3
Unique Farmland	6.85	.2
Other Land	467.10	16

Source: California Department of Conservation 2010.

Construction and operation of this design alternative could result in loss of parcels designated farmland. Similar to the proposed project, this would result in the conversion of existing uses to transportation uses. This would be considered a potentially significant impact. Impacts would be similar to those anticipated under the proposed project. As described above, Mitigation Measure LU-1 would reduce this impact, but not to a less-than–significant level.

Impact LU-5: Conflict with Existing Zoning for Agricultural Use or a Williamson Act Contract

Similar to the proposed project, parcels containing Williamson Act contracts are located along this proposed alternative. Specifically, this design alternative would traverse parcels designated non-prime farmland (155.82 acres), non-prime farmland (nonrenewal) (150.59 acres), and prime farmland (76.52 acres). Impacts would be similar to those anticipated under the proposed project. As described above, Mitigation Measure LU-1 would reduce this impact, but not to a less-than–significant level.

Impact LU-6: Involve Other Changes That Could Result in Conversion of Farmland

Implementation of this alternative could potentially result in nuisance uses alongside agricultural operations, as trail users could have access in limited areas to farmland now protected from public access. However, much of the trail already exists, or will run along existing open space corridors limiting this impact to a less than significant level.

11.3.5 Impacts of the Project Options

11.3.5.1 Kammerer Road Bypass

Impact LU-1: Physically Divide an Established Community

This option would avoid existing residential areas located along the existing and proposed Kammerer Road. Therefore, implementation of this option is not anticipated to add impacts related to the division of an established community. There would be no impact.

Impact LU-2: Conflict with Applicable Land Use Plans and Policies

Similar to the proposed project, this option would be subject to applicable regional and local land use plans and policies including the goals and policies of the City of Elk Grove General Plan. The design option would not conflict with the general circulation policies (C1-1 and C1-2) included in the Circulation Element of the Elk Grove General Plan. Impacts would be similar to those anticipated to occur under the proposed project. There would be no impact.

Impact LU-3: Conflict with Habitat Conservation Plan or Natural Community Conservation Plan

Similar to the proposed project, this option is located within the boundaries of the proposed SSHCP and impacts would be similar to those anticipated to occur under the proposed project. There would be no impact.

Impact LU-4: Convert Farmland to Nonagricultural Uses

This design option would traverse approximately 454 acres of FMMP classified farmland, of which 387.99 acres are important farmlands as summarized in Table 11-6.

Table 11-6. Farmland Mapping and Monitoring Program Classified Land—Kammerer Road Bypass

Farmland Mapping and Monitoring Program Classification	Acreage	% of Total Area
Grazing Land	44.68	10
Farmland of Local Importance	150.36	33
Prime Farmland	3.92	.9
Farmland of Statewide Importance	233.71	51
Unique Farmland	6.85	2
Other Land	14.05	3

Source: California Department of Conservation 2010.

Construction and operation of this option could result in the additional loss of parcels designated farmland. This would result in the conversion of existing uses to transportation uses. This would be considered a significant impact. Impacts would be similar to those anticipated under the proposed project. As described above, Mitigation Measure LU-1 would reduce this impact, but not to a less-than–significant level.

Impact LU-5: Conflict with Existing Zoning for Agricultural Use or a Williamson Act Contract

Lands containing Williamson Act contracts are located along this proposed option. The proposed alignment under this option would traverse parcels designated non-prime farmland (36.01 acres) and prime farmland (36.01 acres). Impacts would be similar to those anticipated under the proposed project. Mitigation Measure LU-1 would reduce the impact, but, depending on the specific project design, not to a less-than–significant level.

Impact LU-6: Involve Other Changes That Could Result in Conversion of Farmland

As previously described, designated farmlands are located in the general vicinity of the proposed design option. As indicated in Impact LU-4, proposed implementation of the design option may require acquisition of farmland. This design option would be designed to avoid affecting existing farm headquarters, and would avoid splitting farm parcels. Therefore, this option would not result in additional indirect conversion of farmland.

11.3.5.2 Deer Creek Causeway Options

Impact LU-1: Physically Divide an Established Community

For either Deer Creek Causeway Option, no additional impacts would occur related to division of an established community, since it would run through undeveloped land. There is no impact.

Impact LU-2: Conflict with Applicable Land Use Plans and Policies

Construction of either option would be implemented consistent with policy and regulatory requirements related to construction in floodplains, and would have no access in that location. Therefore this design option would be consistent with plans and policies and there would be no impact.

Impact LU-3: Conflict with Habitat Conservation Plan or Natural Community Conservation Plan

Similar to the proposed project, this option is located within the boundaries of the proposed SSHCP and impacts would be similar to those anticipated to occur under the proposed project. There would be no impact.

Impact LU-4: Convert Farmland to Nonagricultural Uses

Design Option 1 would traverse approximately 873 acres of FMMP classified farmland, of which 701.73 are important farmlands, as summarized in Table 11-7.

Table 11-7. Farmland Mapping and Monitoring Program Classified Land—Deer Creek Causeway Design Option 1

Farmland Mapping and Monitoring Program Classification	Acreage	% of Total Area
Urban and Built-Up Land	2.29	.3
Grazing Land	11.20	1.2
Farmland of Local Importance	51.22	6
Prime Farmland	396.86	45
Farmland of Statewide Importance	278.13	32
Unique Farmland	26.74	3
Other Land	106.97	12

Source: California Department of Conservation 2010.

Similarly, Design Option 2 would traverse approximately 780 acres of FMMP classified farmland, of which 634.70 are important farmlands, as summarized in Table 11-8.

Table 11-8. Farmland Mapping and Monitoring Program Classified Land—Deer Creek Causeway Design Option 2

Farmland Mapping and Monitoring Program Classification	Acreage	% of Total Area
Urban and Built-Up Land	12.63	2
Grazing Land	5.88	.8
Farmland of Local Importance	55.68	7
Prime Farmland	330.79	42
Farmland of Statewide Importance	268.33	34
Unique Farmland	21.26	3
Other Land	86.27	11

Source: California Department of Conservation 2010.

Construction and operation of both Deer Creek Causeway Design Options 1 and 2 could result in loss of parcels designated farmland. This would result in the conversion of existing uses to transportation uses. This would be considered a significant impact. As described above, Mitigation Measure LU-1 would reduce this impact, but not to a less-than–significant level.

Impact LU-5: Conflict with Existing Zoning for Agricultural Use or a Williamson Act Contract

Similar to the proposed project, parcels containing Williamson Act contracts are located along both of the Deer Creek Causeway options. Specifically, Design Option 1 would traverse parcels designated non-prime farmland (76.33 acres), prime farmland (nonrenewal) (32.13 acres), and prime farmland (399.58 acres).

Design Option 2 also would traverse designated Williamson Act Contract lands. Specifically, Design Option 2 would traverse parcels designated non-prime farmland (53.07 acres), prime farmland (nonrenewal) (32.37 acres), and prime farmland (348.79 acres). Impacts under both Design Options 1 and 2 would be significant. As described above, Mitigation Measure LU-1 would reduce the impact, but, depending on the specific project design, not to a less-than–significant level.

Impact LU-6: Involve Other Changes That Could Result in Conversion of Farmland

As previously described, potential acquisition of agricultural lands for project development would result in the direct conversion of farmland to transportation-related uses. Because the proposed project would not run along existing roadway alignments, land acquisition for the project could result in the division of parcels used for agriculture, a common cause of indirect conversion of farmland. Therefore, the proposed project could involve other changes that could result in the conversion of farmland. This would be considered a significant impact. As described above, Mitigation Measure LU-1 would reduce this impact to a less-than-significant level.

11.3.5.3 Sheldon Reduced Access Roadway Option

Impact LU-1: Physically Divide an Established Community

The design option would focus on improving internal circulation while maintaining existing access to business locations and was designed to minimize the impacts on the community identified for the project alignment. Under this option, the driveways and local roads would be combined or eliminated (with access provided via alternative connections). The remaining unsignalized access points will be right turn in/out.

For the Sheldon community, the proposed improvements, including the widening of the current right-of-way, increase in traffic and the restricted access to the proposed roadway, could result in permanent limitations on access from one side of the Sheldon community to the other side of the Grant Line Road. This impact is significant. Although numerous design considerations can be incorporated in the project to limit the disruption of the Sheldon community, because the project would involve additional right-of-way and would result in a wider roadway facility through Sheldon and more limited pedestrian and vehicle access on either side of Grant Line Road, no mitigation is available that that would reduce this impact to a less-than-significant level.

Impact LU-2: Conflict with Applicable Land Use Plans and Policies

This option would be consistent with applicable land use plans and policies. There is no impact.

Impact LU-3: Conflict with Habitat Conservation Plan or Natural Community Conservation Plan

Similar to the proposed project, this design option area is located within the boundaries of the proposed SSHCP. Impacts would be similar to those anticipated to occur under the proposed project. There is no impact.

Impact LU-4: Convert Farmland to Nonagricultural Uses

This design would traverse approximately 80.4 acres of important farmland as summarized in Table 11-9.

Table 11-9. Farmland Mapping and Monitoring Program Classified Land—Sheldon Reduced Access Roadway Design Option

Farmland Mapping and Monitoring Program Classification	Acreage	% of Total Area
Urban and Built-Up Land	78.14	25
Grazing Land	3.78	1
Farmland of Local Importance	40.65	13
Farmland of Statewide Importance	33.58	11
Unique Farmland	6.17	2
Other Land	151.51	48

Source: California Department of Conservation 2010.

Construction and operation of this design option could result in loss of important farmland. This would result in the conversion of existing farmland uses to transportation uses. This design option would add a small amount of farmland impact. As described above, Mitigation Measure LU-1 would reduce the impact, but, depending on the specific project design, not to a less-than–significant level.

Impact LU-5: Conflict with Existing Zoning for Agricultural Use or a Williamson Act Contract

Similar to the proposed project and other design options, parcels containing Williamson Act contracts are located along this design option. However, this option would affect substantially less Williamson Act Contract acreage than most of the other design options. Specifically, under this design option, the proposed alignment would traverse parcels designated prime farmland (5.01 acres), non-prime farmland (nonrenewal) (2.63 acres), and non-prime farmland (3.31 acres), totaling 10.95 acres. The conversion of approximately 5 acres of prime farmland is considered significant. Implementation of Mitigation Measure LU-1 will reduce the impact to a less-than-significant level.

Impact LU-6: Involve Other Changes That Could Result in Conversion of Farmland

For the area affected by this design option, it is unlikely that indirect conversion would occur, as most of the land in the area is developed with non-agricultural uses. No significant impact would occur.

11.3.5.4 Sheldon High Access Roadway Option

Impact LU-1: Physically Divide an Established Community

Under the Sheldon High Access Roadway option, Grant Line Road through Sheldon would be widened from four to-six lanes with continued access of existing residential driveways and commercial access. Impacts would be less than those anticipated to occur under the project options. The segment of Grant Line Road running through the Sheldon area, from Bond Road to Calvine Road would be improved as warranted by traffic volumes. Existing driveways are anticipated to be maintained.

Impact LU-2: Conflict with Applicable Land Use Plans and Policies

Under the Sheldon High Access Roadway, the improvements to Grant Line Road would be made consistent with the Elk Grove General Plan. Improvements proposed under this option are not anticipated to conflict with applicable land use plans and policies including the City of Elk Grove General Plan. Impacts would be similar to those anticipated to occur under the proposed project. There would be no impact.

Impact LU-3: Conflict with Habitat Conservation Plan or Natural Community Conservation Plan

Implementation of this design option would not change the project's consistency with the boundaries of the proposed draft SSHCP. There is no impact.

Impact LU-4: Convert Farmland to Nonagricultural Uses

This design option would not traverse prime farmland but would convert as much as 72 acres of important farmland as summarized in Table 11-10. Impacts would be similar to those of the proposed project. As described above, Mitigation Measure LU-1 would reduce the impact, but, depending on the specific project design, not to a less-than–significant level.

Table 11-10. Farmland Mapping and Monitoring Program Classified Land—Sheldon High Access Roadway Design Option

Farmland Mapping and Monitoring Program Classification	Acreage	% of Total Area
Urban and Built-Up Land	98.38	32
Grazing Land	3.50	1
Farmland of Local Importance	41.69	13
Farmland of Statewide Importance	30.96	10
Unique Farmland	5.30	2
Other Land	132.14	42

Source: California Department of Conservation 2010.

Impact LU-5: Conflict with Existing Zoning for Agricultural Use or a Williamson Act Contract

Impacts on Williamson Act land under this design option would be similar to those of the proposed project. As described above, Mitigation Measure LU-1 would reduce the impact, but, depending on the specific project design, not to a less-than–significant level.

Impact LU-6: Involve Other Changes That Could Result in Conversion of Farmland

Impacts under this design option would be similar as those for the proposed project. As described above, Mitigation Measure LU-1 would reduce this impact to a less-than–significant level.

Chapter 12
Noise

12.1 Introduction

This chapter describes the environmental and regulatory setting for noise, as well as background information on environmental acoustics and additional information on the terms used in noise analysis. The following sources of information were reviewed to prepare this chapter:

- Sacramento County General Plan (Sacramento County 2011)
- El Dorado County General Plan (El Dorado County 2004)
- Elk Grove General Plan (City of Elk Grove 2009)
- Folsom General Plan (City of Folsom 1993)
- Rancho Cordova General Plan (City of Rancho Cordova 2006a)

12.1.1 Noise Terminology and Background

Sound is mechanical energy transmitted by pressure waves in a compressible medium such as air. Noise can be defined as unwanted sound. Sound is characterized by various parameters that include the rate of oscillation of sound waves (frequency), speed of propagation, and pressure level or energy content (amplitude). In particular, the sound pressure level is the most common descriptor used to characterize the loudness of an ambient sound level. The decibel (dB) scale is used to quantify sound intensity. Because sound pressure can vary enormously within the range of human hearing, a logarithmic loudness scale is used to keep sound intensity numbers at a convenient and manageable level. The human ear is not equally sensitive to all frequencies in the entire spectrum, so noise measurements are weighted more heavily for frequencies to which humans are sensitive in a process called *A-weighting*, written dBA. In general, human sound perception is such that a change in sound level of 3 dB is just noticeable, a change of 5 dB is clearly noticeable, and a change of 10 dB is perceived as doubling or halving sound level.

Different types of measurements are used to characterize the time-varying nature of sound. These measurements include the equivalent sound level (L_{eq}), minimum and maximum sound levels (L_{min} and L_{max}), percentile-exceeded sound levels (L_{xx}), day-night sound level (L_{dn}), and community noise equivalent level (CNEL). Below are brief definitions of these measurements and other terminology used in this chapter:

- **Sound:** A vibratory disturbance created by a vibrating object, which, when transmitted by pressure waves through a medium such as air, is capable of being detected by a receiving mechanism, such as the human ear or a microphone.
- **Noise:** Sound that is loud, unpleasant, unexpected, or otherwise undesirable.
- **Ambient noise:** The composite of noise from all sources near and far in a given environment exclusive of particular noise sources to be measured.

- **Decibel (dB):** A unitless measure of sound on a logarithmic scale, which indicates the squared ratio of sound pressure amplitude to a reference sound pressure amplitude. The reference pressure is 20 micro-pascals.
- **A-weighted decibel (dBA):** An overall frequency-weighted sound level in decibels that approximates the frequency response of the human ear.
- **Equivalent sound level (L_{eq}):** The average of sound energy occurring over a specified period. In effect, L_{eq} is the steady-state sound level that in a stated period would contain the same acoustical energy as the time-varying sound that actually occurs during the same period.
- **Exceedance sound level (L_{xx}):** The sound level exceeded XX% of the time during a sound level measurement period. For example L_{90} is the sound level exceeded 90% of the time and L_{10} is the sound level exceeded 10% of the time.
- **Maximum and minimum sound levels (L_{max} and L_{min}):** The maximum or minimum sound level measured during a period of time.
- **Day-night level (L_{dn}):** The energy average of the A-weighted sound levels occurring during a 24-hour period, with 10 dB added to the A-weighted sound levels occurring during the period from 10 p.m. to 7 a.m.
- **Community noise equivalent level (CNEL):** The energy average of the A-weighted sound levels occurring during a 24-hour period with 5 dB added to the A-weighted sound levels occurring during the period from 7 p.m. to 10 p.m. and 10 dB added to the A-weighted sound levels occurring during the period from 10 p.m. to 7 a.m.

L_{dn} and CNEL values rarely differ by more than 1 dB. As a matter of practice, L_{dn} and CNEL values are considered equivalent and are treated as such in this assessment.

12.2 Environmental Setting

12.2.1 Existing Conditions

12.2.1.1 Existing Noise Sources

The noise environment in the study area comprises two major categories of noise sources: transportation and non-transportation noise sources. Transportation noise sources include surface traffic on public roadways, railroad line operations, and aircraft in flight. Non-transportation (or fixed) noise sources commonly consist of industrial activities, railroad yard activities, small mechanical devices (e.g., lawnmowers, leaf blowers, air conditioners, radios), and other sources not included in the traffic, railroad, and aircraft category.

Transportation Noise

Traffic noise exposure is mainly a function of the number of vehicles on a given roadway per day, the speed of those vehicles, the percentage of medium and heavy trucks in the traffic volume, and the receiver's proximity to the roadway. The project limits extend from the I-5/Hood Franklin Road interchange in southwest Sacramento County east and north approximately 35 miles, terminating at

US 50. Within this area, SR 99 and SR 16 transect portions of the project corridor. These highways are the predominant source of existing traffic noise in the area.

Traffic on local roadways within the study area also is a source of noise. Based on existing (2008) traffic conditions, existing traffic noise levels along the project corridor are in the range of about 52 to 65 dB L_{dn} at 100 feet from the roadway. Several project options and alternatives involve construction of completely new roadways that are distant from existing sources of traffic noise. The existing ambient noise at these rural locations can be expected to be less than 50 dB L_{dn}.

Sunset Skyranch Airport, a private air strip located east of Elk Grove and south of the project, is expected to close in the near future. At the northern end of the project area, aircraft operations at Mather Airport are a predominant source of transportation noise.

Non-Transportation Noise

A wide variety of industrial and other non-transportation noise sources are located with the study area, but are most prevalent near the cities of Sacramento, Rancho Cordova, and Folsom. Agricultural activities may be present along the southern edge of the project corridor and could generate noise from stationary generators or farming equipment. Although non-transportation noise sources can define the ambient noise environment within a given distance of the noise source, the regional ambient noise environment is, nonetheless, defined primarily by traffic.

12.2.1.2 Noise-Sensitive Land Uses

Noise-sensitive land uses and receptors are those locations where noise can interfere with primary activities. These include places where people sleep, such as residences and hospitals. Other noise-sensitive uses include schools, places of worship, and areas of recreation during hours of normal use. Figure 12-1 depicts the noise-sensitive land uses within 500 feet of the project alignment. In addition to the residential areas depicted in Figure 12-1, there are scattered single-family homes throughout the project area. There is also a residential subdivision south of Mather Air Force Base, along Excelsior Road/Mather Road. The Bradshaw Road Alignment Alternative would come as close as 500 feet to the nearest residence in this subdivision.

12.2.2 Regulatory Setting

The proposed alignments would run adjacent to or within the following five jurisdictions: the Cities of Elk Grove, Rancho Cordova, and Folsom, and Sacramento and El Dorado Counties. This section presents relevant information from the noise elements and ordinances for each jurisdiction. In general, noise ordinances apply to noise sources that can be regulated at the local level such as air conditioners and construction operations. Noise from vehicles traveling on a public road is not regulated at the local level. However, general plans typically identify land use compatibility standards for noise so that development adjacent to roadways is compatible with the noise generated by traffic on the roadway.

12.2.2.1 Sacramento County General Plan Noise Element

Policy NO-9 in the Sacramento County General Plan Noise Element relates to noise created by transportation sources such as roadways. Policy NO-9 indicates that the land use compatibility standard for residential uses is identified as 65 dB L_{dn}, which allows noise up to 65 dB L_{dn}/CNEL when best available noise-reduction technology cannot achieve 60 dB L_{dn}/CNEL. The Noise Element provides a policy that relates to capacity-enhancing roadway projects. This policy states that if pre-project traffic noise levels already exceed a noise standards and the increase is significant as defined below, noise mitigation measures should be considered to reduce traffic and noise levels to a state of compliance with the standard. A significant increase is defined as follows:

Pre-Project Noise Environment (L_{dn})	Significant Increase
Less than 60 dB	5+ dB
60–65 dB	3+ dB
Greater than 65 dB	1.5+ dB

Additionally, Policy NO-13 relates to mitigation of noise impacts and emphasizes the use of setbacks and site design prior to consideration of the use of noise barriers.

12.2.2.2 Sacramento County Noise Ordinance

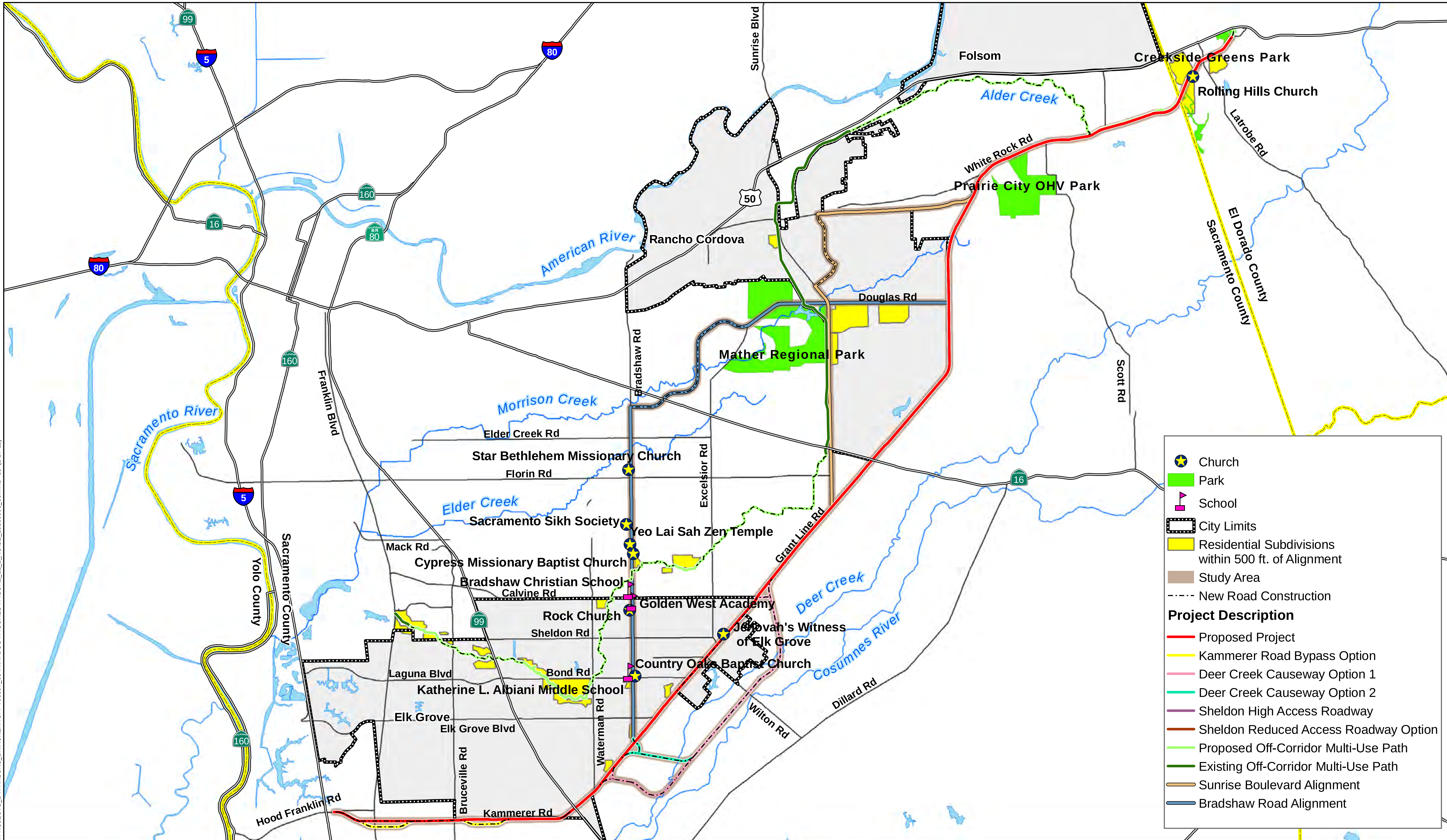
The Sacramento County Noise Ordinance is codified in Chapter 6.68 (Noise Control) of the Sacramento County Code. The Sacramento County Noise Ordinance states that exterior noise limits cannot exceed 50 dBA between 10 p.m. and 7 a.m. and 55 dBA between 7 a.m. and 10 p.m. for residential and agricultural areas. However, construction activities between 6 a.m. and 8 p.m., Monday through Friday, and 7 a.m. and 8 p.m. on weekends are exempt from this ordinance.

12.2.2.3 El Dorado County General Plan Noise Element

The El Dorado County General Plan Noise Element states that noise created by new transportation sources should be mitigated so as not to exceed the levels specified in Table 12-1 at existing noise-sensitive land uses.

Table 12-1. El Dorado County General Plan Noise Standards

Land Use	Outdoor Activity Areas L_{dn}/CNEL, dB	Interior Spaces	
		L_{dn}/CNEL, dB	L_{eq}, dB
Residential	60	45	–
Transient lodging	60	45	–
Hospitals, nursing homes	60	45	–
Theaters, auditoriums, music halls	–	–	35
Churches, meeting halls, schools	60	–	40
Office buildings	–	–	45
Libraries, museums	–	–	45
Playgrounds, neighborhood parks	70	–	–



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PB PSOMAS ICF INTERNATIONAL

Data Layers Provided by Sacramento County GIS Department, Sacramento County Planning Department, SACOG, El Dorado County, El Dorado County Planning Department, The US Fish and Wildlife Service, and USGS

CAPITAL SOUTHEAST CONNECTOR Connecting Communities

Noise Sensitive Land Uses

Figure 12-1

Plot Date
January 27, 2011

The Noise Element also established construction noise limits, which apply to construction activity occurring between the hours of 7 a.m. and 7 p.m., Monday through Friday, and 8 a.m. and 5 p.m. on weekends and federally recognized holidays. These standards range from 45 to 90 dB L_{eq}, with the most stringent levels in community regions and adopted plan areas (El Dorado County 2004).

12.2.2.4 El Dorado County Noise Ordinance

The El Dorado County Noise Ordinance states that it is unlawful for any person to create a loud or raucous noise to such an extent that it unreasonably interferes with the peace and quiet of another's private property.

12.2.2.5 Elk Grove General Plan Noise Element

The Elk Grove General Plan Noise Element sets the same criteria as the Sacramento County General Plan (see above) to determine whether transportation projects would generate a significant increase in noise levels. The element also establishes noise limits for the construction of new roadways. These standards are similar to those presented in Table 12-1. Finally, the Elk Grove General Plan contains goals that seek to limit construction activity to the hours of 7 a.m. to 7 p.m. whenever such activity is adjacent to residential uses (City of Elk Grove 2009).

12.2.2.6 Elk Grove Noise Ordinance

The Elk Grove Noise Ordinance requires that activities adhere to the noise standards set in the city general plan. Additionally, the ordinance prohibits the use of construction equipment between the hours of 7 p.m. and 7 a.m. if that activity creates a noise disturbance across a residential property line.

12.2.2.7 Folsom General Plan Noise Element

The Folsom General Plan Noise Element considers areas as noise-impacted if they are exposed to existing or projected exterior noise levels exceeding 60 dBA L_{dn}/CNEL or the performance standards summarized in Table 12-2 (City of Folsom 1993).

Table 12-2. Folsom General Plan Noise Standards

	Exceedance of Exterior Noise Level Standard (dBA) (minutes)		
Category	Average during Any 1-Hour Period	Daytime (7 a.m. to 10 p.m.)	Nighttime (10 p.m. to 7 a.m.)
1	30	50	45
2	15	55	50
3	5	60	55
4	1	65	60
5	0	70	65

12.2.2.8 Folsom Noise Ordinance

The exterior noise level standards set out in the Folsom Noise Ordinance are the same as the noise-level performance standards summarized in Table 12-2. Noise associated with construction activity occurring between the hours of 7 a.m. to 6 p.m., Monday through Friday, and 8 a.m. to 5 p.m., Saturday and Sunday, is exempted from the provisions of the noise ordinance.

12.2.2.9 Rancho Cordova General Plan Noise Element

The Rancho Cordova General Plan Noise Element sets the same criteria as the Sacramento County General Plan (see above) to determine whether transportation projects would generate a significant increase in noise levels. The element also establishes noise limits for the construction of new roadways. These standards are similar to those presented in Table 12-1.

The general plan contains goals that seek to limit construction activity to the hours of 7 a.m. to 7 p.m. on weekdays and 8 p.m. to 6 p.m. on weekends when construction is conducted near residential uses (City of Rancho Cordova 2006a). The plan further requires that noise created by the construction of new roadways be mitigated to the maximum extent feasible.

12.2.2.10 Rancho Cordova Noise Ordinance

The Rancho Cordova Noise Ordinance is based on the Sacramento County Noise Ordinance, and establishes maximum allowable exterior and interior noise levels for land uses. The ordinance limits exterior noise levels to 50 dBA between 10 p.m. and 7 a.m. and 55 dBA between 7 a.m. and 10 p.m. for residential and agricultural areas. However, construction activities between 7 a.m. and 6 p.m., Monday through Saturday, and 9 a.m. and 6 p.m. on Sunday are exempt from this ordinance.

12.3 Impact and Mitigation Discussion

This section describes potential noise impacts that could result from implementation of the proposed project and project options. This evaluation of impacts is at a program level. Components of the proposed project and project options may require further project-level environmental review at a later time.

12.3.1 Thresholds of Significance

CEQA thresholds of significance used in this noise analysis are based on the Appendix G of the State CEQA Guidelines (14 CCR 15000 et seq.). The guidelines indicate that a significant noise impact can occur if the proposed project would:

- expose persons to or generate noise levels in excess of standards established in a local general plan or noise ordinance or applicable standards of other agencies;
- expose persons to or generate excessive groundborne vibration or groundborne noise levels;
- result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project;
- result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project;
- be located within an airport land use plan area or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport and expose people residing or working in the project area to excessive noise levels; or

- be located in the vicinity of a private airstrip and expose people residing or working in the project area to excessive noise levels.

The first four guidelines are applicable to the proposed project and are considered in the analysis below. The latter two are not applicable because the project would not introduce new noise-sensitive land uses into the project area.

All of the jurisdictions involved use 60 L_{dn} as the residential land use compatibility standard for noise. As stated in Section 12.2.2, "Regulatory Environment," the 2011 Sacramento County General Plan Noise Element contains a sliding scale to evaluate the significance of increases in noise. This scale is designed specifically for roadway impacts, and is reasonable to apply to all jurisdictions involved in this project. Therefore, a significant increase in traffic noise is defined as:

Baseline Noise Environment (L_{dn})	Significant Increase
Less than 60 dB	5+ dB
60–65 dB	3+ dB
Greater than 65 dB	1.5+ dB

Noise from construction activity is considered significant if noise would exceed applicant local noise standards for construction noise.

12.3.2 Approach and Methods

Noise from construction activity and noise from traffic are expected to be the primary sources of noise impacts associated with the proposed project. Detailed information on construction approaches and equipment is not available at this time. Therefore, the assessment of construction noise is based on typical construction noise levels associated with various phases of construction.

Traffic noise impacts associated with project-related traffic were evaluated using the FHWA Traffic Noise Model (TNM) Version 2.5 and forecasted average daily traffic volumes, speed, and heavy truck percentages. There are several options to the proposed project. Each option has not been evaluated in detail. Rather, the highest traffic volume (and thus highest noise level) on any given roadway segment associated with any of the options was evaluated.

Section 15125(a) of the State CEQA Guidelines provides that the environmental setting "will normally constitute the baseline physical conditions by which a lead agency determines whether an impact is significant." The environmental setting consists of existing physical conditions at the time the NOP is released or CEQA analysis is begun.

In 2010, the California Supreme Court clarified that "[n]either CEQA nor the CEQA Guidelines mandates a uniform, inflexible rule for determination of the existing conditions baseline. Rather, an agency enjoys the discretion to decide, in the first instance, exactly how the existing physical conditions without the project can most realistically be measured, subject to review, as with all CEQA factual determinations, for support by substantial evidence. (citation)" (*Communities for a Better Environment v. South Coast Air Quality Management District* (2010) 48 Cal.4th 310). The Court limited this flexibility by further stating that "[a]n approach using hypothetical allowable conditions as the baseline results in 'illusory' comparisons that 'can only mislead the public as to the reality of the impacts and subvert full consideration of the actual environmental impacts,' a result at direct odds with CEQA's intent. (citation)"]

Past practice in traffic impact analysis undertaken to help determine the significance of a project's noise impact has often relied upon a "future no-project" scenario as its CEQA baseline. The project's impact is derived from the difference between "future with-project" and "future no-project" scenarios. This approach has been used in the past because it offers a means of comparing with- and without-project scenarios that share common assumptions for future growth and improvements. It may not, however, conform to the *Communities for a Better Environment* decision. In fact, that very approach was invalidated late last year in the Sixth District Court of Appeal's decision in *Sunnyvale West Neighborhood Assn. v. City of Sunnyvale* (2010) __ Cal.App.4th __.

In recognition of the *Communities for a Better Environment* and *Sunnyvale West* decisions, the Program EIR for the Southeast Connector has not followed this past practice. For purposes of determining the significance of noise impacts in this EIR, the baseline is physical conditions along the Southeast Connector alignment as they existed in 2008, the CEQA baseline condition. This is the most recent year for which comprehensive traffic data is available. The data on existing traffic levels has been used to estimate existing noise conditions based on standard modeling techniques. 2008 baseline plus project traffic noise conditions are compared to the 2008 baseline conditions to determine the significance of the project's noise impacts. This approach complies with the intent of the *Communities for a Better Environment*, by providing a significance determination based on the change from existing conditions and avoiding the use of a hypothetical baseline condition.

Determining the significance of an impact by comparing anticipated project conditions to existing conditions in the area affected by the project is a relatively straightforward analysis for most impacts. However, the noise impact of a project that will not be operational for years is not easily compared to existing conditions. By the time the Project is operational there will be new infrastructure and background growth in the region unrelated to the project that will impact area roads.

The traffic conditions modeled for the existing plus proposed project conditions and used as the basis for the noise analysis do not include reasonable assumptions about new infrastructure and background growth within the region because this infrastructure an growth would not occur under existing conditions. As a result, although this provides a comparison between existing conditions and conditions with the Project in place, the resultant significance determination will likely overstate the extent of change in noise conditions that is a direct result of the Project.

This EIR also includes an analysis of the potential impacts that would occur under the "future with-project" scenario. The impacts of the "future with-project" scenario in comparison to the "future without-project" scenario is analyzed and disclosed in the cumulative impact discussion in Chapter 18, Cumulative and Growth Inducing Impacts. More than 200 roadway segments in the project area were evaluated. The traffic noise analysis focuses on those segments where the project-related increase over the baseline conditions has potential to be 1.5 dB or greater.

12.3.3 Impacts of the Proposed Project

Impact NOI-1: Exposure of Noise-Sensitive Land Uses to Noise and Vibration from Project Construction

Construction activities associated with implementation of the project could result in temporary increases in noise in the vicinity of the site-specific activity. Where those increases result in noise in excess of adopted standards, the impact would be considered significant. The severity of construction noise impacts would depend on:

- types of construction activity in the given area,
- types of land uses in the area and their proximity to construction activity,
- construction phasing and equipment type,
- duration of proposed construction activities,
- distance between the noise source and receptors, and
- presence or absence of barriers between noise source and receptor.

Table 12-3 summarizes typical construction noise levels for various phases of typical highway and roadway construction projects utilizing vibratory hammers and pile drivers equipment, bulldozers, cranes, backhoes and graders, pumps, dump trucks, rollers and graders, asphalt/concrete trucks, paving machines, grinders, and similar construction equipment described in Chapter 2.

Table 12-3. Construction Noise Levels

Construction Phase	Typical Noise Level[a] (dBA)
Ground clearing	85
Excavation	88
Foundations	88
Superstructure	78
Finishing	84

Source: U.S. Environmental Protection Agency 1971.

[a] Loudest equipment located 50 feet from observer; other equipment located 200 feet from the observer.

Noise from construction activity attenuates at a rate of about 6 dB per doubling of distance. This means that land uses located within about 1,000 feet of site-specific construction sites could be exposed to noise that exceed applicable local construction noise standards depending on when activity occurs. Jurisdictions in the project area typically have more strict limits on construction noise during nighttime hours.

Non-impact construction activities such as the operation of bulldozers, scrapers, and trucks typically do not produce perceptible ground vibration beyond about 150 feet from the source (Federal Transit Administration 2006). Accordingly, the operation of non-impact equipment is not expected to expose people to excessive groundborne vibration or groundborne noise. Operation of impact pile drivers and similar highly dynamic equipment can, however, result in perceptible vibration within several hundred feet of the activity and potentially damaging vibration within about 50 to 100 feet.

Because of the potential for noise to exceed applicable local noise standards and the potential for construction vibration to result in perceptible and potentially damaging vibration, this impact is considered significant.

Implementation of Mitigation Measure NOI-1 would reduce the impact; however, it may not be feasible in all cases to reduce noise and vibration to a less-than-significant level as a result of the proximity of equipment to noise-sensitive uses, the need for nighttime work, and the physical limitations of noise reduction measures. Accordingly, the impact is considered significant and unavoidable.

Mitigation Measure NOI-1: Employ Noise- and Vibration-Reducing Construction Practices

Before final project design, the JPA or local jurisdiction will undertake a detailed evaluation of site-specific noise and vibration impacts and identify project-specific mitigation measures necessary to reduce construction noise and vibration to a level that is in compliance with local noise standards where feasible. This may be done as a part of the CEQA process when a later project is subject to CEQA. The JPA or local jurisdiction will ensure through contract provisions and specifications that the contractor adheres to the mitigation measures before and during construction and documents compliance with the adopted mitigation measures. Documentation will be provided to the JPA or local jurisdiction on a weekly basis. The contract provisions and specifications will authorize the JPA or local jurisdiction to sanction contractors for non-compliance.

The following measures will be implemented to reduce the effects of construction noise and vibration. Additional measures may be developed once project design has developed sufficiently to identify site-specific impacts.

- Comply with all local sound control and noise level rules, regulations, and ordinances of the pertinent city, county, or both.
- Limit the hours of noise-generating construction and related activity such as deliveries and staging activities to between 6 a.m. and 8 p.m. on Monday through Friday and between 7 a.m. and 8 p.m. on weekends, or as required by local noise ordinances in effect for site-specific projects.
- Require that equipment and trucks used for project construction use noise control techniques (including mufflers, intake silencers, ducts, engine enclosures, and acoustically attenuating shields or shrouds) as necessary to limit noise to compliance levels.
- Locate stationary noise sources such as generators or pumps as far from sensitive receptors as possible. Stationary noise sources that must be located near existing receptors will be adequately muffled or an acoustic barrier will be installed to reduce their noise levels to comply with applicable local requirements.
- Designate a complaint coordinator at the JPA or local jurisdiction to be responsible for responding to noise complaints received during the construction phase. The name and phone number of the complaint coordinator will be conspicuously posted at construction areas and on all advanced notifications. This person will be responsible for taking steps required to resolve complaints, including periodic noise monitoring and changes to construction activities, if necessary to meet the required mitigation.
- Mitigate noise generated from any rock-crushing or screening operations performed within 3,000 feet of any occupied residence by strategic placement of material stockpiles between the operation and the affected dwelling or by other means such as temporary noise barriers approved by the local jurisdiction.
- Require contractors to implement appropriate additional noise mitigation measures including (but not limited to) shutting off equipment (including trucks transporting aggregate or other construction materials) so that idling time does not exceed 3 minutes,

and notifying adjacent residents by mail not less than 1 week in advance of construction work.

- Prohibit pile-driving or blasting operations within 3,000 feet of an occupied residence on Sundays, legal holidays, and between 9 p.m. and 6 a.m. on other days, or as governed by local noise ordinances at site-specific locations.
- Use sonic or vibratory pile drivers instead of impact pile drivers (sonic pile drivers are only effective in some soils). If sonic or vibratory pile drivers are not feasible, install acoustical enclosures as necessary to ensure that pile-driving noise does not exceed applicable local noise standards at the closest sensitive receptor.
- Limit pile driving in residential areas to between 8 a.m. and 5 p.m.
- Use engine and pneumatic exhaust controls on pile drivers as necessary to ensure that exhaust noise from pile driver engines is minimized to the extent feasible.
- Where feasible, pre-drill pile holes to reduce potential noise and vibration impacts.

Impact NOI-2: Exposure of Noise-Sensitive Land Uses to Increased Noise from Project Operation

Table 12-4 summarizes worst-case increases in traffic noise associated with the proposed project and any of the related options. Direct noise impacts associated with the proposed project are considered to be significant along the following existing roadway segments.

- White Rock Rd   Scott Rd (North) to Oak Ave Pkwy
- White Rock Rd   Oak Ave Pkwy to Prairie City Rd
- White Rock Rd   Prairie City Rd to Grant Line Rd
- Grant Line Rd   Douglas Rd to Chrysanthy
- Grant Line Rd   Chrysanthy to Kiefer Blvd
- Kammerer Rd   SR-99 to W Stockton Blvd
- Kammerer Rd   W Stockton Blvd to Lent Ranch Pkwy
- Kammerer Rd   Lent Ranch Pkwy to Lotz Pkwy
- Kammerer Rd   Lotz Pkwy to Big Horn Blvd
- Kammerer Rd   Big Horn Blvd to Bruceville Rd

The Kammerer Road Bypass Option would involve shifting the project alignment south to reduce effects on existing residences. This would place a new roadway in the vicinity of existing isolated rural residences. This would result significant noise impact at residences located along the following segments Kammerer Road segments including the single-family rural residence located about 650 feet south of Kammerer Road along Rau Road.

- Kammerer Rd Extension   Bruceville Rd to Willard Pkwy
- Kammerer Rd Extension   Willard Pkwy to Franklin Blvd
- Kammerer Rd Extension   Franklin Blvd to I-5

Similarly, the Deer Creek Causeway would involve placing a new roadway in the vicinity of existing rural residences. The roadway surface of the Deer Creek Causeway will be about 25 to 30 feet above the ground. Because of this, attenuation from ground absorption will be reduced, which will cause traffic noise to travel farther than if the roadway was at ground elevation. This is accounted for in the traffic noise modeling. Table 12-4 shows the predicted noise levels in the vicinity of the Deer Creek Causeway and indicates causeway options would result in significant traffic noise impacts at residences located along the causeway and along Grant Line Road, where the causeway joins the road. Most residences in the Wilton area are generally more than 1,000 feet from the causeway. At this distance, noise from traffic on the causeway is predicted to drop to about 49 dB L_{dn}.

Operation of the project would result in significant noise traffic noise impacts that could be mitigated by implementation of Mitigation Measure NOI-2, but not to a less than significant level at all locations, depending on the necessary reduction in noise. Guidance developed by Caltrans suggests that a 3-dB reduction in noise can be expected from the use of low noise pavement such as open-grade asphalt or rubberized asphalt (California Department of Transportation 2003). However, there are some locations where additional noise reduction would be needed. Implementation of noise barrier walls can be expected to reduce noise by at least 5 dB; however, there may be some locations where walls may not be feasible because of the need to maintain driveway access or because of other physical limitations such as drainage ditches or extensive underground utilities. In these situations, traffic noise impacts would remain significant and unavoidable.

Mitigation Measure NOI-2: Develop and Employ Site-Specific Measures to Reduce Traffic Noise

During project design, the JPA or local jurisdiction will incorporate feasible measures to reduce traffic noise related to the project such that traffic noise from new roadways does not exceed applicable land use compatibility standards at adjacent uses, and such that traffic noise increases along existing roadways does not exceed Sacramento County significance thresholds for traffic noise increases. This may be done as a part of the CEQA process when a later project is subject to CEQA and sufficient detail is available at the time of the CEQA process. Potential measures that can be implemented include (but are not limited to) setbacks, site design, construction of noise barrier walls between the roadway and noise-sensitive uses and installation of low noise pavement such as open-grade asphalt or rubberized asphalt. Emphasis will be placed on the use of setbacks and site design to the extent feasible, prior to consideration of the use of noise barriers. Additional measures may be developed once project design has developed sufficiently to identify site-specific impacts and the specific reduction necessary to reduce the impact.

12.3.4 Impacts of the Off-Corridor Multi-Use Path Alternative

Impact NOI-1: Exposure of Noise-Sensitive Land Uses to Noise and Vibration from Project Construction

Construction of this alternative would require use of construction equipment for grading and paving. Construction noise and vibration impacts would be similar to those described for the proposed project. However, construction equipment will likely be limited to equipment associated with the grading and finishing phases listed in Table 12-3 and will not involve the use of large

Table 12-4. Traffic Noise Impact Summary

Roadway	Segment	2008 Existing Traffic Noise Baseline Level (L_{dn})	2008 Existing + Project Maximum Condition Traffic Noise Level (L_{dn})	Increase in Traffic Noise Level Relative to Baseline (dB)	CEQA Significance Threshold (dB Increase)[a]	Is Impact Significant?	Cumulative 2035 No Build Traffic Noise Level (L_{dn})	Cumulative 2035 + Project Maximum Condition Sound Level (L_{dn})	Increase in Traffic Noise Level Relative to Cumulative 2035 No Build (dB)
White Rock Rd	Latrobe Rd to Windfield Way	55.7	57.8	2.1	5	No	59.1	59.2	0.2
White Rock Rd	Windfield Way to Four Seasons Dr	54.6	57.9	3.3	5	No	58.8	59.0	0.3
White Rock Rd	Four Seasons Dr to Empire Ranch Rd	58.6	62.5	3.9	5	No	63.2	63.6	0.4
White Rock Rd	Empire Ranch Rd to Scott Rd (North)	59.8	62.5	2.6	5	No	64.7	65.2	0.5
White Rock Rd	Scott Rd (North) to Oak Ave Pkwy	59.8	65.2	5.4	5	Yes	69.6	70.5	0.9
White Rock Rd	Oak Ave Pkwy to Prairie City Rd	59.8	65.2	5.4	5	Yes	69.5	70.5	1.0
White Rock Rd	Prairie City Rd to Grant Line Rd	62.1	65.9	3.7	3	Yes	70.1	71.6	1.5
Grant Line Rd	White Rock Rd to Douglas Rd	61.5	64.4	2.9	3	No	68.4	70.4	2.0
Grant Line Rd	Douglas Rd to Chrysanthy	61.1	64.5	3.4	3	Yes	69.2	70.1	0.9
Grant Line Rd	Chrysanthy to Kiefer Blvd	60.6	64.5	3.8	3	Yes	68.0	70.0	2.0
Grant Line Rd	Kiefer Blvd to Rancho Cordova Pkwy	60.6	62.8	2.3	3	No	66.8	68.2	1.5
Grant Line Rd	Rancho Cordova Pkwy to Jackson Rd	60.6	63.3	2.8	3	No	66.4	68.0	1.5
Grant Line Rd	Jackson Rd to Sunrise Blvd	59.2	63.1	3.9	5	No	65.0	66.6	1.6
Grant Line Rd	Sunrise Blvd to Eagles Nest Rd	63.3	65.1	1.8	3	No	66.5	67.7	1.2
Grant Line Rd	Eagles Nest Rd to Calvine Rd	63.3	65.2	1.8	3	No	66.9	68.0	1.2
Grant Line Rd	Calvine Rd to Sheldon Rd	60.2	61.6	1.4	3	No	63.6	64.5	0.9
Grant Line Rd	Sheldon Rd to Wilton Rd	59.5	61.0	1.5	5	No	62.7	63.4	0.6
Grant Line Rd	Wilton Rd to Bond Rd	59.0	60.5	1.5	5	No	62.1	63.0	0.9
Grant Line Rd	Bond Rd to Elk Grove Blvd	59.2	61.5	2.2	5	No	63.1	63.7	0.7
Grant Line Rd	Elk Grove Blvd to Bradshaw Rd	59.7	61.3	1.6	5	No	63.1	64.2	1.1
Grant Line Rd	Bradshaw Rd to Waterman Rd	61.4	63.5	2.1	3	No	66.7	67.4	0.7
Grant Line Rd	Waterman Rd to E Stockton Blvd	58.7	60.8	2.1	5	No	63.6	64.1	0.5
Grant Line Rd	E Stockton Blvd to SR-99	59.3	62.0	2.7	5	No	64.0	64.5	0.5
Deer Creek Causeway		<50[b]	66.3	>12	5	Yes	<50[b]	69.6	>15
Kammerer Rd	SR-99 to W Stockton Blvd	51.8	57.1	5.3	5	Yes	63.6	63.7	0.2
Kammerer Rd	W Stockton Blvd to Lent Ranch Pkwy	52.3	59.3	7.0	5	Yes	65.7	65.9	0.2
Kammerer Rd	Lent Ranch Pkwy to Lotz Pkwy	52.3	59.0	6.7	5	Yes	63.2	63.5	0.3
Kammerer Rd	Lotz Pkwy to Big Horn Blvd	52.3	58.9	6.6	5	Yes	62.5	62.9	0.4
Kammerer Rd	Big Horn Blvd to Bruceville Rd	52.3	58.9	6.6	5	Yes	62.5	62.9	0.4

Roadway	Segment	2008 Existing Traffic Noise Baseline Level (L_{dn})	2008 Existing + Project Maximum Condition Traffic Noise Level (L_{dn})	Increase in Traffic Noise Level Relative to Baseline (dB)	CEQA Significance Threshold (dB Increase)[a]	Is Impact Significant?	Cumulative 2035 No Build Traffic Noise Level (L_{dn})	Cumulative 2035 + Project Maximum Condition Sound Level (L_{dn})	Increase in Traffic Noise Level Relative to Cumulative 2035 No Build (dB)
Kammerer Rd Extension	Bruceville Rd to Willard Pkwy	<50[b]	59.6	>9	5	Yes	64.5	64.9	0.4
Kammerer Rd Extension	Willard Pkwy to Franklin Blvd	<50[b]	59.5	>9	5	Yes	65.2	65.5	0.3
Kammerer Rd Extension	Franklin Blvd to I-5	<50[b]	58.7	>8	5	Yes	64.6	64.9	0.3
Prairie City Rd	US-50 to Easton Valley Pkwy	55.8	59.1	3.3	5	No	65.7	66.0	0.3
Prairie City Rd	Easton Valley Pkwy to White Rock Rd	57.8	61.0	3.2	5	No	66.2	67.5	1.3
Scott Rd	US-50 to Easton Valley Pkwy	55.5	56.8	1.3	5	No	65.2	65.5	0.3
Scott Rd	Easton Valley Pkwy to White Rock Rd	57.4	58.8	1.4	5	No	62.8	63.9	1.1
Bilby Rd	Franklin Blvd to Willard Pkwy	56.9	59.4	2.4	5	No	48.4	48.4	0.0
Eagles Nest Rd	Jackson Rd to Florin Rd	47.7	49.5	1.8	5	No	56.3	56.7	0.4
Franklin Blvd	Bilby Rd to Hood Franklin Rd	54.2	56.4	2.3	5	No	52.4	52.7	0.3
Hood Franklin Rd	Kammerer Rd Ext to Franklin Rd	56.1	58.2	2.2	5	No	63.5	63.8	0.3
White Rock Rd	Rancho Cordova Pkwy to Villagio Dr	53.5	55.7	2.1	5	No	56.2	56.5	0.3
White Rock Rd	Villagio Dr to Grant Line Rd	53.5	55.8	2.3	5	No	59.8	59.7	-0.1
Douglas Rd	Americanos to Grant Line Rd	51.8	53.3	1.6	5	No	58.3	57.0	-1.3

Note: All L_{dn} values at 100 feet from roadway centerline.

[a] Threshold: 5 dB where existing or 2035 No-Build noise level is less than 60 L_{dn}.
3 dB where where existing or 2035 No-Build noise level is between 60 to 65 L_{dn}.
1.5. dB where existing or 2035 No-Build noise level is greater than 65 L_{dn}.

[b] Estimate based on rural location that is not adjacent to an existing roadway.

impact equipment such as pile drivers. There is still, however, potential for construction noise to exceed applicable local noise standards. For this reason, this impact is considered significant.

As described above, implementation of Mitigation Measure NOI-1 would reduce the impact; however, it may not be feasible in all cases to reduce noise and vibration to a less-than-significant level as a result of the proximity of equipment to noise-sensitive uses, need for nighttime work, and physical limitations of noise reduction measures. Accordingly, the impact is considered significant and unavoidable.

Impact NOI-2: Exposure of Noise-Sensitive Land Uses to Increased Noise from Project Operation

The use of the path will be limited to pedestrians and bicycles. As such, use of the path would not result in any substantial increase in the ambient noise level. This impact is considered less than significant.

12.3.5 Impacts of the Project Options

As described above in section 12.3.2, evaluation of noise impacts for each option was based on qualitative traffic data. The quantitative analysis, however, reflects the worst case noise conditions that could result from any option. Therefore, impacts related to noise generated as a result of project construction or implementation of the proposed Kammerer Road and Sheldon area Options would be similar to those described above for the proposed project.

Chapter 13
Population and Housing

13.1 Introduction

This chapter describes the environmental setting for population and housing within the project area, as well as the federal, state, and local policies and regulations that determine mitigation requirements. It also identifies impacts on population and housing that may result from implementation of proposed project, and mitigation measures to reduce these impacts where necessary. The following sources of information were reviewed to prepare this chapter:

- Population, housing, and employment information from MTP 2035 (Glover pers. comm.)
- Sacramento County General Plan (Sacramento County 2011)
- El Dorado County General Plan (El Dorado County 2004)
- Elk Grove General Plan (City of Elk Grove 2009)
- Folsom General Plan (City of Folsom 1993)
- Rancho Cordova General Plan (City of Rancho Cordova 2006a)

13.2 Environmental Setting

13.2.1 Existing Conditions

The project vicinity, shown in Figure 13-1, includes eight regional analysis districts (RADs). RADs are community planning areas identified by SACOG for planning purposes. The urban area RADs are Laguna, Elk Grove, Rancho Cordova, and Folsom. The rural area RADs are Vineyard, Cosumnes, Franklin, and El Dorado Hills.

This section presents projected growth in population and housing in the study area for 2007, 2025, and 2035, as well as MTP projections for 2005, 2018, and 2035. The travel modeling projections provided by SACOG are included for comparison purposes only.

It is expected that the proposed project would be completed by 2025. As with the traffic analysis, 2045 was selected as the analysis horizon for future project build out. The year 2035, is the horizon year for the MTP, as well. Housing units and employment for 2007, 2025, and 2035 were prepared separate from the MTP. See "Approach and Methodology" below for details on projection methodology and assumptions made for the proposed project.

13.2.1.1 Existing Population, Housing, and Employment Distribution

Table 13-1 depicts the existing population, housing, and employment distribution in the study area. In 2007, the study area had a population of 342,669 and 129,799 housing units. SACOG estimates that there were 307,014 persons and 113,652 housing units in 2005. As can be seen in Table 13-1, most of the population and housing units within the study area are concentrated in urban area RADs of Laguna, Elk Grove, Rancho Cordova, and Folsom. Combined, these RADs represent about 79% of the study area population and housing units in 2007.

In terms of employment, the study area had 170,021 jobs in 2007, compared to SACOG's estimate of 149,536 jobs in 2005. The proportion of the jobs within urban area RADs is much higher than the proportion of population and housing units. In 2007, the four urban area RADs had almost 90% of the jobs of the entire study area. The Rancho Cordova RAD alone had about 45% of the jobs in 2007.

13.2.1.2 Population, Housing, and Employment Projections

The methodology for the population projections is discussed below. As shown in the projections, in Table 13-1, the study area population is estimated to grow to 548,265 people in 2025 (an increase of about 60% over 2007) and 662,471 people in 2035 (an increase of about 93% over 2007). This equates to an annual growth rate of 3.3%. By comparison, SACOG projections show the study area to be growing by more than 132% between 2005 and 2035, with the population in 2035 reaching 713,519 people. This equates to an annual growth rate of 4.4%. Most of the urban RADs would register a lower growth rate than the rural area RADs. Rancho Cordova would be the only urban area RAD to register a triple-digit growth rate between 2007 and 2035.

The housing growth trends would be similar to those for population in the study area. The higher growth rate in rural areas can be attributed to new development proposed in these areas, as the urban areas would mostly experience growth as a result of natural growth and some infill development. Overall, within the study area, the total 2035 housing and population levels are consistent with SACOG's projected 2035 development levels.

The 2035 employment projections show that the number of jobs in the study area would grow at a rate slightly lower than population and housing for both project and SACOG projections. The County of Sacramento is projected to have 310,802 jobs in 2035, an increase of about 83% over 2007. Unlike the population and housing projections for the study area, SACOG projections for employment show a slightly lower number of jobs for the study area in 2035. By 2035, the proportion of study area jobs in urban area RADs would decrease slightly to 83%. Once again, rural area RADs are expected to grow at a higher rate in terms of employment compared to the urban area RADs in this time period. The only exception would be the Laguna RAD, which is estimated to have an increase of more than 145% between 2007 and 2035 (based on project projections).

13.2.1.3 Jobs/Housing Ratio

The jobs/housing balance is the number of jobs compared to the number of employed residents living in the immediate area. An imbalance in jobs/housing can be problematic because it results in longer commutes as residents travel to other locales for employment. A low jobs/housing ratio can also result in fiscal hardships for area jurisdictions because the costs associated with providing services to their residents are not balanced by revenue generated by area employment, including property and sales taxes. As depicted in Table 13-2, the study area overall has a good jobs/housing balance (i.e., close to 1.0), which is expected to continue in future years. However, the rural area RADs have low jobs/housing balances.

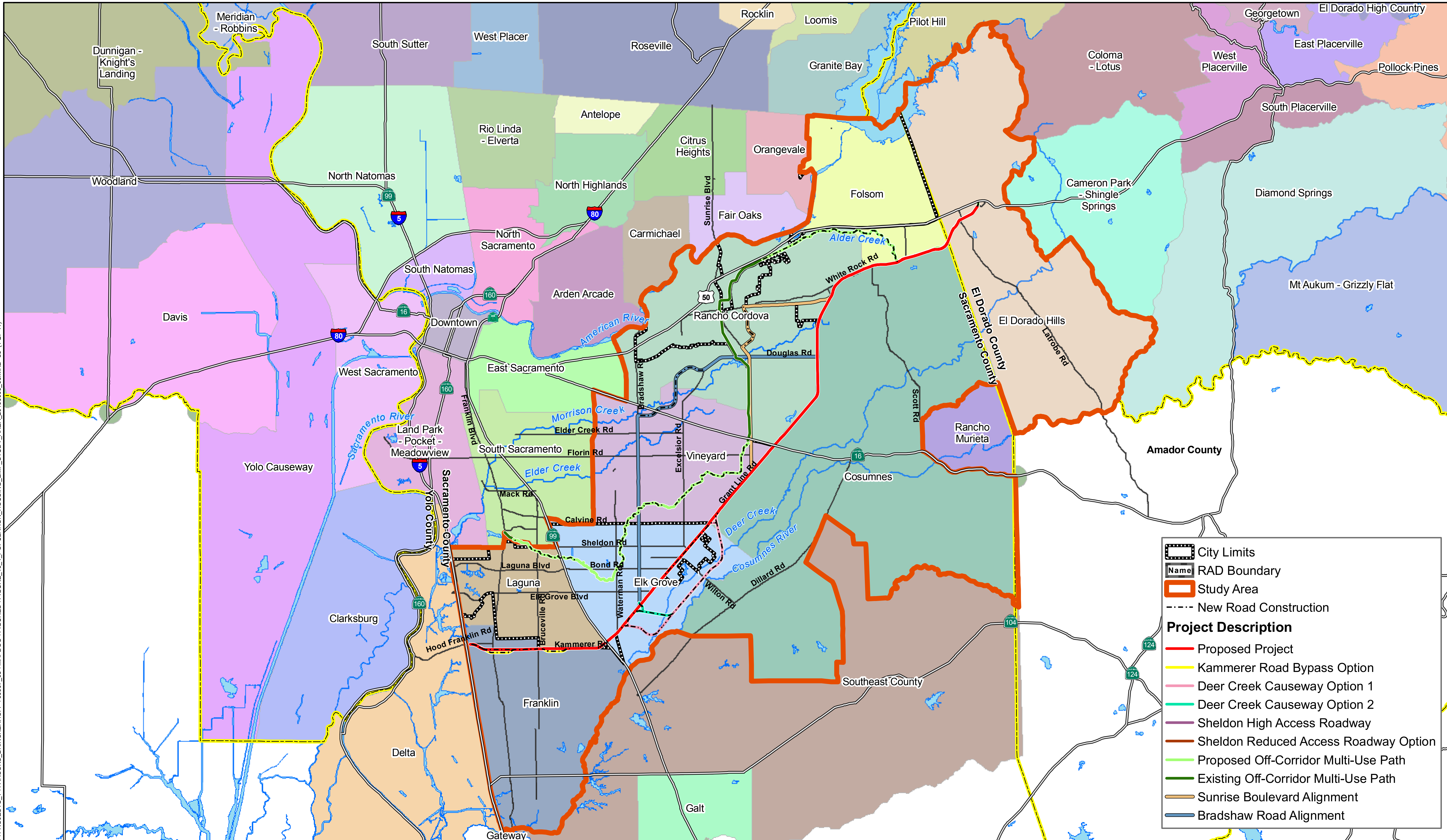
Table 13-1. Growth along Project Corridor, 2005–2035 and Beyond

RAD	2007	2025	2035	Project % Change 2007–2035	Project Annual % Change	SACOG 2005	SACOG 2018	SACOG 2035	SACOG % Change 2005–2035	SACOG Annual % Change
Household Population[a]										
Franklin	863	876	882	2.1%	0.1%	948	936	985	3.9%	0.1%
Laguna	71,581	99,319	114,729	60.3%	2.2%	61,165	88,818	112,762	84.4%	2.8%
Elk Grove	51,205	55,596	58,032	13.3%	0.5%	50,645	78,981	81,575	61.1%	2.0%
Vineyard	23,303	74,332	102,680	340.6%	12.2%	23,524	76,505	134,036	469.8%	15.7%
Cosumnes	10,317	22,337	29,014	181.2%	6.5%	10,601	10,618	11,805	11.4%	0.4%
Rancho Cordova	79,147	152,500	193,248	144.2%	5.1%	71,499	130,013	201,354	181.6%	6.1%
Folsom	67,513	90,082	102,619	52.0%	1.9%	57,410	75,220	101,422	76.7%	2.6%
El Dorado Hills	38,739	53,222	61,266	58.2%	2.1%	31,222	54,303	69,580	122.9%	4.1%
Total Study Area	**342,669**	**548,265**	**662,471**	**93.3%**	**3.3%**	**307,014**	**515,394**	**713,519**	**132.4%**	**4.4%**
Housing										
Franklin	327	332	334	2.1%	0.1%	343	343	351	2.3%	0.1%
Laguna	27,114	37,621	43,458	60.3%	2.2%	21,259	31,999	40,881	92.3%	3.1%
Elk Grove	19,396	21,059	21,982	13.3%	0.5%	17,385	26,954	27,998	61.0%	2.0%
Vineyard	8,827	28,156	38,894	340.6%	12.2%	8,231	27,209	47,892	481.8%	16.1%
Cosumnes	3,908	8,461	10,990	181.2%	6.5%	4,122	4,145	4,633	12.4%	0.4%
Rancho Cordova	29,980	57,765	73,200	144.2%	5.1%	28,807	53,210	82,693	187.1%	6.2%
Folsom	25,573	34,122	38,871	52.0%	1.9%	22,756	29,599	40,915	79.8%	2.7%
El Dorado Hills	14,674	20,160	23,207	58.2%	2.1%	10,749	18,748	24,429	127.3%	4.2%
Total Study Area	**129,799**	**207,676**	**250,936**	**93.3%**	**3.3%**	**113,652**	**192,207**	**269,792**	**137.4%**	**4.6%**
Employment										
Franklin	202	201	201	-0.5%	0.0%	187	187	187	0.0%	0.0%
Laguna	17,011	33,351	42,428	149.4%	5.3%	10,682	22,758	33,306	211.8%	7.1%
Elk Grove	18,943	25,143	28,589	50.9%	1.8%	14,364	16,975	23,594	64.3%	2.1%
Vineyard	4,108	12,877	17,750	332.1%	11.9%	4,106	12,972	19,525	375.5%	12.5%
Cosumnes	1,394	3,617	4,852	248.1%	8.9%	1,309	1,319	1,319	0.8%	0.0%
Rancho Cordova	76,914	110,109	128,551	67.1%	2.4%	78,613	107,712	130,549	66.1%	2.2%
Folsom	40,055	51,919	58,511	46.1%	1.6%	28,478	39,078	49,848	75.0%	2.5%
El Dorado Hills	11,394	23,304	29,920	162.6%	5.8%	11,797	21,851	28,904	145.0%	4.8%
Total Study Area	**170,021**	**260,521**	**310,802**	**82.8%**	**3.0%**	**149,536**	**222,852**	**287,232**	**92.1%**	**3.1%**

Sources: SACOG MTP2035 Population, Housing and Employment Projections, October 2010 (Email Correspondence with Tina Glover, Demographer, Sacramento Area Council of Governments on October 7, 2010.) and DKS Associates, 2010.

Note: The projected numbers were adopted by the SACOG Board of Directors in 2008 for MTP travel modeling. The numbers are based on estimates from I-PLACE3S runs. These projections are under revision as a part of the MTP update process and will be revised in December 2011.

[a] The project-level household population projections were not available. For the calculations, it was assumed that number of housing units is same as number of households, and an average household size of 2.64 (as assumed for modeling purposes) was applied to get the population projections.



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Data Layers Provided by Sacramento County GIS Department, Sacramento County Planning Department, SACOG, El Dorado County, El Dorado County Planning Department, The US Fish and Wildlife Service, and USGS

CAPITAL SOUTHEAST CONNECTOR
Connecting Communities

Population, Housing and Employment Study Area

Figure 13-1

Plot Date
January 27, 2011

Table 13-2. Jobs/Housing Ratio in Study Area, 2005 to 2035 and Beyond

RAD	Project 2007	Project 2025	Project 2035	SACOG 2005	SACOG 2018	SACOG 2035
Franklin	0.62	0.61	0.60	0.55	0.55	0.53
Laguna	0.63	0.89	0.98	0.50	0.71	0.81
Elk Grove	0.98	1.19	1.30	0.83	0.63	0.84
Vineyard	0.47	0.46	0.46	0.50	0.48	0.41
Cosumnes	0.36	0.43	0.44	0.32	0.32	0.28
Rancho Cordova	2.57	1.91	1.76	2.73	2.02	1.58
Folsom	1.57	1.52	1.51	1.25	1.32	1.22
El Dorado Hills	0.78	1.16	1.29	1.10	1.17	1.18
Total Study Area	**1.31**	**1.25**	**1.24**	**1.32**	**1.16**	**1.06**

Source: Glover pers. comm.

Note: The projected numbers were adopted by SACOG in 2008 for MTP travel modeling. They are based on estimates from I-PLACE3S runs. These projections are under revision as a part of the MTP update process.

13.2.2 Regulatory Setting

This section discusses the state and local regulations relating to population and housing that would apply to the study area.

13.2.2.1 Federal

23 Code of Federal Regulations (CFR) Part 450.322

The Code of Federal Regulations pertaining to the Department of Transportation contains guidelines for statewide and metropolitan transportation planning. These were last updated on August 10, 2005 when the Safe, Accountable, Flexible, Efficient, Transportation Equity Act: A Legacy for Users (SAFETEALU) was enacted. The rules and regulations require that the metropolitan planning organization (MPO) review and update the transportation plan to confirm the transportation plan's validity and consistency with current and forecasted transportation and land use conditions and trends and to extend the forecast period to at least a 20-year planning horizon. As part of the preparation of the Metropolitan Transportation Plans (MTPs), based on the forecasted land use conditions and trends, the MPOs prepare forecasts for the population, housing and employment of the plan area to estimate growth in traffic conditions.

13.2.2.2 State

California Government Code (CGC) 65000 et seq. requires each city and county to adopt a general plan for the physical development of the land within its planning area. The general plan must contain land use, housing, circulation, open space, conservation, noise, and safety elements, and the city or county may adopt optional elements as well. The circulation element must be correlated with the land use element. The housing element must incorporate policies and programs that will allow sufficient housing to be built to meet the jurisdiction's share of the regional housing needs allocation.

Each city and county in the state receives an allocation of total number of housing units that it must plan for within a 7.5-year period. Allocations are distributed to each jurisdiction based on the state's defined four income categories: very low, low, moderate, and above moderate. The sum of the allocations of these four categories must equal the overall allocation for that jurisdiction. Each jurisdiction must then develop its housing element to address how it will zone for enough housing units during the 7.5-year period to meet the overall allocation and allocations by income category.

A copy of the draft housing element must be sent to the California Department of Housing and Community Development (HCD) for review and comment before it may be adopted by the city or county. HCD will advise the local jurisdiction about the element's compliance with CGC 65580 et seq.; a housing element approved by HCD is presumed to meet CGC requirements. As part of its responsibilities in the process of preparing local housing elements, HCD provides regional housing need projections to regional councils of government (e.g., SACOG) around the state approximately every 5 years. In turn, the councils are responsible for preparing an assessment of regional housing needs that specifically enumerates each city's and county's fair share of the regional housing need by economic segment. Each city or county must then amend its housing element to accommodate that fair share.

13.2.2.3 Local

The housing element is one of the seven state-mandated elements of local general plans. Housing element law mandates that local governments adequately plan to meet the existing and projected housing needs of all economic segments of the community. The law acknowledges that, for the private market to adequately address housing needs and demand, local governments must adopt land use plans and regulatory systems that provide opportunities for, and do not unduly constrain, housing development. As a result, housing policy in the state rests largely upon the effective implementation of local general plans and, in particular, local housing elements.

13.3 Impact and Mitigation Discussion

13.3.1 Thresholds of Significance

Appendix G of the State CEQA Guidelines identifies environmental issues to be considered when determining whether a project could have significant impacts on the environment. The proposed project would have a significant impact on population and housing if it would:

- induce substantial population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure);
- displace a substantial number of existing housing units, necessitating the construction of replacement housing elsewhere; or
- displace a substantial number of people, necessitating the construction of replacement housing elsewhere.

13.3.2 Approach and Methodology

In September 2005, SACOG adopted a regional employment, population, and housing growth forecast, prepared by Stephen Levy of the Center for the Continuing Study of the California Economy and (Levy and Doche-Boulos 2005). The forecast was developed by examining job growth in the nation and in California, then evaluating the region's competitive position by industry. The economic growth rate was tied to a demographic forecast, which was then tied to a forecast of the number of types of new housing units that will be needed throughout the region. Three levels of projections were developed using a range of assumptions on the share of California jobs coming to the SACOG region; SACOG adopted the middle series because it provides the best balance of reasonable yet robust growth. The forecast developed by Levy represents total growth in the region; SACOG staff then allocated the employment, population, and housing growth to specific geographic locations using recent growth trends, planned projects (both adopted and in-process) in each jurisdiction, planning-related issues such as flood control, habitat and infrastructure, and the long-range planning projects of jurisdictions.

For the project-level development forecasts used for this EIR, housing units were allocated to each of the RADs based on input from the project development team, and to each of the smaller traffic analysis zones used in the travel demand model based on detailed existing and projected land use information prepared by the JPA jurisdictions. The total assumed employment levels within the traffic analysis study area used in this analysis differ from SACOG's assumed 2035 levels in three jurisdictions: Folsom, Rancho Cordova, and Elk Grove. The differences arise from availability to more cities of data indicating higher levels of existing employment. Additional data where available were also used. For example, the *Sheldon Grant Line Road Vision Plan for the Limited Access Roadway Option* provides detailed population, employment, and housing data of the Sheldon area (Design Community and Environment 2010). The 2035 employment level in the infill portion of Rancho Cordova, west of Sunrise Boulevard, was increased by about 2,400 jobs because SACOG's estimate of existing employment is low. A somewhat higher level of employment (about 8,000 additional employees) than SACOG's 2035 levels was assumed for Folsom because SACOG's estimate of existing employment levels for Folsom was about 4,000 less than estimates made by the City of Folsom based on detailed parcel data. In Elk Grove, about 13,500 additional jobs were assumed by 2035 based on input from the City of Elk Grove.

This analysis assumes that development of the proposed Cordova Hills project along Grant Line Road is reasonably foreseeable and a portion of its proposed ultimate development was assumed to occur by 2035 (in the Cosumnes RAD). However, this analysis assumes lower growth in the Vineyard RAD by 2035 than SACOG, which results in the same total growth in housing and jobs by 2035 as SACOG within the unincorporated area of Sacramento County.

13.3.3 Impacts of the Proposed Project and Options

This section describes potential impacts on population and housing that could result from the various project components. As the population, housing and employment study area for all the project options is the same and they are serving essentially the same area, impacts related to population, employment, and housing generated as a result of project implementation would be the same for all of the project options. Construction employment would not be substantially different among the project options and therefore impacts of construction of the design options would not be substantially different. For these reasons, the impacts discussed below apply to both the proposed project and the project options.

Impact POP-1: Inducement of Substantial Population Growth

The proposed project and project options would provide transportation options, improve accessibility along the project corridor, address future projected travel needs along the corridor, and preserve open space, wildlife habitat, and productive agricultural uses within the corridor. They would support the housing and job growth proposed for the five jurisdictions along the corridor.

In May 2005, SACOG approved a final concept plan report for the project. Detailed descriptions of the conceptual alternatives developed during the study were outlined in the report, along with initial elements of purpose and need. The proposed project has also been included in the approved MTP 2035, which provides a program for needed improvements to keep pace with the anticipated transportation needs of the growing population in the SACOG region. Also, as discussed under "Environmental Setting," the population, housing, and employment growth trends projected for the project area are similar to SACOG's MTP projections. Thus, the proposed project and its components are considered consistent with the growth projections of the approved regional development plans.

With the improvement in traffic flow and the increase in volume that will result from the project, there is a reasonable possibility that there will be future proposals for increased land use intensity near the Connector's interchanges. The use of directional interchanges along the rural segments of the proposed Connector reduces the potential for such future proposals to include agricultural lands to the south and east of the proposed alignment. The locations and potential level of increased development intensity is not known and cannot be known with any certainty at this time.

- Sunrise Boulevard – Sacramento County (SC): Recreation along Blvd, General Ag (80 ac) in area. City of Rancho Cordova (RC): Grant Line South Planning Area
- Jackson Road (SR 16) – SC: General Ag (80 ac). RC: Jackson, Grant Line North, and Grant Line South Planning Areas
- Keifer Boulevard – SC: General Ag (80 ac). RC: Grant Line North Planning Area
- Chrysanthy Boulevard – RC: Low-Density Residential (general plan), Grant Line West Planning Area, and East Planning Area
- Douglas Road – RC: Medium-Density Residential (general plan), and Suncreek Preserve Planning Area, Grant Line North Planning Area, and East Planning Area
- White Rock Road – SC: Extensive Industrial (north side); General Ag (80 ac) (south side). RC: Aerojet Planning Area, Grant Line West Planning Area, and East Planning Area (not within City SOI)
- Prairie City Road – SC: General Ag (80 ac). RC: Aerojet Planning Area (not within City SOI). Folsom: Community Commercial (CC) (draft Folsom Plan Area Specific Plan)
- Scott Road – SC: General Ag (80 ac). Folsom: Multi-family Medium Density (MMD)and CC (draft Folsom Plan Area Specific Plan)
- Empire Ranch Road – SC: General Ag (80 ac). Folsom: Single Family (SF) and Open Space (OS) (draft Folsom Plan Area Specific Plan)

As the actual project-level design components are developed, the planning principles incorporated in the JPA's formation document will ensure that project design components must strategically apply access control and capacity characteristics to preserve and enhance regional functionality, while discouraging growth in areas not designated for growth, as determined by the local jurisdictions' general plans, and will be consistent with the JPA's Functional Guidelines.

Improved vehicular access resulting from the Project would stimulate growth along the edge of the urban area. As described in Chapter 2 of the PEIR, the use of directional interchanges is a project design feature that will reduce the potential for inducing growth in rural areas.

Sacramento County

The Sacramento County General Plan (2011) utilizes the Urban Services Boundary (USB) and the Urban Policy Area (UPA), in part, to help regulate growth beyond the urban center.

The Urban Service Boundary (USB) delineates the urban area boundary of unincorporated Sacramento County. This boundary is based upon jurisdictional, natural and environmental constraints to urban growth and is not to be modified except under extraordinary circumstances.

The Urban Policy Area (UPA) defines the area within the USB expected to receive urban levels of public infrastructure and services within the planning period. The General Plan states that the area within the UPA must be able to accommodate growth projected for the 25-year planning period. If it cannot, the UPA must be expanded to accommodate the anticipated growth.

The proposed project abuts a portion of the southern boundary of the USB. As previously discussed, the proposed project will utilize directional interchanges in order to reduce growth in rural areas.

City of Rancho Cordova

The City of Rancho Cordova adopted its General Plan in 2006. The General Plan provides for the future adoption of Area Plans for much of the City, as well as the unincorporated Aerojet/GenCorp lands to its east. The General Plan provides only broad, conceptual visions of what these planning areas might include with regard to the type, distribution, and intensity of future land uses. Several of the planning areas encompass areas where Project interchanges are proposed. Except as noted below, the conceptual land use plans indicate that at some indeterminate future date much of the area will be urbanized.

- Aerojet Planning Area: In the case of this Area Plan, the City does not expect it to develop within the next 35 years and its conceptual land use plan is centered on industrial uses.
- East Planning Area: The covers the unincorporated lands east of Grant Line Road, generally between White Rock Road and Crysanthy Boulevard. The conceptual land use plan suggests office/mixed use and residential estate uses on the east side of the White Rock Road interchange and a town center and office/mixed use on the east side of the Douglas Road interchange. No provision appears to be made for an interchange at Crysanthy Boulevard.
- Grant Line West Planning Area: This area is located partially within the City limits. The conceptual land use plan envisions a village center and high density residential development at the Douglas Road interchange.

- Grant Line North Planning Area: This conceptual land use plan suggests that the western side of the Kiefer Boulevard would be planned for residential/medium density and natural resource uses. It is within the existing City limits.
- Grant Line South Planning Area: This area is located outside the existing City limits, encompassing the proposed Connector interchange at Jackson Road/SR 16 and close to the proposed interchange at Sunrise Boulevard. The conceptual land use plan envisions a village center and office/mixed use development at Jackson Road, and residential and natural resources uses in the vicinity of Sunrise Boulevard.

City of Folsom

The City of Folsom recently annexed its SOI expanding the city limits by approximately 3,585 acres south of Highway 50 and north of White Rock Road between Prairie City Road and the El Dorado County line. In June 2001, the Sacramento Local Agency Formation Commission (LAFCO) approved an expansion of the City's "sphere of influence" to include this area of Sacramento County. Pursuant to the conditions imposed by LAFCO in its 2001 decision, the City adopted the Folsom Plan Area Specific Plan for this area along with related environmental documents in June 2011. The adopted specific plan includes the urbanization of most of this area north of White Rock Road. LAFCO approved the City's annexation application on January 18, 2012.

The extent to which the Connector may influence the City's plans for urbanization, if at all, is unknown and cannot be known because it is a decision by a separate governing body (i.e., the City Council) that is independent of the JPA's decision on the proposed Connector For this reason, the JPA has not included an analysis of the potential effects of the Connector, as it would be largely speculative. (State CEQA Guidelines Section 15145).

City of Elk Grove

The city limits of Elk Grove end at Kammerer Road and Grant Line Road. However, the City General Plan identifies the lands south of these roads as "urban study areas" for future consideration regarding the extent to which urban growth should occur. In keeping with this, the City currently has an application pending before the Sacramento LAFCO for an amendment to its sphere of influence that would extend the sphere south of Kammerer Road and Grant Line Road. As amended in August 2010, the application would not include any area within the 100-year floodplain. This effort to expand its Sphere of Influence to include the area south of Kammerer and Grant Line Road is independent of the proposed Connector, is being pursued by the City of Elk Grove separate from the JPA, and is subject to LAFCO approval or denial. Given the City's pursuit of this land for eventual annexation and urbanization, the growth-inducing effect on this area that is solely attributable to the proposed Connector is minimal.

The counties and cities along the project corridor would regulate growth within their boundaries through their land use plans, which allow residential development only in areas designated for such uses and in accordance with established densities and other development requirements. All five jurisdictions are engaged in dynamic land use and transportation planning processes that include preparation and refinement of general plans, review and approval of specific development plans, and programming and execution of capital improvements. Much of this planning focuses on the project corridor, which includes vast areas of open land. This land historically has been precluded from development because of the presence of natural constraints (e.g., floodplains, habitat areas) and man-made constraints (e.g., Mather Air Force Base, Aerojet). Although the natural constraints will persist, the man-made constraints have diminished or been eliminated, thus altering the plans for future development in the study area and affecting the planned regional development pattern. The most pronounced effects are manifest in the City of Rancho Cordova's recently adopted general plan and in changes being considered in the Sacramento County General Plan, particularly in the area between US 50 and Jackson Highway. The City of Folsom is also currently in the process of expanding its sphere of influence (SOI) approximately 3,600 acres south of US 50.

The potential growth-inducing impacts of each of these general plans have been or will be disclosed in the respective EIRs for those plans. Sacramento County currently identifies an urban services boundary, delineating areas for future development, in its general plan. To further limit access, the design of the Connector interchanges would include a *directional interchange*, which would allow for appropriate design speeds along the project corridor and for access of local roads to the Connector, but would limit the extension of roadways beyond Sacramento County's urban service boundary (Figure 2-5).

Overall, the individual improvements proposed within the project corridor have very limited potential to result in population concentrations substantially beyond those accounted for in the land use plans of each local jurisdiction. The proposed project would accommodate the projected population growth, and its traffic capacity is consistent with future demand projected by the general plans in the study area. However, the project would greatly improve access to lands south of the county urban services boundary. Figure 2-2a illustrates the potential locations of interchanges along the Connector route. These will afford easier access to lands currently planned for agricultural use by the county; thereby increasing development pressures on these areas. Therefore, this impact is considered significant and unavoidable. Mitigation Measures POP-1 and POP-2 will reduce this impact, but not to a less-than-significant level.

Mitigation Measure POP-1: Require Consistency with the JPA's Planning Principles

The JPA or local agency, in developing the final design of any component of the Connector Project, will ensure that such design is consistent with the planning principles set forth in the Joint Powers Agreement that established the JPA, including:

a. Improve access to, and connections between, residential and employment areas within and outside of the Connector Project corridor;

b. Acknowledge that the Connector Project is in the Metropolitan Transportation Plan and further support the transportation and land use principles in the general plans of the local jurisdictions and the Metropolitan Transportation Plan;

c. Relieve demand on (i) local streets and roads, and (ii) regional freeway facilities (US-50, SR-99, and I-5);

d. Strategically apply access control and capacity characteristics to preserve and enhance regional functionality while discouraging growth in areas not designated for growth as determined by the local jurisdiction's general plan;

e. Enhance regional mobility and preserving the livability of communities;

f. Provide efficient and safe facilities for automobile, transit, bicycle, and pedestrian options for multi-modal travel;

g. Minimize direct and indirect physical impacts on the natural and built environments;

h. Preserve open space to reinforce and support approved land use plans; and

i. Permit phased implementation with respect to (i) funding, (ii) location, and (iii) design characteristics.

Mitigation Measure POP-2: Require Consistency with the JPA's Functional Guidelines

The JPA or local agency, in developing the final design of any component of the Connector Project, will consider the Functional Guidelines referenced in the in the JPA's Joint Powers Agreement, as they may be amended and adopted by the JPA , as summarized below:

- **Capacity and Cross-Section:** The Connector roadway should be designed and constructed to serve the demand projected in the MTP and adopted local plans.
- **Access Characteristics:** To maximize the efficiency of the roadway, access to the Connector should be allowed only at a limited number of access points; principally, existing primary facilities and new facilities included in the MTP. Access should be limited to the greatest extent possible to retain efficiency, reduce congestion, and enhance mobility. New access to the Connector from areas not designated for growth in the general plans should not be permitted.
- **Profile:** The Connector profile, where feasible, practicable, and consistent with acceptable design standards, should emulate the profiles of existing roadways to the greatest extent possible. The design of the Connector corridor should recognize impacts to sensitive habitats, including elevation adjustments to allow for passage of wildlife.
- **Design Aesthetics, Materials, and Maintenance:** To minimize the impact on the livability of communities, the Connector should be designed with due consideration to aesthetics for users and adjacent property owners (residents, employers, and employees).
- **Transit Services:** Transit service in the corridor (coverage and frequency) should be maximized to the extent feasible. The design of the Connector project should accommodate appropriate transit facilities.
- **Non-Motorized Facilities:** The Connector should provide flexible and efficient modes of use, including automobile, transit, bicycle, and pedestrian.
- **Open Space Preservation:** Concurrently with the environmental review and design process, the sponsors will develop an open space preservation plan, and associated phasing and funding plan for the corridor consistent with the Sacramento Transportation Authority Measure A expenditure plan.
- **Other Facilities:** In order to meet the goals of the MTP and the Connector, complementary projects may be phased in over time as conditions necessitate.
- **Phasing and Interim Use:** The Connector should be implemented in a phased manner. The design of temporary sections (if any), should provide for widening in accordance with the MTP and local adopted plans at minimal cost and impact.
- **Funding Coordination:** Investments in the Connector should be coordinated and balanced with other transportation investments in a manner that maximizes benefits to the public while minimizing costs.

Impact POP-2: Displacement of Substantial Numbers of Existing Housing or People, Necessitating the Construction of Replacement Housing Elsewhere

Some project elements, such as widening of existing roadways, new or expanded highway interchanges, major arterial improvements, or multi-use paths, could result in displacement of residential, commercial, or industrial structures. This would necessitate acquisition of these properties to make way for new or expanded transportation facilities. In other cases, certain transportation improvements could permanently alter the characteristics and qualities of a neighborhood. The potential for displacement and disruption are major considerations in the final design of individual transportation improvements and will be addressed in the project-level design and development of mitigation programs. The extent of displacements is unknown because the specific alignment of the project has not yet been designed. Nonetheless, the proposed widening will result in displacements. Depending on the specific design of roadway improvements within the identified corridor, the proposed project would result in significant impacts due to relocations and acquisitions. Implementation of Mitigation Measure POP-1, consistent with state legal requirements, would ensure that impacts are less than significant.

Mitigation Measure POP-3: Develop and Implement a Relocation and Compensation Plan

Before proceeding with final design, the JPA or local agency will develop and implement a relocation plan consistent with California Code of Regulations, Title 25, Section 6038 to ensure that eligible residential, commercial, and industrial uses are compensated for moving and residential/business replacement costs. Eligibility of specific residences or businesses for compensation will be determined after evaluation of the impact on the specific use(s) to be relocated, but would include both full and partial property/parcel acquisitions.

The JPA or local agency will use applicable relocation assistance programs (including those administered by local, state and federal governments) to compensate owners and tenants for the relocation costs of residential, commercial, and industrial uses displaced by the project components.

Chapter 14
Public Services and Utilities

14.1 Introduction

This section describes the existing environment in the project area and the project's consistency with relevant regulations and policies. This section also identifies potential impacts on public services and utilities associated with the project and identifies mitigation measures to reduce significant impacts.

The following sources of information were reviewed to prepare this chapter.

- Environmental Screening Analysis Final Technical Report (URS Corporation 2006)
- Sacramento County General Plan (Sacramento County 2011)
- El Dorado County General Plan (El Dorado County 2004)
- Elk Grove General Plan (City of Elk Grove 2009)
- Folsom General Plan (City of Folsom 1993)
- Rancho Cordova General Plan (City of Rancho Cordova 2006a)
- Solid Waste Information System (SWIS) (California Department of Resources Recycling and Recovery 2005)

14.2 Environmental Setting

For the purposes of this analysis, the study area for public services and utilities is defined as 400 feet from the centerline in either direction, for a corridor of 800 feet total. This section provides a regional overview of existing public services and utilities within the project vicinity, as well as within the study area.

14.2.1 Existing Conditions

14.2.1.1 Fire Protection

Fire suppression is the responsibility of various fire districts, which often employ paramedics for emergency medical services. The varied topographic features, environmental settings, and demographics of the study area require fire protection personnel to respond to various types of emergencies in rural, suburban, and urban settings. The wide diversity of emergency incidents require firefighters to be proficient in wildland firefighting, structural firefighting, crash fire rescue, technical rescue, swift water rescue, hazardous material mitigation, and paramedic medical services. Local fire protection districts/departments throughout the study area are discussed below. Figure 14-1 shows locations of fire stations along the Capital Southeast Connector.

Elk Grove

Fire protection services in Elk Grove are provided by a separate agency, the Elk Grove Community Services District. The district maintains an extensive system of fire stations throughout Elk Grove and a portion of the planning area outside the city limits.

Rancho Cordova and Unincorporated Sacramento County

The Sacramento Metropolitan Fire District provides fire protection services and medical services to Rancho Cordova as well as the unincorporated portions of southern Sacramento County. The district has 42 fire stations with approximately 673 paid personnel on its staff.

El Dorado Hills

The El Dorado Hills Fire Department serves the easternmost part of the study area. Operating under the El Dorado County Water District board, the department has 66 paid personnel, 38 volunteers, and operates four stations including emergency medical services.

Folsom

The Folsom Fire Department consists of four fire stations. The department has 82 employees and a service area of 24 square miles. Each of the four stations also provides paramedic/advanced life support services. The emergency medical services division participates in a countywide resource deployment plan that ensures the closest available emergency crew responds to the scene of emergencies, regardless of geopolitical boundaries.

14.2.1.2 Police Protection

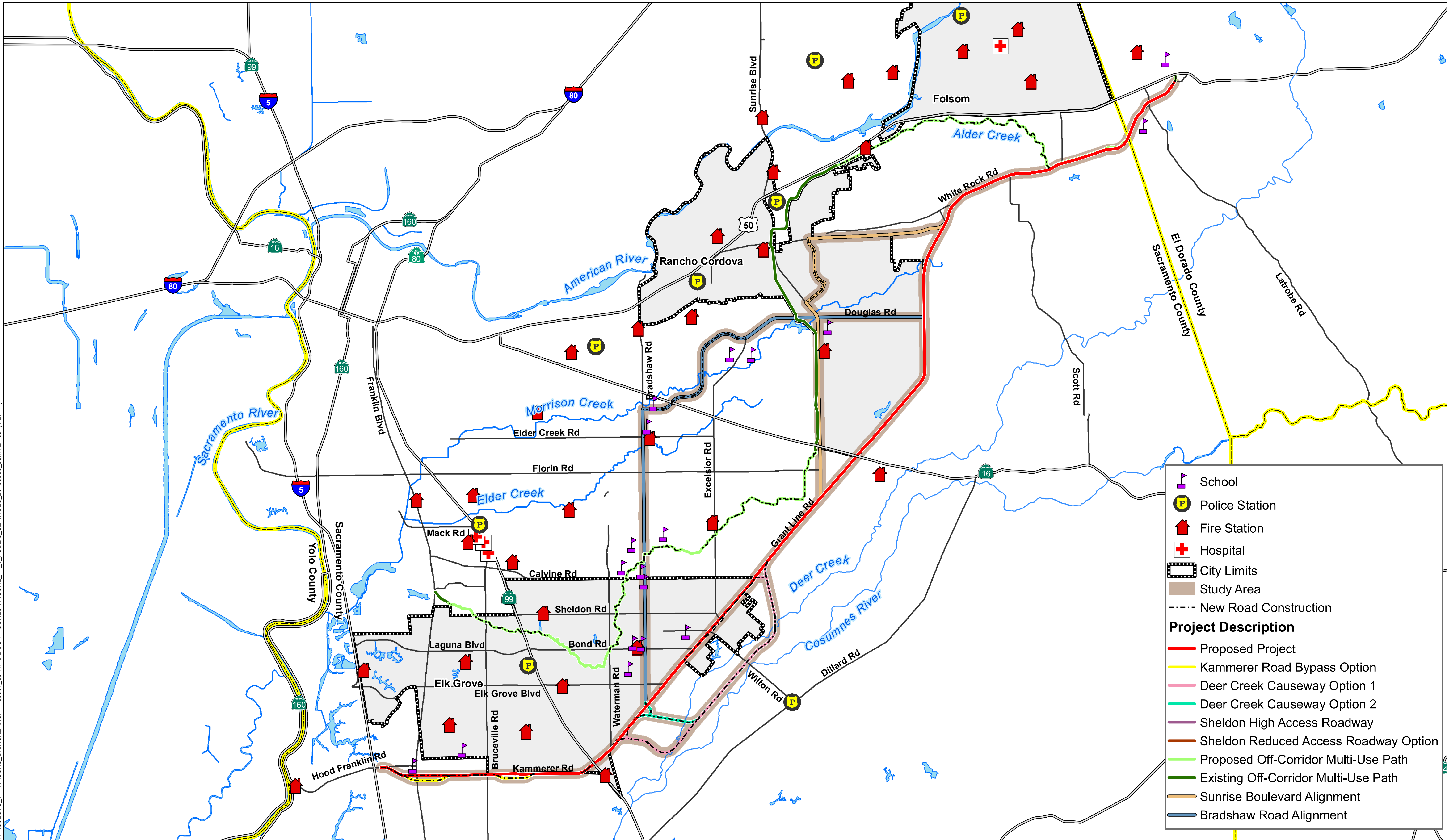
Sacramento and El Dorado Counties within the study area are serviced by county sheriff's departments, which are responsible for providing police protection within the unincorporated areas of counties, as well as those incorporated cities that contract with a county sheriff to protect their city (e.g., the City of Rancho Cordova contracts with the Sacramento County Sheriff's Department). The county sheriff serves their citizens by offering an established police force to protect the jurisdictions and the surrounding communities as they grow. Both the Cities of Elk Grove and Folsom have their own police departments. Police station locations are shown in Figure 14-1.

14.2.1.3 Public Schools

Each of the jurisdictions within the study area provide public education facilities and services to its citizens including elementary, middle, and secondary schools, postsecondary, and colleges/universities, as well as special education and adult schools. There are more than 256 elementary, middle, and secondary schools; postsecondary schools and colleges/universities; and special education and adult schools within the study area, as shown in Figure 14-1.

14.2.1.4 Water Supply Systems

In Sacramento County, there are at least 28 public and private water purveyors that are coordinated by the Sacramento County Water Agency (SCWA). In El Dorado County, the responsibility for water supply rests with the El Dorado Irrigation District. See Figure 14-2 for the locations of water district and agencies in the project area.



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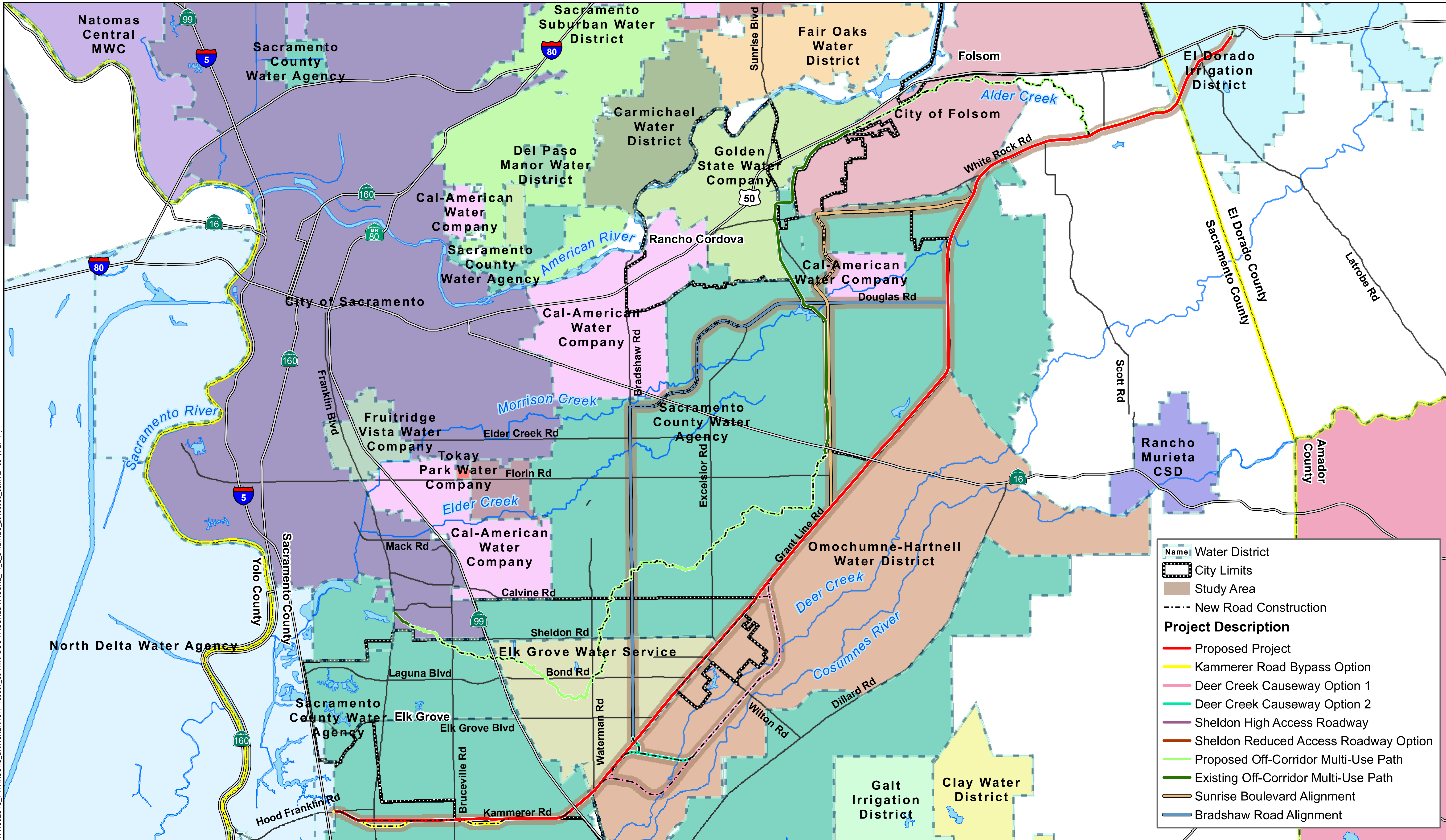
Data Layers Provided by Sacramento County GIS Department, Sacramento County Planning Department, SACOG, El Dorado County, El Dorado County Planning Department, The US Fish and Wildlife Service, and USGS

CAPITAL SOUTHEAST CONNECTOR Connecting Communities

Public Services

Figure 14-1

Plot Date
January 27, 2011



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Data Layers Provided by Sacramento County GIS Department, Sacramento County Planning Department, SACOG, El Dorado County, El Dorado County Planning Department, The US Fish and Wildlife Service, and USGS

CAPITAL SOUTHEAST CONNECTOR
Connecting Communities

Water Districts

Figure 14-2

Plot Date
January 27, 2011

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14.2.1.5 Stormwater and Sewage Systems

Within urbanized areas of the region, stormwater is collected in municipal systems and conveyed to the rivers, in accordance with state water quality regulations. Within the study area, several entities provide stormwater management systems. The Sacramento Stormwater Quality Partnership covers the Sacramento County area, including the Cities of Sacramento, Elk Grove, Folsom, and Rancho Cordova.

Within the study area, secondary or advanced sewage disposal and treatment is the responsibility of the Sacramento Regional County Sanitation District (SRCSD). The SRCSD serves most of Sacramento County residents. The SRCSD is responsible for operating the wastewater treatment plant, located in Freeport. This county-wide facility is capable of processing up to 300 million gallons of sewage daily. The plant is designed as a secondary treatment plant at this time. In addition to running this plant, the SRCSD is responsible for maintaining large interceptors conveying wastewater from collection points within the cities and urbanized portions of the county and constructing new interceptors as needed.

In El Dorado County, the El Dorado Irrigation District operates and maintains a total of five wastewater systems. The El Dorado Hills treatment plant serves the portion of the project area in El Dorado County.

Portions of Sacramento and El Dorado County not served by the districts are unsewered, with individual homes using onsite septic systems.

14.2.1.6 Solid Waste

For purposes of this analysis, solid waste from project-related construction activities is assumed to be disposed of locally. Sacramento County has nine active solid waste facilities, including three transfer stations and two landfills. El Dorado County owns the Union Mine Disposal Site and leases the operation of the facility to El Dorado Landfill Inc.

14.2.1.7 Electricity and Natural Gas

The Sacramento Municipal Utilities District (SMUD) supplies electric service to Sacramento County. SMUD is the sixth-largest publicly owned utility in the United Stations, based on the number of customers served. SMUD generates approximately 50% of the power demand of its customers and purchases the remainder.

Pacific Gas and Electric Company (PG&E) is one of the largest combination natural gas and electric utilities in the United States. The company, a subsidiary of PG&E Corporation, serves approximately 15 million people in northern and central California. Within the study area, PG&E provides electric service to El Dorado County. PG&E also provides gas service to the entire Sacramento metropolitan area.

14.2.1.8 Telecommunication Services

Local phone service is provided primarily by AT&T, Inc. (AT&T), although a number of independent telephone companies operate in the metropolitan area as well, including Citizens Telecommunications of California and SureWest Communications. Long distance telephone service is provided by several carriers, including AT&T, and Sprint, among others. AT&T, Sprint, T-Mobile, and Verizon Wireless are among the multiple cellular telephone providers to the Sacramento metropolitan area. Cable television is primarily provided by Comcast Cable, AT&T, and SureWest Communications.

14.2.2 Regulatory Setting

14.2.2.1 Federal Regulations

Clean Water Act

Enacted in 1972, this federal legislation completely revised the pre-existing Water Pollution Control Act. Section 304 of the CWA established primary drinking water standards. States are required to ensure that potable water retailed to the public meets these standards. State primary and secondary drinking water standards are promulgated in 22 CCR 64431–64501. Secondary drinking water standards incorporate nonhealth risk factors including taste, odor, and appearance. The NPDES regulates the discharge of drainage to surface waters. Federal NPDES regulations are administered by the SWRCB and through the RWQCBs. Municipal storm drainage is required to meet board standards under waste discharge regulations/NPDES permits.

14.2.2.2 State Regulations

Porter-Cologne Water Quality Control Act (Section 13000 et seq.)

The Porter-Cologne Act directs the SWRCB and RWQCBs to prepare Water Quality Control Plans (Basin Plans), establishing water quality objectives and beneficial uses for each body of water within the regional boundaries including groundwater basins. The Porter-Cologne Act empowers the SWRCB and RWQCBs to protect the beneficial use of California waters. Thereby, it provides broader authority than offered by the CWA alone. The SWRCB and RWQCBs adopt regulations to protect surface water quality.

Under General Construction Permit (Order 2009-0009-DWQ), as discussed in Chapter 8, "Geology, Soils, and Paleontological Resources," linear construction projects are required to prepare a NOI and a SWPPP and implement and maintain BMPs to avoid adverse effects on receiving water quality as a result of construction activities. The SWPPP must contain a visual monitoring program; a chemical monitoring program for "non-visible" pollutants to be implemented if there is a failure of BMPs; and a sediment monitoring plan if the site discharges directly to a water body listed on the Section 303(d) list for sediment. The issue of water quality is also addressed in Chapter 10, "Hydrology and Water Quality."

14.2.2.3 Local Regulations

General Plans

Cities and counties have stated goals, objectives, and policies in their respective general plans related to public services and utilities. The proposed project must comply with the goals, objectives and policies stated in applicable city and county general plans to the extent that those policies are protective of the environment. Table 14-1 lists the specific general plan elements/sections that apply to public services and utilities.

Revised Table 14-1. Applicable Local General Plans

Jurisdiction	Document	Section
El Dorado County	General Plan (2004)	Public Services and Utilities Element
Sacramento County	General Plan (2011)	Public Facilities Element
City of Elk Grove	General Plan (2009)	Public Facilities & Finance, Conservation & Air Quality, and Safety Elements
City of Folsom	General Plan (1993)	Public Facilities Element
City of Rancho Cordova	General Plan (2006a)	Infrastructure, Services & Finance and Safety Elements
Sources: City and county general plans as noted.		

14.3 Impacts and Mitigation Discussion

14.3.1 Thresholds of Significance

14.3.1.1 Public Services

The following indicators of potential significant impacts on public services are identified in Appendix G of the State CEQA Guidelines:

- result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities; or
- the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response time or other performance objective for any of the following public services:
  - fire protection,
  - police protection, and
  - schools.

Appendix G of the State CEQA Guidelines is a sample checklist. As such, its suggested impact indicators do not necessarily apply to every project. In this case, the proposed project is a new and expanded road that will not require governmental facilities, and it will not create a demand for any of the above public services. Therefore, none of these checklist items applies to this project and no further analysis is necessary.

14.3.1.2 Utilities

According to Appendix G the State CEQA Guidelines, the following are indicators of potential significant impacts on utilities and service systems:

- exceed wastewater treatment requirements of the applicable RWQCB;
- require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;

- require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;
- not have sufficient water supplies available to serve the project from existing entitlements and resources, or require new or expanded entitlements;
- result in a determination by a wastewater treatment provider that there is not adequate capacity to serve a project's projected demand;
- be served by a landfill without sufficient permitted capacity to accommodate the project's solid waste disposal needs; or
- not comply with federal, state, and local statues and regulations related to solid waste.

In the case of this project, not all of the suggested impact indicators apply. Construction and operation of the project would not require additional water or wastewater treatment facilities. The project, as a public project, will be required to comply with all solid waste statutes and regulations; therefore, that indicator does not apply.

Significant impacts to public services would occur if the project would:

- not have sufficient water supplies available to serve the project from existing entitlements and resources, or require new or expanded entitlements; or
- be served by a landfill without sufficient permitted capacity to accommodate the project's solid waste disposal needs.

14.3.2 Approach and Methods

This section describes potential public services and utilities impacts that could result from implementation of the proposed project and project options. This evaluation of impacts is at a program level. Components of the proposed project and project options may require further project-level environmental review at a later time.

14.3.3 Impacts of the Proposed Project

This section describes the possible impacts on public services and utilities that could result from construction and implementation of the proposed project and project options. Mitigation measures are also discussed, where applicable.

Impact PS-1: Require or Result in the Construction of New Stormwater Drainage Facilities or Expansion of Existing Facilities, the Construction of Which Could Cause Significant Environmental Effects

Implementation of the proposed project will require or result in the construction of new stormwater drainage facilities or expansion of existing facilities to accommodate drainage from the road. The project will comply with all storm drainage water requirements of the Central Valley RWQCB and the USACE (if applicable), as discussed above, to avoid releasing sediment and other pollutants to surface waters during construction.

Design of the project segments will include project-level environmental review to determine whether expansion of existing or construction of new stormwater drainage facilities is required and will determine significant impacts on the environment and mitigation measures, where applicable.

Operational impacts will be avoided by design, and implementing Mitigation Measures PS-1, PS-2, and PS-3 would ensure impacts on stormwater drainage facilities would be less than significant.

Mitigation Measure PS-1: Implement Low-Impact Development Techniques for Control of Surface Drainage

The JPA or local jurisdiction will ensure that the project design will employ low-intensity development (LID) techniques and features to maintain the site's predevelopment runoff rates and volumes to the extent feasible. The objective of the LID design is to mimic the site's predevelopment hydrology by including project features and techniques that infiltrate, filter, store, evaporate, and detain stormwater runoff close to the source. LID design features and techniques can incorporate (but are not limited to) minimizing impermeable surfaces where practical; inclusion of bioretention facilities or *rain gardens*; preserving natural drainages, vegetation, and buffer zones; inclusion of grass swales and channels to direct storm drainage; construction of cisterns to collect water for later use in irrigation; inclusion of vegetated filter strips; and use of permeable pavements.

Mitigation Measure PS-2: Use Drought-Resistant Plants and Irrigation in Project Landscaping

The JPA or local jurisdiction will ensure that the design of the project will include a landscaping and irrigation plan that is based on the use of drought-resistant landscaping materials. This includes the use of suitable drought-resistant native plants, where feasible, and nonnative plants that are suitable to the site, such as grasses. Suitable plants are those matched to the climate, soils, and Sacramento region. No invasive, nonnative plants (as inventoried by the California Invasive Plant Council) nor noxious weeds (as listed by the California Department of Food and Agriculture) will be used in the landscaping plan. The irrigation system design will rely on recycled water or nonpotable water (including water from LID cisterns) whenever available, consistent with quality and health standards. The irrigation system design will include the use of *smart* irrigation controllers to minimize the amount of supplemental water required to maintain the landscaping.

Mitigation Measure PS-3: Construction and Demolition Debris Produced by Implementation of the Proposed Project Will be Recycled and Properly Disposed

The JPA or local jurisdiction will require that the contractor will employ one of the following options for recycling construction and demolition debris:

1. If there is room at the construction site for multiple sorting bins, construction and demolition debris will be sorted and dropped off at recycling facilities. Currently, the following facilities accept sorted construction and demolition waste:
   - Kiefer Landfill
   - Crete Crush, LLC, which accepts brick, gravel, sand, asphalt, concrete, and soil
   - Elder Creek Recovery & Transfer Station BFI
   - EBI Aggregates, which accepts concrete and asphalt
   - Vulcan Materials, which accepts concrete and asphalt
   - Sims Metal Management

- Granite Construction Company, which accepts only clean, separated concrete and asphalt
- Bell Marine Company, Inc., which accepts concrete and asphalt
- L and D Landfill Company
- Sacramento Recycling & Transfer Station
- Sacramento Habitat for Humanity, which accepts tax deductible donations of clean wood and various building materials
- Second Cycle, Inc.

2. If the construction site is crowded, or mixed recycling is preferable for another reason, the Sacramento Regional Solid Waste Authority provides a list of certified construction and demolition debris sorting facilities.
   - Allied Waste/Elder Creek Transfer and Recovery
   - L and D Landfill Company
   - Waste Management/K&M Recycle America
   - Florin-Perkins Public Disposal

If a waste type produced by project construction is a type not accepted by regional landfills, the project engineer(s) will ensure that the waste is disposed of in accordance with all federal, state, and local statues and regulations related to solid waste.

Impact PS-2: Not Have Sufficient Water Supplies Available to Serve the Project From Existing Entitlements and Resources, or Require New or Expanded Entitlements

Projects constructed as a result of implementation of the proposed project would not require a substantial supply of water because the projects would be roadway projects only, and the only water use would be for the irrigation of landscaping. As described above, implementation of Mitigation Measure PS-2 would reduce this impact to less than significant.

Impact PS-3: Be Served By a Landfill Without Sufficient Permitted Capacity to Accommodate the Project's Solid Waste Disposal Needs

During the construction phase, the proposed project will generate solid waste due to demolition, grading, excavation, and other construction activities. Design information, specific construction waste generation volumes, and locations of probable disposal facilities are not available at this time. These details will be determined for each individual project at the time of specific project design. As a result, attempting to estimate the volume of solid waste generated by construction and its effects on any specific disposal facility's capacity would be speculative.

An assessment of landfills in the El Dorado and Sacramento Counties was conducted to determine the likelihood of sufficient capacity to accommodate the project's solid waste disposal needs. Although the Union Mine Disposal Site in El Dorado County is listed in the California Department of Resources Recycling and Recovery's Solid Waste Information System as a permitted, active landfill, staff at the Local Enforcement Agency confirmed the landfill has reached maximum capacity and is now closed (Estolas pers. comm.). Therefore, there are no active landfills in El Dorado County. The largest landfill in Sacramento County, Kiefer Landfill, is 660 acres in size, and the maximum permitted throughput for the landfill is 10,815 tons of solid waste per day (California Department of Resources Recycling and Recovery 2005). As of June 30, 2009, the Kiefer Landfill was using 29% of its capacity, and the estimated remaining life of the landfill was 64 years (Sacramento County 2009). The L and D Landfill is also located in Sacramento County, and the maximum permitted throughput for the landfill is 2,540 tons of solid waste per day. The disposal area of the L and D Landfill is 157 acres in size (California Department of Resources Recycling and Recovery 2005). As of June 30, 2010, the L and D Landfill was using 87.3% of capacity, and the estimated remaining life of the landfill was 3 years (Mills pers. comm.). Because of the availability of capacity in the Kiefer Landfill facility, this is expected to be a less-than-significant impact. As described above, implementation of Mitigation Measure PS-3 would reduce impacts on regional landfills to less than significant.

14.3.4 Impacts of the Off-Corridor Multi-Use Path Alternative

Impact PS-1: Require or Result in the Construction of New Stormwater Drainage Facilities or Expansion of Existing Facilities, the Construction of Which Could Cause Significant Environmental Effects

Implementation of the Off-Corridor Multi-Use Path Alternative could require or result in the construction of new stormwater drainage facilities or expansion of existing facilities to accommodate drainage from the paved path. The project will comply with all storm drainage water requirements of the Central Valley RWQCB and the USACE (if applicable), as discussed above, to avoid releasing sediment and other pollutants to surface waters during construction.

Design of this alternative will include project-level environmental review to determine whether expansion of existing or construction of new stormwater drainage facilities is required and will determine significant impacts on the environment and mitigation measures, where applicable. Operational impacts will be avoided by design, and implementing Mitigation Measures PS-1, PS-2, and PS-3, as previously described, would ensure impacts on stormwater drainage facilities would be less than significant.

Impact PS-2: Not Have Sufficient Water Supplies Available to Serve the Project From Existing Entitlements and Resources, or Require New or Expanded Entitlements

Implementation of the Off-Corridor Multi-Use Path Alternative would not require water entitlements because it would involve expansion and improvement of the existing off-corridor multi-use path only. Therefore, there would be no impact.

Impact PS-3: Be Served by a Landfill Without Sufficient Permitted Capacity to Accommodate the Project's Solid Waste Disposal Needs

Construction of the Off-Corridor Multi-Use Path Alternative would generate solid waste due to demolition, grading, excavation, and other construction activities. Design information, specific construction waste generation volumes, and locations of probable disposal facilities are not available at this time. These details will be determined at the time of design. As a result, attempting to estimate the volume of solid waste generated by construction and its effects on any specific disposal facility's capacity would be speculative.

An assessment of landfills in the El Dorado and Sacramento Counties was conducted to determine the likelihood of sufficient capacity to accommodate solid waste disposal needs. Although the Union Mine Disposal Site in El Dorado County is listed in the California Department of Resources Recycling and Recovery's Solid Waste Information System as a permitted, active landfill, staff at the Local Enforcement Agency confirmed the landfill has reached maximum capacity and is now closed (Estolas pers. comm.). Therefore, there are no active landfills in El Dorado County. The largest landfill in Sacramento County, Kiefer Landfill, is 660 acres in size, and the maximum permitted throughput for the landfill is 10,815 tons of solid waste per day (California Department of Resources Recycling and Recovery 2005). As of June 30, 2009, the Kiefer Landfill was using 29% of its capacity, and the estimated remaining life of the landfill was 64 years (Sacramento County 2009). The L and D Landfill is also located in Sacramento County, and the maximum permitted throughput for the landfill is 2,540 tons of solid waste per day. The disposal area of the L and D Landfill is 157 acres in size (California Department of Resources Recycling and Recovery 2005). As of June 30, 2010, the L and D Landfill was using 87.3% of capacity, and the estimated remaining life of the landfill was 3 years (Mills pers. comm.). Because of the availability of capacity in the Kiefer Landfill facility, this is expected to be a less-than-significant impact. As described above, implementation of Mitigation Measure PS-3 would ensure impacts on regional landfills would be less than significant.

14.3.5 Impacts of the Project Options

14.3.5.1 Kammerer Road Bypass Option

Impact PS-1: Require or Result in the Construction of New Stormwater Drainage Facilities or Expansion of Existing Facilities, the Construction of Which Could Cause Significant Environmental Effects

Implementation of the Kammerer Road Bypass Option could require or result in the construction of new stormwater drainage facilities or expansion of existing facilities to accommodate drainage from the road. The project will comply with all storm drainage water requirements of the Central Valley RWQCB and the USACE (if applicable), as discussed above, to avoid releasing sediment and other pollutants to surface waters during construction.

Design of the option will include project-level environmental review to determine whether expansion of existing or construction of new stormwater drainage facilities is required and will determine significant impacts on the environment and mitigation measures, where applicable. Operational impacts will be avoided by design, and implementing Mitigation Measures PS-1, PS-2, and PS-3, as previously described, would ensure impacts on stormwater drainage facilities would be less than significant.

Impact PS-2: Not Have Sufficient Water Supplies Available to Serve the Project From Existing Entitlements and Resources, or Require New or Expanded Entitlements

Implementation of the Kammerer Road Bypass Option would not require a substantial supply of water because it is a roadway project only, and the only water use would be for the irrigation of landscaping, if any. As described above, Mitigation Measure PS-2 would ensure this impact would be less than significant.

Impact PS-3: Be Served by a Landfill Without Sufficient Permitted Capacity to Accommodate the Project's Solid Waste Disposal Needs

Construction of the Kammerer Road Bypass Option would generate solid waste due to demolition, grading, excavation, and other construction activities. Design information, specific construction waste generation volumes, and locations of probable disposal facilities are not available at this time. These details will be determined at the time of design. As a result, attempting to estimate the volume of solid waste generated by construction and its effects on any specific disposal facility's capacity would be speculative.

An assessment of landfills in the El Dorado and Sacramento Counties was conducted to determine the likelihood of sufficient capacity to accommodate solid waste disposal needs. Although the Union Mine Disposal Site in El Dorado County is listed in the California Department of Resources Recycling and Recovery's Solid Waste Information System as a permitted, active landfill, staff at the Local Enforcement Agency confirmed the landfill has reached maximum capacity and is now closed (Estolas pers. comm.). Therefore, there are no active landfills in El Dorado County. The largest landfill in Sacramento County, Kiefer Landfill, is 660 acres in size, and the maximum permitted throughput for the landfill is 10,815 tons of solid waste per day (California Department of Resources Recycling and Recovery 2005). As of June 30, 2009, the Kiefer Landfill was using 29% of its capacity, and the estimated remaining life of the landfill was 64 years (Sacramento County 2009). The L and D Landfill is also located in Sacramento County, and the maximum permitted throughput for the landfill is 2,540 tons of solid waste per day. The disposal area of the L and D Landfill is 157 acres in size (California Department of Resources Recycling and Recovery 2005). As of June 30, 2010, the L and D Landfill was using 87.3% of capacity, and the estimated remaining life of the landfill was 3 years (Mills pers. comm.). Because of the availability of capacity in the Kiefer Landfill facility, this is expected to be a less-than-significant impact. As described above, implementation of Mitigation Measure PS-3 would ensure impacts on regional landfills would be less than significant.

14.3.5.2 Deer Creek Causeway Option 1 and 2

Impact PS-1: Require or Result in the Construction of New Stormwater Drainage Facilities or Expansion of Existing Facilities, the Construction of Which Could Cause Significant Environmental Effects

Implementation of either Deer Creek Causeway Option could require or result in the construction of new stormwater drainage facilities or expansion of existing facilities to accommodate drainage from the road. The project will comply with all storm drainage water requirements of the Central Valley RWQCB and the USACE (if applicable), as discussed above, to avoid releasing sediment and other pollutants to surface waters during construction.

Design of either option will include project-level environmental review to determine whether expansion of existing or construction of new stormwater drainage facilities is required and will determine significant impacts on the environment and mitigation measures, where applicable. Operational impacts will be avoided by design, and implementing Mitigation Measures PS-1, PS-2, and PS-3, as previously described, would ensure impacts on stormwater drainage facilities would be less than significant.

Impact PS-2: Not Have Sufficient Water Supplies Available to Serve the Project From Existing Entitlements and Resources, or Require New or Expanded Entitlements

Implementation of either Deer Creek Causeway Option would not require water entitlements because it involves constructing a causeway only, and there would be no landscaping on the causeway. Therefore, there would be no impact.

Impact PS-3: Be Served by a Landfill Without Sufficient Permitted Capacity to Accommodate the Project's Solid Waste Disposal Needs

Construction of either Deer Creek Causeway Option would generate solid waste due to demolition, grading, excavation, and other construction activities. Design information, specific construction waste generation volumes, and locations of probable disposal facilities are not available at this time. These details will be determined at the time of design. As a result, attempting to estimate the volume of solid waste generated by construction and its effects on any specific disposal facility's capacity would be speculative.

An assessment of landfills in the El Dorado and Sacramento Counties was conducted to determine the likelihood of sufficient capacity to accommodate solid waste disposal needs. Although the Union Mine Disposal Site in El Dorado County is listed in the California Department of Resources Recycling and Recovery's Solid Waste Information System as a permitted, active landfill, staff at the Local Enforcement Agency confirmed the landfill has reached maximum capacity and is now closed (Estolas pers. comm.). Therefore, there are no active landfills in El Dorado County. The largest landfill in Sacramento County, Kiefer Landfill, is 660 acres in size, and the maximum permitted throughput for the landfill is 10,815 tons of solid waste per day (California Department of Resources Recycling and Recovery 2005). As of June 30, 2009, the Kiefer Landfill was using 29% of its capacity, and the estimated remaining life of the landfill was 64 years (Sacramento County 2009). The L and D Landfill is also located in Sacramento County, and the maximum permitted throughput for the landfill is 2,540 tons of solid waste per day. The disposal area of the L and D Landfill is 157 acres in size (California Department of Resources Recycling and Recovery 2005). As of June 30, 2010, the L and D Landfill was using 87.3% of capacity, and the estimated remaining life of the landfill was 3 years (Mills pers. comm.). Because of the availability of capacity in the Kiefer Landfill facility, this is expected to be a less-than-significant impact. As described above, implementation of Mitigation Measure PS-3 would ensure impacts on regional landfills would be less than significant.

14.3.5.3 Sheldon Reduced Access Roadway Option

Impact PS-1: Require or Result in the Construction of New Stormwater Drainage Facilities or Expansion of Existing Facilities, the Construction of Which Could Cause Significant Environmental Effects

Implementation of the Sheldon Reduced Access Roadway Option could require or result in the construction of new stormwater drainage facilities or expansion of existing facilities to accommodate drainage from the road. The project will comply with all storm drainage water requirements of the Central Valley RWQCB and the USACE (if applicable), as discussed above, to avoid releasing sediment and other pollutants to surface waters during construction.

Design of the option will include project-level environmental review to determine whether expansion of existing or construction of new stormwater drainage facilities is required and will determine significant impacts on the environment and mitigation measures, where applicable. Operational impacts will be avoided by design, and implementing Mitigation Measures PS-1, PS-2, and PS-3, as previously described, would ensure impacts on stormwater drainage facilities would be less than significant.

Impact PS-2: Not Have Sufficient Water Supplies Available to Serve the Project From Existing Entitlements and Resources, or Require New or Expanded Entitlements

Implementation of the Sheldon Reduced Access Roadway Option would not require a substantial supply of water because it is a roadway project only, and the only water use would be for the irrigation of landscaping, if any. As described above, implementation of Mitigation Measure PS-2 would ensure this impact would be less than significant.

Impact PS-3: Be Served by a Landfill Without Sufficient Permitted Capacity to Accommodate the Project's Solid Waste Disposal Needs

Construction of the Sheldon Reduced Access Roadway Option would generate solid waste due to demolition, grading, excavation, and other construction activities. Design information, specific construction waste generation volumes, and locations of probable disposal facilities are not available at this time. These details will be determined at the time of design. As a result, attempting to estimate the volume of solid waste generated by construction and its effects on any specific disposal facility's capacity would be speculative.

An assessment of landfills in the El Dorado and Sacramento Counties was conducted to determine the likelihood of sufficient capacity to accommodate solid waste disposal needs. Although the Union Mine Disposal Site in El Dorado County is listed in the California Department of Resources Recycling and Recovery's Solid Waste Information System as a permitted, active landfill, staff at the Local Enforcement Agency confirmed the landfill has reached maximum capacity and is now closed (Estolas pers. comm.). Therefore, there are no active landfills in El Dorado County. The largest landfill in Sacramento County, Kiefer Landfill, is 660 acres in size, and the maximum permitted throughput for the landfill is 10,815 tons of solid waste per day (California Department of Resources Recycling and Recovery 2005). As of June 30, 2009, the Kiefer Landfill was using 29% of its capacity, and the estimated remaining life of the landfill was 64 years (Sacramento County 2009). The L and D Landfill is also located in Sacramento County, and the maximum permitted throughput for the landfill is 2,540 tons of solid waste per day. The disposal area of the L and D Landfill is 157 acres in size (California Department of Resources Recycling and Recovery 2005). As of June 30, 2010, the L and D Landfill was using 87.3% of capacity, and the estimated remaining life of the landfill was 3 years (Mills pers. comm.). Because of the availability of capacity in the Kiefer Landfill facility, this is expected to be a less-than-significant impact. As described above, implementation of Mitigation Measure PS-3 would ensure impacts on regional landfills would be less than significant.

14.3.5.4 Sheldon High Access Roadway Option

Impact PS-1: Require or Result in the Construction of New Stormwater Drainage Facilities or Expansion of Existing Facilities, the Construction of Which Could Cause Significant Environmental Effects

Implementation of the Sheldon High Access Roadway Option could require or result in the construction of new stormwater drainage facilities or expansion of existing facilities to accommodate drainage from the road. The project will comply with all storm drainage water requirements of the Central Valley RWQCB and the USACE (if applicable), as discussed above, to avoid releasing sediment and other pollutants to surface waters during construction.

Design of the option will include project-level environmental review to determine whether expansion of existing or construction of new stormwater drainage facilities is required and will determine significant impacts on the environment and mitigation measures, where applicable. Operational impacts will be avoided by design, and implementing Mitigation Measures PS-1, PS-2, and PS-3, as previously described, would ensure impacts on stormwater drainage facilities would be less than significant.

Impact PS-2: Not Have Sufficient Water Supplies Available to Serve the Project From Existing Entitlements and Resources, or Require New or Expanded Entitlements

Implementation of the Sheldon High Access Roadway Option would not require a substantial supply of water because it is a roadway project only, and the only water use would be for the irrigation of landscaping, if any. As described above, implementation of Mitigation Measure PS-2 would ensure this impact would be less than significant.

Impact PS-3: Be Served by a Landfill Without Sufficient Permitted Capacity to Accommodate the Project's Solid Waste Disposal Needs

As discussed in Chapter 2, *Project Description*, implementation of the Sheldon High Access Roadway Option Grant Line Road would be widened from four to six lanes under the Rural Road Improvement Standards (City of Elk Grove 2007) consistent with the Elk Grove General Plan. Construction of the Sheldon High Access Roadway Option would generate solid waste due to demolition, grading, excavation, and other construction activities. Design information, specific construction waste generation volumes, and locations of probable disposal facilities are not available at this time. These details will be determined at the time of design. As a result, attempting to estimate the volume of solid waste generated by construction and its effects on any specific disposal facility's capacity would be speculative.

An assessment of landfills in the El Dorado and Sacramento Counties was conducted to determine the likelihood of sufficient capacity to accommodate solid waste disposal needs. Although the Union Mine Disposal Site in El Dorado County is listed in the California Department of Resources Recycling and Recovery's Solid Waste Information System as a permitted, active landfill, staff at the Local Enforcement Agency confirmed the landfill has reached maximum capacity and is now closed (Estolas pers. comm.). Therefore, there are no active landfills in El Dorado County. The largest landfill in Sacramento County, Kiefer Landfill, is 660 acres in size, and the maximum permitted throughput for the landfill is 10,815 tons of solid waste per day (California Department of Resources Recycling and Recovery 2005). As of June 30, 2009, the Kiefer Landfill was using 29% of its capacity, and the estimated remaining life of the landfill was 64 years (Sacramento County 2009). The L and D Landfill is also located in Sacramento County, and the maximum permitted throughput for the landfill is 2,540 tons of solid waste per day. The disposal area of the L and D Landfill is 157 acres in size (California Department of Resources Recycling and Recovery 2005). As of June 30, 2010, the L and D Landfill was using 87.3% of capacity, and the estimated remaining life of the landfill was 3 years (Mills pers. comm.). Because of the availability of capacity in the Kiefer Landfill facility, this is expected to be a less-than-significant impact. As described above, implementation of Mitigation Measure PS-3 would ensure impacts on regional landfills would be less than significant.

Chapter 15
Recreation

15.1 Introduction

This chapter describes the environmental and regulatory setting for recreation in the project area. The chapter also presents the federal, state, and local policies and regulations that determine mitigation requirements, and identifies impacts on recreation that may result from implementation of the proposed project. Mitigation measures to reduce potential impacts are also identified as necessary.

The following sources of information were reviewed to prepare this chapter:

- Environmental Screening Analysis Final Technical Report (URS Corporation 2006)
- Sacramento County General Plan (Sacramento County 2011)
- El Dorado County General Plan (El Dorado County 2004)
- Elk Grove General Plan (City of Elk Grove 2009)
- Folsom General Plan (City of Folsom 1993)
- Rancho Cordova General Plan (City of Rancho Cordova 2006a)

15.2 Environmental Setting

15.2.1 Existing Conditions

15.2.1.1 Existing Recreation Areas

Sacramento and El Dorado Counties manage the majority of recreational areas in the project area. Park facilities include community, regional, state, and school parks, parkways, and recreational facilities. Community parks are generally small in area and are developed for a variety of uses, gatherings, and events that support the community. Parks provide active recreation areas, such as playgrounds, sports fields, sports courts, and picnic areas. Recreation facilities tend to include children/youth, senior, performing arts, and aquatic centers.

The proposed project would traverse recreational areas in Sacramento County, El Dorado County, Rancho Cordova, and Elk Grove. Table 15-1 lists the parks and recreational facilities within 800 feet of the project corridor. Note that all parks and recreational facilities fall outside city limits, except for a small portion of Mather Regional Park, which is within Rancho Cordova. See Figure 15-1 for a graphical representation of this information.

Table 15-1. Park and Recreation Land Potentially Affected by the Proposed Project and Design Alternative/Options

Proposed Project/Design Options	Facility Name	Affected Acreage	Total Affected Acreage
Sacramento County			
Proposed Project	Prairie City State Vehicular Recreation Area (SVRA)	38.60	38.60
Off-Corridor Multi-Use Path	–	0	0
Kammerer Road Bypass Option	–	0	0
Deer Creek Causeway—Option 1	–	0	0
Deer Creek Causeway—Option 2	–	0	0
Sheldon Reduced Access Roadway	–	0	0
Sheldon High Access Roadway	–	0	0
El Dorado County			
Proposed Project	Creekside Greens Park	3.69	
	Unidentified Regional Park	33.74	37.43
Off-Corridor Multi-Use Path	–	0	0
Kammerer Road Bypass Option	–	0	0
Deer Creek Causeway-Option 1	–	0	0
Deer Creek Causeway-Option 2	–	0	0
Sheldon Reduced Access Roadway	–	0	0
Sheldon High Access Roadway	–	0	0

Source: See Figure 15-1 for data sources.
Note: – = not applicable/no information.

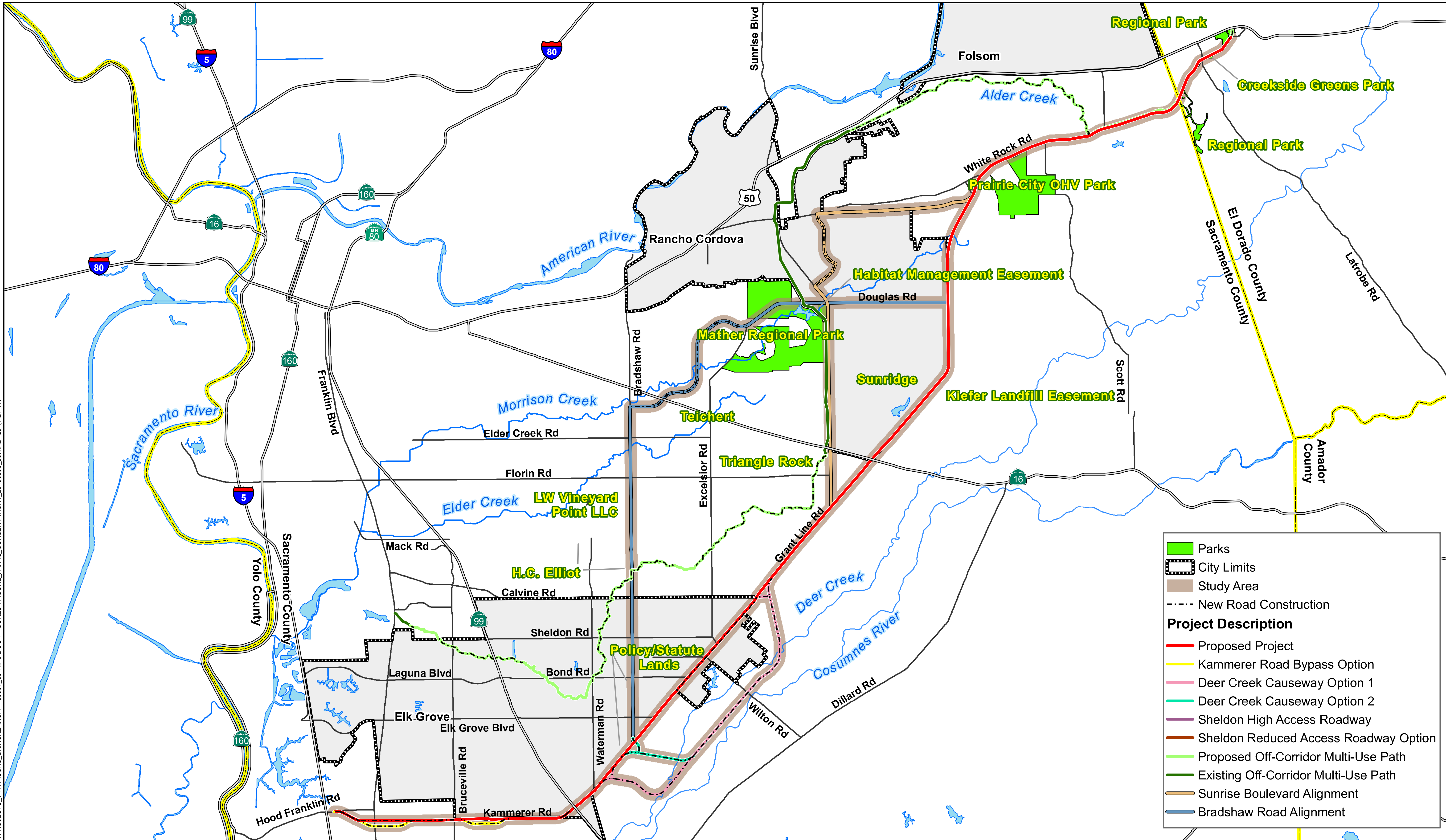
15.2.2 Regulatory Setting

15.2.2.1 State

California Department of Parks and Recreation

The California Department of Parks and Recreation (DPR) has as its principal mission to provide sites for a variety of recreational and outdoor activities, as well as natural resource management and protection. Different park designations dictate the extent to which natural resources are a management priority; natural preserves, state parks, state reserves, and state wilderness designations indicate that the area has outstanding natural features. DPR is a trustee agency that administers all state parks and participates in land use planning that affects state park land.

The 836-acre Prairie City State Vehicular Recreational Area is located south of the proposed Connector at Prairie City Road. It offers off-highway vehicle users trails and facilities for off-road riding and the Hangtown MX track for racing.



Data Layers Provided by Sacramento County GIS Department, Sacramento County Planning Department, SACOG, El Dorado County, El Dorado County Planning Department, The US Fish and Wildlife Service, and USGS

CAPITAL SOUTHEAST CONNECTOR
Connecting Communities

Figure 15-1

Parks and Recreation Areas

Plot Date
January 27, 2011

Public Park Preservation Act

The Public Park Preservation Act of 1971 (PRC 5400 to 5409) states that no city, county, public district, public utility, or agency of the state (including any division, department, or agency of the state government) shall acquire property in use as a public park to use for another purpose, unless the acquiring party provides sufficient compensation or land, or both, to allow replacement of the park land and associated facilities. The acquiring entity must provide one of the following:

> The cost of acquiring substitute park land of comparable characteristics and of substantially equal size located in an area which would allow for use of the substitute park land and facilities by generally the same persons who used the existing park land and facilities, and the cost of acquiring substitute facilities of the same type and number, plus the cost of development of such substitute park land, including the placing of such substitute facilities thereon.
>
> Substitute park land of comparable characteristics and of substantially equal size located in an area which would allow for use of the substitute park land by generally the same persons who used the existing park land, and the cost of acquiring substitute facilities of the same type and number, plus the cost of development of such substitute park land, including the placing of such substitute facilities thereon.
>
> Any combination of substitute park land and compensation in an amount sufficient to provide substitute park land of comparable characteristics and of substantially equal size located in an area which would allow for use of the substitute park land and facilities by generally the same persons who used the existing park land and facilities, and to provide substitute facilities of the same type and number, plus the cost of development of such substitute park land, including the placing of such substitute facilities thereon.

In addition, the operating entity of the purchased park land must acquire substitute park land and facilities.

There are some exceptions to the provisions of the act. The provisions do not apply to acquisition of public park land for the construction or maintenance of underground utility services. If it is not feasible to place utility services or facilities underground, the provisions do not apply to public utilities providing services to the public park. If a public utility acquires the property as a waterway, and it is determined by majority vote of the legislative body of the park that the waterway would preserve or enhance the recreational or aesthetic values of the park, the provisions of the act do not apply. In addition, if less than 10% of the park land, but no more than 1 acre, is acquired, the operating entity may use funds to improve the remaining portion of park land and facilities with the approval of the legislative body by majority vote.

15.2.2.2 Local Regulations

The cities and counties within the Sacramento Region have stated goals, objectives, and policies in their respective general plan documents related to parks and recreation. Proponents of specific projects must comply with the goals, objectives, and policies stated in the respective city or county general plan. Table 15-2 lists the specific general plan elements/sections that apply to recreational resources. As discussed above, the proposed project only traverses recreation areas within Sacramento County, El Dorado County, Rancho Cordova, and Elk Grove. However, because the City of Folsom recently annexed its SOI south of Highway 50 to White Rock Road, the City of Folsom city limits now fall adjacent to the proposed Connector alignment along White Rock Road.

Revised Table 15-2. Applicable Local General Plans

Jurisdiction	Document	Section
El Dorado County	General Plan (2004)	Parks and Recreation/Conservation and Open Space Elements
Sacramento County	General Plan (2011)	Open Space Element
City of Elk Grove	General Plan (2009)	Conservation and Parks/Trails/Open Space Elements
City of Folsom	General Plan (1993)	Parks and Recreation Element
City of Rancho Cordova	General Plan (2006a)	Natural Resources and Parks/Trails/Open Space Elements

15.3 Impact and Mitigation Discussion

15.3.1 Thresholds of Significance

Appendix G of the State CEQA Guidelines identifies environmental issues to be considered when determining whether a project could have significant impacts on the environment. The project would have a significant impact on recreation if it would:

- increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated, or
- include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment.

15.3.2 Approach and Methods

To determine impacts resulting from proposed project and design option implementation, an analysis of affected recreational land was performed. This evaluation of impacts is at a program level. Components of the proposed project and project options may require further project-level environmental review at a later time.

15.3.3 Impacts of the Proposed Project

Impact REC-1: Increased Use of Existing Neighborhood and Regional Parks or Other Recreational Facilities

The proposed project would help to accommodate planned growth in the region. However, it would not directly result in an increase in population that would substantially increase the use of parks or recreation facilities or lead to their degradation. Rather, the development planned by local jurisdictions would be responsible for the direct contributions in population growth, and those could result in the increased use or degradation of recreation facilities.

As indicated previously, projects would be required to undergo environmental review and mitigate any potential impacts if and when they are constructed. Therefore, impacts resulting from the proposed project are considered less than significant, and no mitigation is required.

Impact REC-2: Includes Recreational Facilities or Requires the Construction or Expansion of Recreational Facilities

Construction of the project could result in temporary construction-related impacts, such as dust, noise, and restricted access to recreational facilities, but these impacts would be temporary and therefore would not substantially affect the long-term use of park facilities. Consequently, construction impacts would be less-than-significant impact.

As indicated above, the proposed project would help to accommodate planned growth by providing road capacity to meet projected needs and reduce projected congestion along this travel route. However, it would not directly result in an increase in population that would justify the need for additional recreational facilities. Implementation of the proposed project would result in direct impacts on study area parks. Specifically, as shown on Figure 15-1 and listed in Table 15-1, the project alignment is expected to result in the conversion of approximately 38.6 acres of the Prairie City SVRA in Sacramento County and could result in the conversion of approximately 33.74 acres of the unidentified regional park and approximately 3.69 acres of the Creekside Greens Park at the northeast end of the alignment in El Dorado County. Conversion of these lands could result in a potentially significant impact.

Loss of these lands would reduce the ability of the remaining park and recreation facilities to meet current and future needs. The acquisition of additional lands and development of recreation facilities would have their own impacts. The extent of those impacts are unknown because the design of future recreation areas and their locations cannot be known at this time.

Implementation of Mitigation Measure REC-1 would ensure the proposed project would not result in significant impacts from the conversion of recreational lands.

Mitigation Measure REC-1: Conduct Project-Level Assessment of Impacts on Recreational Resources

To determine the specific impacts resulting from implementation of the proposed project and its design options on recreation, a project-level assessment of impacts will be conducted by the JPA or local agency undertaking later projects. This study shall determine the specific recreational qualities and facilities significantly affected by the project, in consultation with the agency(ies) with jurisdiction over the recreational resources. The JPA or local agency will provide, in cooperation with the affected agency(ies), 1) land of equal quality and with similar characteristics will be secured by the JPA or local agency to compensate for the loss of existing recreational resources at a ratio of at least 1:1 or 2) sufficient enhancements to the existing parks. The JPA or local agency may provide these lands by acquiring them and dedicating them to the affected agency(ies) or by providing the affected agency(ies) with in lieu fees sufficient to acquire the lands and replace the lost facilities, at the option of the affected agency.

15.3.4 Impacts of the Off-Corridor Multi-Use Path Alternative

Impact REC-1: Increased Use of Existing Neighborhood and Regional Parks or Other Recreational Facilities

Implementation of the Off-Corridor Multi-Use Path Alternative could increase the use of the existing off-corridor multi-use path because it would be an expansion and improvement of this recreational resource, but it would not put increased pressure on any already overused recreational facilities; it would provide additional capacity of an existing facility. Therefore, the impact would be less-than-significant.

Impact REC-2: Includes Recreational Facilities or Requires the Construction or Expansion of Recreational Facilities

As shown in Figure 15-1 and Table 15-1, implementation of the Off-Corridor Multi-Use Path Alternative would not impact any existing recreation facilities. In fact, implementation of this alternative would provide an additional recreational resource, resulting in a positive impact on recreation.

15.3.5 Impacts of the Project Options

15.3.5.1 Kammerer Road Bypass Option

Impact REC-1: Increased Use of Existing Neighborhood and Regional Parks or Other Recreational Facilities

Implementation of the Kammerer Road Bypass Option would help to accommodate planned growth in the region. However, it would not directly result in an increase in population that would substantially increase the use of parks or recreation facilities or lead to their degradation. Rather, the development planned by local jurisdictions would be responsible for the direct contributions in population growth, and those could result in the increased use or degradation of recreation facilities. Therefore, impacts resulting from the Kammerer Road Bypass Option are considered less than significant, and no mitigation is required.

Impact REC-2: Includes Recreational Facilities or Requires the Construction or Expansion of Recreational Facilities

As shown in Figure 15-1 and Table 15-1, implementation of the Kammerer Road Bypass Option would not impact any recreation facilities. Therefore, there would be no impact.

15.3.5.2 Deer Creek Causeway Option 1

Impact REC-1: Increased Use of Existing Neighborhood and Regional Parks or Other Recreational Facilities

Implementation of the Deer Creek Causeway Option 1 would help to accommodate planned growth in the region. However, it would not directly result in an increase in population that would substantially increase the use of parks or recreation facilities or lead to their degradation. Rather, the development planned by local jurisdictions would be responsible for the direct contributions in population growth, and those could result in the increased use or degradation of recreation facilities. Therefore, impacts resulting from the Deer Creek Causeway Option 1 are considered less than significant, and no mitigation is required.

Impact REC-2: Includes Recreational Facilities or Requires the Construction or Expansion of Recreational Facilities

As shown in Figure 15-1 and Table 15-1, implementation of Deer Creek Causeway Option 1 would not result in conversion of recreational facilities. Therefore, there is no impact.

15.3.5.3 Deer Creek Causeway Option 2

Impact REC-1: Increased Use of Existing Neighborhood and Regional Parks or Other Recreational Facilities

Implementation of Deer Creek Causeway Option 2 would help to accommodate planned growth in the region. However, it would not directly result in an increase in population that would substantially increase the use of parks or recreation facilities or lead to their degradation. Rather, the development planned by local jurisdictions would be responsible for the direct contributions in population growth, and those could result in the increased use or degradation of recreation facilities. Therefore, impacts resulting from the Deer Creek Causeway Option 2 are considered less than significant, and no mitigation is required.

Impact REC-2: Includes Recreational Facilities or Requires the Construction or Expansion of Recreational Facilities

As shown in Figure 15-1 and Table 15-1, implementation of Deer Creek Causeway Option 2 would not result in conversion of park lands. Therefore, there would be no impact.

15.3.5.4 Sheldon Reduced Access Roadway Option

Impact REC-1: Increased Use of Existing Neighborhood and Regional Parks or Other Recreational Facilities

Implementation of the Sheldon Reduced Access Roadway Option would help to accommodate planned growth in the region. However, it would not directly result in an increase in population that would substantially increase the use of parks or recreation facilities or lead to their degradation. Rather, the development planned by local jurisdictions would be responsible for the direct contributions in population growth, and those could result in the increased use or degradation of recreation facilities. Therefore, impacts resulting from the Sheldon Reduced Access Roadway Option are considered less than significant, and no mitigation is required.

Impact REC-2: Includes Recreational Facilities or Requires the Construction or Expansion of Recreational Facilities

As shown in Figure 15-1 and Table 15-1, implementation of the Sheldon Reduced Access Roadway Option would not result in conversion of recreational facilities. Therefore, there would be no impact.

15.3.5.5 Sheldon High Access Roadway Option

Impact REC-1: Increased Use of Existing Neighborhood and Regional Parks or Other Recreational Facilities

Implementation of the Sheldon High Access Roadway Option would help to accommodate planned growth in the region. However, it would not directly result in an increase in population that would substantially increase the use of parks or recreation facilities or lead to their degradation. Rather, the development planned by local jurisdictions would be responsible for the direct contributions in population growth, and those could result in the increased use or degradation of recreation facilities. Therefore, impacts resulting from the Sheldon High Access Roadway Option are considered less than significant, and no mitigation is required.

Impact REC-2: Includes Recreational Facilities or Requires the Construction or Expansion of Recreational Facilities

As shown in Figure 15-1 and Table 15-1, implementing the Sheldon High Access Roadway Option would not result in conversion of recreational facilities. Therefore, there would be no impact.

Chapter 16 (Revised)
Traffic and Transportation

16.1 Introduction

This section presents a program-level assessment of potential impacts on traffic and transportation associated with the Connector. This chapter was updated and recirculated for public review from December 2011 to January 2012. Therefore, only changes made to this chapter since it was recirculated in December 2011 are shown with vertical lines in the margin.

16.2 Methodology for Existing and Baseline Conditions

16.2.1 Transportation Analysis Study Area

The Connector would have an impact on travel patterns in a fairly wide (large) area. Based on an evaluation of the changes in traffic volumes, a traffic analysis study area was defined. It covers the general area where the travel demand model shows "significant" changes in traffic volumes would result from the Connector alternatives, although the percentage of roadways that would be affected by the Connector decreases on the fringes of that area. The traffic analysis study area, shown in Figure 16-1 covers portions of five jurisdictions: Sacramento County; El Dorado County; the cities of Elk Grove, Rancho Cordova and Folsom.

16.2.2 Definition of Baseline

16.2.2.1 Existing Conditions

Section 15126 of the State CEQA Guidelines provides that the environmental setting "will normally constitute the baseline physical conditions by which a lead agency determines whether an impact is significant." The environmental setting consists of existing physical conditions at the time the NOP is released or CEQA analysis is begun.

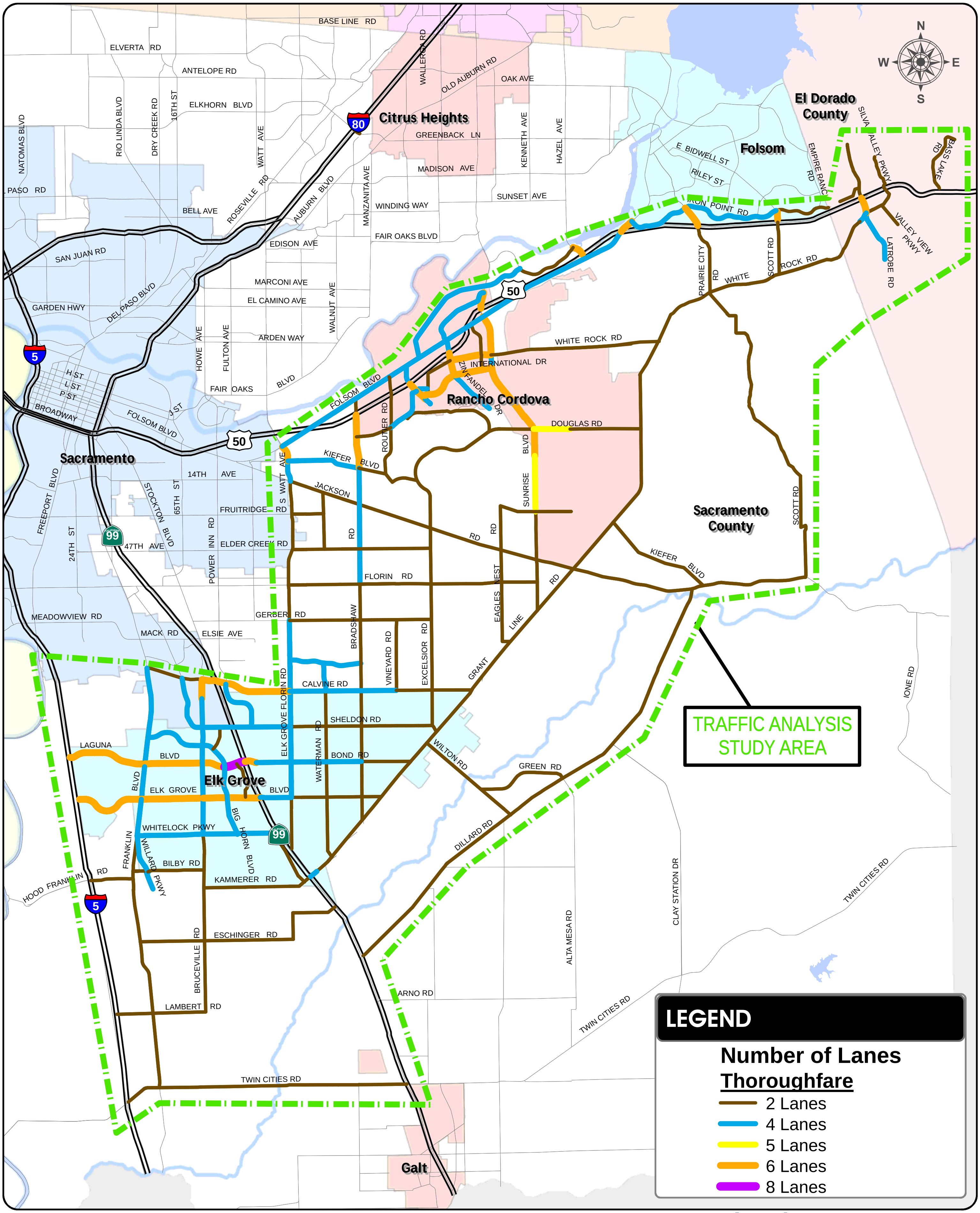
In 2010, the California Supreme Court clarified that "[n]either CEQA nor the CEQA Guidelines mandates a uniform, inflexible rule for determination of the existing conditions baseline. Rather, an agency enjoys the discretion to decide, in the first instance, exactly how the existing physical conditions without the project can most realistically be measured, subject to review, as with all CEQA factual determinations, for support by substantial evidence." The Court limited this flexibility by further stating that "[a]n approach using hypothetical allowable conditions as the baseline results in 'illusory' comparisons that 'can only mislead the public as to the reality of the impacts and subvert full consideration of the actual environmental impacts,' a result at direct odds with CEQA's intent." (*Communities for a Better Environment v. South Coast Air Quality Management District* (2010) 48 Cal.4th 310.)

Past practice in traffic impact analysis undertaken to help determine the significance of a project's traffic impact has often relied upon a "future no-project" scenario as its CEQA baseline. The project's impact is derived from the difference between "future with-project" and "future no-project" scenarios. This approach has been used in the past because it offers a means of comparing with- and without-project scenarios that share realistic assumptions for future growth and improvements. It may not, however, conform to the *Communities for a Better Environment* decision. In fact, that approach was invalidated in late 2010 in the Sixth District Court of Appeal's decision in *Sunnyvale West Neighborhood Assn. v. City of Sunnyvale* (2010) 190 Cal.App.4th 1351. Since the *Sunnyvale West* decision, two additional appellate court decisions have addressed issues regarding the appropriate CEQA baseline: *Madera Oversight Coalition, Inc., v. County of Madera* (2011) 199 CalApp.4th 48, and *Pfeiffer v. City of Sunnyvale*, 2011 WL 5845009 (Cal.App. 6th Dist.) (Nov. 22, 2011).

In recognition of the *Communities for a Better Environment* and *Sunnyvale West* decisions, the Program EIR for the Southeast Connector does not follow the past practice of evaluating impacts by comparing the "future with-project" and the "future no-project" scenarios. For purposes of determining the impact on traffic, the baseline in this EIR is physical conditions along the Southeast Connector alignment as they existed in 2008. The data on existing traffic levels has been used to estimate existing traffic conditions based on standard modeling techniques. As set forth in section 16.5.6, below, the estimated existing conditions are compared to the existing conditions with the project, referred to herein as the "existing-plus-project" conditions, to determine the significance of the project's traffic impacts. This approach complies with the intent of the *Communities for a Better Environment*, by providing a significance determination based on the change from existing conditions and avoiding the use of a hypothetical baseline condition. In addition, in light of the recent appellate decisions, *Madera* and *Pfeiffer*, this chapter has been further refined to clarify that the baseline is existing conditions in 2008.

Determining the significance of an impact by comparing anticipated project conditions to existing conditions in the area affected by the project is a relatively straightforward analysis for most impacts. However, the traffic impacts of a project that will not be operational for years is not easily compared to existing conditions. By the time the Project is operational in 2025 there will be new infrastructure and background growth in the region unrelated to the project that will impact area roads. The 2025 traffic conditions modeled for the proposed project and used as the basis for the traffic do not include reasonable assumptions about new infrastructure and background growth within the region. As a result, although this analysis provides a comparison between existing conditions and existing conditions with the project in place, the resultant significance determination will likely overstate the extent of change in traffic conditions that is a direct result of the project (see Section 16.5.6, "Analysis of Existing Plus Project Conditions", below).In light of this, section 16.5.2.4 of this Program EIR also takes into account the potential impacts that would occur under the "future with-project" scenario. The "future-with-project" conditions include foreseeable changes and expected future conditions as necessary to understand the Project's impacts over time, including its cumulative impacts. As discussed below, the "future-with-project" scenario is based on development assumptions beyond 2035. The significance of the impacts of the "future with-project" scenario in comparison to the "future without-project" scenario is also disclosed in this chapter and in the cumulative impact discussion in Chapter 18, "Cumulative and Growth Inducing Impacts."

The study of future conditions, in addition to existing conditions, was expressly approved in both *Sunnyvale West* and *Pfeiffer*. In *Pfeiffer*, the court acknowledged that discussions of "foreseeable changes and expected future conditions" have may be considered in determining a proposed project's impact on the environment, and "may be necessary to an intelligent understanding of a project's impacts over time and full compliance with CEQA." (*Pfeiffer*, *supra*, at p. 23, quoting *Sunnyvale West*, *supra*, 190 Cal.App.4th at p. 1381.) In addition, the CEQA Guidelines expressly provide for the consideration of potential future conditions, and require that an EIR clearly identify



Revised FIGURE 16-1
2008 EXISTING ROADWAY SYSTEM WITHIN TRAFFIC ANALYSIS STUDY AREA
CAPITAL SOUTHEAST CONNECTOR

DKS Associates
TRANSPORTATION SOLUTIONS

and describe the “direct and indirect significant effects of the project on the environment” and give “due consideration to both the short-term and long-term effects.” (California Code of Regulations, title 14, section 15126.2, subd. (a).)

16.2.2.2 Future-without-Project Conditions

In addition to the Existing Conditions baseline, a scenario studying future conditions was also studied for the Connector project for the following reasons:

- the proposed project is not needed to accommodate existing traffic demand. It is intended to accommodate future traffic levels on the roadway system in the traffic analysis study area stemming from planned development in the Southeast Sacramento County and Western El Dorado County over the next 25 years, through 2035 and beyond.
- the proposed project will be built in phases and full implementation of all phases/elements of the Connector might take many years. For the purpose of this Program EIR, it was assumed that the proposed project would be substantially complete by 2025.

For these reasons, the “Future-without-Project Conditions” for traffic impacts includes foreseeable changes and expected future conditions in 2035, which is the horizon year for the Metropolitan Transportation Plan (MTP). To assist decisions on right-of-way requirements for this regional facility, “cumulative conditions” were evaluated for the likely year for build out of all planned residential uses in the traffic analysis study area, which is expected by 2045. To help decisions on the phasing of improvements, a general analysis of 2025 conditions was also conducted.

16.2.3 Traffic Level of Service Analysis

Roadway operating conditions are described using the concept of level of service (LOS). LOS is a qualitative measure of the effect of a number of factors, including speed, travel time, traffic interruptions, freedom to maneuver, safety, driving comfort/convenience, and operation costs. LOSs are designated A through F, from the best to worst, which cover the entire range of traffic operations that might occur. LOS E describes conditions approaching or at maximum capacity.

As shown in Table 16-1, the LOS standards and the analysis methodologies for calculating LOS differ for the jurisdictions and agencies in the study area. Most jurisdictions use both a roadway segment analysis (based on daily or peak hour capacities by roadway type) and an intersection analysis (based on Highway Capacity Manual [HCM] or critical movements during peak hours), while the city of Folsom does not use a roadway segment analysis. The LOS standards on state highways are based on the Transportation Concept Reports (TCRs) for each route by the California Department of Transportation (Caltrans). TCR LOS standards in the traffic analysis study area are LOS D in rural areas and LOS E in urban areas. However, on some heavily congested route segments, Caltrans now has a LOS F standard because improvements required to bring the LOS to E are not considered feasible.

Table 16-1. Summary of Level of Service Standards and Methodologies for Local Jurisdictions

Jurisdiction/ Agency	LOS Standard	Methodology for LOS Calculations: Roadway Segment Analysis	Methodology for LOS Calculations: Peak hour Intersection Analysis
Sacramento County	E – Urban D – Rural	Based on daily volumes	Circular 212 with modified capacities
El Dorado County	D E in Community Plan Areas	Based on peak hour volumes	HCM
Folsom	C – North of US 50 D – Folsom SOI	NA	HCM
Rancho Cordova	D	Based on daily volumes	Circular 212 with modified capacities
Elk Grove	D	Based on daily volumes	HCM
Caltrans	Based on TCR for each facility	HCM based on peak hour volumes	HCM

Sources: General Plans and traffic impact guidelines for local jurisdictions and agencies.
Notes: NA = not applicable.
HCM = Highway Capacity Manual.
TCR = Transportation Concept Report.

The methodology and criteria used to evaluate LOS for both existing and future conditions for this EIR is described below. The analysis covers the following:

- For all major roadways in the traffic analysis study area, a segment-based LOS was calculated by dividing the average weekday traffic volumes on a roadway segment by a planning-level daily capacity for that roadway segment to determine the volume/capacity ratio (v/c). The daily segment-based analysis criteria used in the LOS analysis are consistent with the methodologies used in the environmental impact analyses on the General Plan Updates for Sacramento County and the cities of Rancho Cordova and Elk Grove, as well as by other jurisdictions in the region.
- For all existing and planned signalized intersections along the project alignment, AM and PM peak hour LOS was calculated using 2000 Highway Capacity Manual HCM analysis. The peak hour represents the highest one hour for traffic volumes during the morning (7 to 9 AM) and evening (4 to 6 PM) commute periods
- AM and PM peak hour LOS was also calculated for those major intersections in the traffic analysis study area that 1) would have a significant increase in traffic volume under the proposed project compared to existing conditions and 2) are located on roadway segments that would operate at LOS D or worse based on the segment-based LOS analysis
- AM and PM peak hour LOS for freeway mainline and ramp junctions (merge/diverge/weaving areas) were conducted at key segments and interchanges in the traffic analysis study area using HCM analysis

16.2.3.1 Roadway Segment Levels of Service

The roadway segment LOS analysis is based on comparing average weekday traffic volumes on roadway segments to planning-level daily capacity used by local jurisdictions. Table 16-2 summarizes the capacities and LOS criteria used for this analysis. The capacities for "Expressway" segments are specific to the proposed Connector and reflect grade-separated interchanges with no signals for through traffic on the Connector at all but low volume cross streets (see Table 16-12). Freeway LOS was estimated using peak hour volumes and HCM methods.

Revised Table 16-2. Daily Volume Thresholds for Roadway Segments

Facility Type	Number of Lanes	Daily Volume Threshold (Level of Service)				
		A	B	C	D	E
Expressway (Connector)	4	43,200	50,400	57,600	64,800	72,000
	4 + 2 HOV	64,800	75,600	86,400	97,200	108,000
Deer Creek Causeway	3	21,600	25,200	28,800	32,400	36,000
Urban Roadways						
Arterial, low access control	2	9,000	10,500	12,000	13,500	15,000
	4	18,000	21,000	24,000	27,000	30,000
	6	27,000	31,500	36,000	40,500	45,000
Arterial, moderate access control	2	10,800	12,600	14,400	16,200	18,000
	4	21,600	25,200	28,800	32,400	36,000
	6	32,400	37,800	43,200	48,600	54,000
Arterial, high access control	4	24,000	28,000	32,000	36,000	40,000
	6	36,000	42,000	48,000	54,000	60,000
Rural Roadways						
Two-lane highway	2	2,400	4,800	7,900	13,500	22,900
Two-lane road, paved shoulders	2	2,200	4,300	7,100	12,200	20,000
Two-lane road, no shoulders	2	1,800	3,600	5,900	10,100	17,000

Source: DKS Associates 2010.

Note: Based on Traffic Impact Guidelines from Sacramento County, Rancho Cordova and Elk Grove.

16.2.3.2 Intersection Levels of Service

Signalized intersections were analyzed using the methodology contained in Chapter 16 of the Highway Capacity Manual (Transportation Research Board 2000). The LOS rating is based on the average control delay expressed in seconds per vehicle, as shown in Table 16-3.

Table 16-3. Definitions of Intersection Levels of Service

Level of Service	Description	Signalized Intersection Control Delay (sec/veh)
A	Represents free flow. Individual users are virtually unaffected by others in the traffic stream.	≤ 10.0
B	Stable flow, but the presence of other users in the traffic stream begins to be noticeable.	10.1—20.0
C	Stable flow, but the beginning of the range of flow in which the operation of individual users becomes significantly affected by interactions with others in the traffic stream.	20.1—35.0
D	Represents high-density, but stable flow.	35.1—55.0
E	Represents operating conditions at or near the capacity level.	55.1—80.0
F	Represents forced or breakdown flow.	> 80.0
Source: Transportation Research Board 2000. Note: sec/veh = seconds per vehicle.		

16.2.3.3 Freeway Mainline Levels of Service

A freeway mainline segment analysis was conducted based on a regular lane capacity of 2,200 vehicles per hour per lane and a calculated auxiliary lane capacity. This methodology was chosen because it is the analysis methodology typically used to evaluate development impacts to state freeways within the region, and is based on values calibrated to match observations by Caltrans. The freeway mainline capacity has been utilized in various studies in the US 50 Corridor, including the US 50 Major Investment Study (1997). The auxiliary lane capacity for each individual auxiliary lane was calculated based on the length and weaving volume using the methodology from the Traffic Operations Report for US 50 Auxiliary Lane Project (2007). The process in that study was based on the weaving analysis in Chapter 24 of the Highway Capacity Manual (HCM), modified to estimate capacity of auxiliary lanes over 2,500 feet. Table 16-4 summarizes the relationship between volume to capacity ratio and LOS for freeway mainline segments.

16.2.3.4 Freeway Ramp Levels of Service

Freeway ramp junctions (merge/diverge) and weaving area analyses were conducted at area interchanges using the 2000 Highway Capacity Software package. The software is consistent with the methodologies contained in Chapters 24 and 25 of the Highway Capacity Manual (Transportation Research Board 2000). This methodology was chosen because it is the analysis methodology typically used by Caltrans for analysis of freeway-ramp merge, diverge, and weave maneuvers and because it correlates the LOS to the expected density of vehicles in passenger cars per mile per lane. Table 16-5 summarizes the relationship between density and LOS for freeway ramp junctions and weaving areas.

Table 16-4. Definitions of Freeway Mainline Segment Levels of Service

Level of Service	Volume/Capacity
A	< 0.32
B	> 0.32 and < 0.53
C	> 0.53 and < 0.74
D	> 0.74 and < 0.90
E	> 0.90 and < 1.00
F	> 1.00

Source: Transportation Research Board 2000.
Note: Volume/Capacity = Volume to Capacity ratio.

Table 16-5. Definitions of Freeway Ramp Merge/Diverge and Weaving Levels of Service

Level of Service	Merge/Diverge Density (pc/mi/ln)	Freeway Weaving Segment Density (pc/mi/ln)
A	≤ 10.0	≤ 10.0
B	> 10.0 – 20.0	> 10.0 – 20.0
C	> 20.0 – 28.0	> 20.0 – 28.0
D	> 28.0 – 35.0	> 28.0 – 35.0
E	> 35.0	> 35.0
F	Demand exceeds capacity	Demand exceeds capacity

Source: Transportation Research Board 2000.
Note: pc/mi/ln = passenger cars per mile per lane.

16.3 Environmental Setting

The initial task of defining transportation impacts for the proposed project was to evaluate the existing operating characteristics of the circulation system in the vicinity of the proposed project. The following sections discuss existing roadway functions, traffic volumes, and traffic LOS, as well as transit services and bicycle facilities.

16.3.1 Existing Roadway System

The existing roadway network in the traffic analysis study area consists of state highways, arterials, collectors, and local roadways (Figure 16-1). The existing major roads that are either in the vicinity of the proposed project or that may have a measurable change in traffic volume due to proposed project are described below.

16.3.1.1 Study Roadways in El Dorado County

El Dorado Hills Boulevard is an El Dorado County north-south arterial that extends from Green Valley Road, where it continues as Salmon Falls Road, to US 50, where it continues as Latrobe Road. It is a six lane urban arterial road between Serrano Parkway and US 50.

Latrobe Road is an El Dorado County north-south arterial that extends from US 50, where it continues as El Dorado Hills Boulevard, to State Route 16. It is a six lane urban arterial road between US 50 and White Rock Road. Latrobe Road is a four lane urban arterial road between White Rock Road and Suncast Lane. It is a two lane urban road from Suncast Lane to Investment Boulevard and a two lane rural road south of Investment Boulevard.

White Rock Road is an east-west arterial that extends through several jurisdictions from Silva Valley Road in El Dorado County to International Drive in Rancho Cordova. Within El Dorado County, it is a two lane urban arterial road between Carson Crossing Road and Manchester Drive, a four lane urban arterial between Manchester Drive and Latrobe Road and a two lane urban arterial road between Latrobe Road and Silva Valley Road. The portion of White Rock Road in Sacramento County is described in Section 16.3.1.3

16.3.1.2 Study Roadways Folsom (including Folsom SOI Area)

Prairie City Road is a north-south arterial that extends from White Rock Road to Blue Ravine Road where it becomes Sibley Street. It is a five lane urban arterial road between Blue Ravine Road and Iron Point Road. Prairie City Road is a six lane urban arterial road between Iron Point Road and US 50. It is a two lane rural road between US 50 and White Rock Road.

Scott Road is a north-south two lane rural road that extends from US 50 at East Bidwell Street to White Rock Road. Another segment of Scott Road extends south from White Rock Road to Latrobe Road.

Placerville Road is a two lane north-south rural road that extends from East Bidwell Street to White Rock Road, where it continues as Payen Road.

East Bidwell Street is a northwest-southeast arterial that extends from Riley Street to US 50 where it becomes Scott Road. It is a four lane arterial road between Riley Street and Oak Avenue Parkway. It is a five lane arterial road between Oak Avenue Parkway and Clarksville Road – Scholar Road. It is a six lane arterial road between Clarksville Road – Scholar Road and US 50.

Folsom Boulevard is a four lane east-west arterial road that extends from Sacramento to Greenback Lane, where it becomes Folsom Auburn Road. In Folsom, between US 50 and Greenback Lane, it has a generally north-south alignment.

Oak Avenue Parkway is a north-south arterial that extends from Willow Creek Drive to Iron Point Road. It is a four lane urban arterial road between Willow Creek Drive and Blue Ravine Road. It is a six lane urban arterial road between Blue Ravine Road and Riley Street. It is a four lane urban arterial road between Riley Street and Iron Point Road.

Empire Ranch Road is a four lane north-south arterial that extends from East Natoma Street (it continues north as Sophia Parkway in El Dorado County) to Iron Point Road.

Iron Point Road is an east-west arterial that extends from Folsom Boulevard to the El Dorado County Line. It is a six lane urban arterial road between Folsom Boulevard and Black Diamond Road. It is a four lane urban arterial road between Black Diamond Road and Prairie City Road. Iron Point Road is a six lane urban arterial road between Prairie City Road and Buckingham Way. It is a four lane urban arterial road between Buckingham Way and Broadstone Parkway. Iron Point Road is a six lane urban arterial road between Broadstone Parkway and Carpenter Hill Road. It is a four lane urban arterial road between Carpenter Hill Road and the El Dorado County Line.

16.3.1.3 Study Roadways in Unincorporated Sacramento County

White Rock Road is an east-west arterial that extends through several jurisdictions from International Drive in Rancho Cordova to Silva Valley Parkway in El Dorado County. Within Sacramento County, it is a two lane road between Sunrise Boulevard and the El Dorado County line. The portion of White Rock Road in El Dorado County is described in Section 16.3.1.1.

Grant Line Road is a southwest-northeast two lane rural road that extends from White Rock Road to SR 99 freeway in Elk Grove. Portions of Grant Line Road are entirely within the unincorporated area of Sacramento County or entirely within Elk Grove. Other portions of Grant Line Road are shared between Sacramento County and either Elk Grove or Rancho Cordova.

Bradshaw Road is a north-south arterial/thoroughfare that extends from Grant Line Road north to Folsom Boulevard. It is a two lane road from Grant Line Road to Florin Road (with additional lanes near Bon Road), a four lane road from Florin Road to Goethe Road and six lanes from Goethe Road to Folsom Boulevard.

Sunrise Boulevard is a north-south arterial/thoroughfare that extends from I-80 in Placer County to Grant Line Road. It is a six lane urban arterial/thoroughfare from north of Greenback Lane to Douglas Road. It is a five lane urban arterial road between Douglas Road and Kiefer Boulevard. It is a two lane arterial between Kiefer Boulevard and Grant Line Road.

Hazel Boulevard is a north-south arterial that extends from the Placer county line (where it continues north as Sierra College Boulevard) to Folsom Boulevard. It is a four lane urban arterial road from Sierra College Boulevard to Gold Country Boulevard. It is a six lane urban arterial road between Gold Country Boulevard and US 50. It is a four lane urban arterial road between US 50 and Folsom Boulevard.

Excelsior Road is a north-south two-lane arterial that extends from Sheldon Road (near its intersection with Gran Line Road) in Elk Grove north to Mather Boulevard.

Kiefer Boulevard is an east-west arterial that will eventually extend from Florin-Perkins Road to east of Grant Line Road and its connection with Jackson Road. However, some segments are not complete. Currently, Kiefer Boulevard is a two-lane Road from Florin-Perkins Road to Watt Avenue, a four lane Road from Watt Avenue to Bradshaw Road and a two-lane Road from Bradshaw Road to Happy Lane. Between Eagles Nest Road and Rancho Cordova Parkway and between Grant Line Road and Jackson Road, Kiefer Boulevard has two lanes. Kiefer Boulevard is currently not a public road between Happy lane and Eagles Nest Road and between Rancho Cordova Parkway and Grant Line Road.

Florin Road is an east-east arterial that extends from Riverside Drive in the Pocket area of Sacramento east to Sunrise Boulevard. It is a four to six lane arterial west of Elk Grove-Florin Road and a two-lane road east of Elk Grove-Florin Road.

Kammerer Road is an east-west two-lane arterial that extends from SR 99 west to Bruceville Road

Hood-Franklin Road is a two-lane east-west arterial that extends from Franklin Road west to River Road (SR 160) in the community of Hood.

Wilton Road is an east-west two-lane arterial that extends from Grant Line Road in the community of Sheldon east through the community of Wilton to Dillard Road

Scott Road is a two-lane rural roadway that extends northerly from Latrobe Road to White Rock Road. Another segment of Scott Road extends through Folsom's Sphere of Influence (SOI) area from US 50 at East Bidwell Street to White Rock Road.

Dillard Road is a southwest-northeast two lane rural road that extends from SR 99 to Jackson Road

16.3.1.4 Study Roadways in Rancho Cordova

Douglas Road is an east-west arterial roadway that extends from Mather Boulevard to Grant Line Road.

Sunrise Boulevard is a north-south arterial/thoroughfare that extends from I-80 in Placer County to Grant Line Road. It is a six lane urban arterial/thoroughfare from north of Greenback Lane to Douglas Road. It is a five lane urban arterial road between Douglas Road and Kiefer Road. It is a two lane arterial between Douglas Road and Grant Line Road

Zinfandel Drive is a north-south arterial roadway that extends from south of North Mather Drive north across US 50 and Folsom Boulevard and then curves eastward to Sunrise Boulevard. South of Baroque Drive Zinfandel is striped as a four lane arterial. Zinfandel Drive has six travel lanes from Baroque Drive to US 50, five lanes from US 50 to Olson Drive, four lanes from Olson Drive to Folsom Boulevard and two lanes from Folsom Boulevard to Sunrise Boulevard.

16.3.1.5 Study Roadways in Elk Grove

Grant Line Road is a southwest-northeast two lane arterial road that extends from White Rock Road to SR 99 freeway in Elk Grove. South of Calvine Road, portions of Grant Line Road are either entirely within Elk Grove or are shared between Sacramento County and Elk Grove.

Sheldon Road is an east-west arterial that extends from Bruceville Road east to Grant Line Road. From Bruceville Road to Elk Grove-Florin Road, Sheldon Road has four lanes while from Elk Grove-Florin Road to Grant Line Road it has two lanes.

Laguna Boulevard is an east-west arterial that extends from I-5 east to SR 99 were it becomes Bond Road. Laguna Boulevard is a six-lane road from I-5 to Big Horn Boulevard and eight lanes from Big Horn Boulevard to SR 99.

Bond Road is an east-west arterial that extends from Grant Line Road to SR 99 were it becomes Laguna Boulevard. From Grant Line Road to Bradshaw Road, Bond Road has two lanes and from Bradshaw Road to east of SR 99 it has four lanes**.**

Elk Grove Boulevard is a an east-west arterial that extends from I-5 east to Grant Line Road. It has six lane from I-5 to East Stockton Boulevard, four lanes from East Stockton Boulevard to Elk Grove Florin Road and two lanes from Elk Grove Florin Road to Grant Line Road

Waterman Road is a north-south two lane arterial that extends from Grant Line Road north to Calvine Road.

Big Horn Boulevard is a predominantly north-south arterial extending as four lanes from Elk Grove Boulevard to Whitelock Parkway.

Bruceville Road is a north-south arterial that begins at Mack Road in Sacramento and extends southerly into Elk Grove and beyond. Bruceville Road has six lanes north of Elk Grove Boulevard and four lanes from Elk Grove Boulevard to Whitelock Parkway where it narrows to two lanes.

16.3.1.6 State Highways in Study Area

U.S. Highway 50 (US 50) is an east-west freeway that extends from the Interstate 80 (I-80) junction in West Sacramento to Canal Street in Placerville, where it continues as a highway across the Sierra Nevada to South Lake Tahoe and Nevada. West of Sunrise Boulevard it is an eight lane freeway. Between Sunrise Boulevard and Folsom Boulevard it has six mixed flow lanes and two High Occupancy Vehicle (HOV) lanes (carpool lanes). Between Folsom Boulevard and El Dorado Hills Boulevard US 50 has four mixed flow lanes and two HOV lanes. East of El Dorado Hills Boulevard it has four mixed flow lanes

I-5 is a north-south freeway that traverses California from the US-Mexico border to Oregon. Within the traffic analysis study area, I-5 has interchanges at Twin Cities Road, Hood-Franklin Road, Elk Grove Boulevard and Laguna Boulevard. The freeway has four lanes from Twin Cities Road to Laguna Boulevard where it widens to six lanes.

State Route 99 is a north-south freeway within the study area with interchanges at Elk Grove Boulevard, Laguna Boulevard, and Sheldon Road. The freeway consists of two lanes in each direction from south of Grant Line Road to just south of Elk Grove Boulevard, where a High Occupancy Vehicle (HOV) lane is added in each direction.

Jackson Highway (State Route 16) is a two-lane highway that extends from Folsom Boulevard east of Power Inn Road east through unincorporated Sacramento County and into Amador County.

16.3.2 Existing Traffic Levels of Service

16.3.2.1 Roadway Segments

Table 16-6 shows the existing daily traffic volumes and the daily segment-based LOS on the major roadways in the traffic analysis study area. Most of the traffic counts on local roadways were taken between 2007 and 2009, while the counts on state highways are from 2008. The counts on local roadways were collected by local jurisdictions as part of regular count programs or by consultants as part of recent traffic studies.

Table 16-6 shows that some roadway segments in the traffic analysis study area currently do not meet the LOS standards of the jurisdictions that control them, including the following:

Folsom

- East Bidwell Street from Iron Point Road to US 50, which operates at LOS E
- Folsom Boulevard from Iron Point Road to US 50, which operates at LOS E

Sacramento County

- Grant Line Road from Sunrise Boulevard to Calvine Road, which operates at LOS E
- Bradshaw Road from US 50 to Lincoln Village Drive, and from Florin Road to Gerber Road, which operate at LOS F

- Hazel Avenue from US 50 to Folsom Boulevard, which operates at LOS F
- Jackson Road from Sunrise Boulevard to Grant Line Road, which operates at LOS E
- Sunrise Boulevard from US 50 to Zinfandel Drive, which operates at LOS F

Rancho Cordova

- Sunrise Boulevard from US 50 to Trade Center Drive and from Kiefer Boulevard to Jackson Road, which operate at LOS E

Elk Grove

- Grant Line Road from Sheldon Road to Wilton Road and between Waterman Road and East Stockton Boulevard in Elk Grove, which operate at LOS E
- Bond Road from SR 99 to Elk Grove-Florin Road, which operates at LOS F
- Elk Grove Boulevard from SR 99 to Waterman Road which operates at LOS F

Table 16-6. Existing Daily Traffic Volumes and Roadway Segment Levels of Service within the Traffic Analysis Study Area

Roadway	Segment		Existing Conditions			
	From	To	Travel Lanes	Daily Traffic Volume	Volume-Capacity Ratio	Segment LOS
Along Project Alignment						
White Rock Rd	US 50	Valley View Pkwy	2	9,300	0.47	D
	Valley View Pkwy	Latrobe Rd	2	13,700	0.76	C
	Latrobe Rd	Windfield Way	4	10,100	0.28	A
	Windfield Way	Four Seasons Dr	2	7,800	0.43	A
	Four Seasons Dr	County Line	2	6,400	0.38	D
	County Line	Scott Rd (North)	2	8,500	0.50	D
	Scott Rd (North)	Prairie City Rd	2	5,700	0.34	C
	Prairie City Rd	Grant Line Rd	2	9,900	0.58	D
Grant Line Rd	White Rock Rd	Douglas Rd	2	9,600	0.56	D
	Douglas Road	Kiefer Blvd	2	8,800	0.44	D
	Kiefer Blvd	Jackson Rd	2	7,700	0.39	D
	Jackson Rd	Sunrise Blvd	2	5,600	0.28	C
	Sunrise Blvd	Eagles Nest Rd	2	14,700	0.74	E
	Eagles Nest Rd	Calvine Rd	2	14,700	0.74	E
	Calvine Rd	Sheldon Rd	2	11,900	0.60	D
	Sheldon Rd	Wilton Rd	2	16,200	0.90	E
	Wilton Rd	Bond Rd	2	14,700	0.82	D
	Bond Rd	Elk Grove Blvd	2	9,400	0.52	D
	Elk Grove Blvd	Bradshaw Rd	2	6,300	0.35	C
	Bradshaw Rd	Waterman Rd	2	9,300	0.52	D
	Waterman Rd	E Stockton Blvd	2	13,500	0.75	E
	E Stockton Blvd	SR 99	4	15,800	0.44	A

Roadway	Segment		Existing Conditions			
	From	To	Travel Lanes	Daily Traffic Volume	Volume-Capacity Ratio	Segment LOS
Kammerer Road	SR 99	W Stockton Blvd	2	4,000	0.20	B
	W Stockton Blvd	Lent Ranch Pkwy	2	2,500	0.13	B
	Lent Ranch Pkwy	Lotz Pkwy	2	2,500	0.13	B
	Lotz Pkwy	Bruceville Rd	2	2,500	0.13	B
El Dorado County						
El Dorado Hills Blvd	US 50	Saratoga Way	6	40,000	0,74	C
Latrobe Rd	US 50	Town Center Blvd	6	40,200	0.74	C
	Town Center Blvd	White Rock Rd	6	24,700	0.46	A
	White Rock Rd	Golden Foothill Pkwy	4	19,100	0.48	D
Saratoga Way	Sacramento Co	Latrobe Road	2	2,000	0.11	A
Silva Valley Pkwy	US 50	Serrano Pkwy	2	9,000	0.50	A
Valley View Pkwy	White Rock Rd	Blackstone Pkwy	2	3,300	0.18	A
Folsom (including Sphere of Influence South of US 50)						
East Bidwell St	Iron Point Rd	US 50	6	50,700	**0.94**	**E**
Folsom Blvd	US 50	Iron Point Rd	6	50,200	**0.93**	**E**
Iron Point Rd	Folsom Blvd	Prairie City Rd	4	19,300	0.54	A
	Prairie City Rd	Oak Av Pkwy	4	22,200	0.62	B
	Oak Av Pkwy	Broadstone Pkwy	4	13,300	0.37	A
	Broadstone Pkwy	East Bidwell St	4	15,700	0.44	A
	East Bidwell St	Empire Ranch Rd	2	3,300	0.18	A
Prairie City Rd	Iron Point Rd	US 50	6	29,400	0.54	A
	US 50	Easton Valley Pkwy	2	5,900	0.35	C
	Easton Valley Pkwy	White Rock Rd	2	5,900	0.35	C
Scott Rd	US 50	Easton Valley Pkwy	2	4,800	0.28	C
	Easton Valley Pkwy	White Rock Rd	2	4,800	0.28	C
Sacramento County						
Bilby Rd	Franklin Blvd	Willard Pkwy	2	4,800	0.27	A
	Willard Pkwy	Bruceville Rd	2	3,000	0.17	A
Bradshaw Rd	US 50	Lincoln Village Dr	6	57,300	**1.06**	**F**
	Lincoln Village Dr	Old Placerville Rd	6	47,100	0.87	D
	Old Placerville Rd	Goethe Rd	6	42,500	0.79	C
	Goethe Rd	Kiefer Blvd	6	35,000	0.65	B
	Kiefer Blvd	Jackson Rd	4	31,100	0.86	D
	Jackson Rd	Elder Creek Rd	4	23,700	0.66	B
	Elder Creek Rd	Florin Rd	4	20,400	0.57	A
	Florin Rd	Gerber Rd	2	19,400	**1.08**	**F**
	Gerber Rd	Calvine Rd	2	15,100	0.84	D
Bruceville Rd	Kammerer Rd	Lambert Rd	2	1,600	0.08	A

Roadway	Segment		Existing Conditions			
	From	To	Travel Lanes	Daily Traffic Volume	Volume-Capacity Ratio	Segment LOS
Calvine Rd	Power Inn Rd	Elk Grove Florin Rd	6	43,900	0.81	D
	Elk Grove Florin Rd	Waterman Rd	4	23,300	0.65	B
	Waterman Rd	Bradshaw Rd	4	15,700	0.44	A
	Bradshaw Rd	Vineyard Rd	4	13,000	0.36	A
	Vineyard Rd	Excelsior Rd	2	10,700	0.59	A
	Excelsior Rd	Grant Line Rd	2	3,700	0.21	A
Dillard Rd	Jackson Rd	Clay Station Rd	2	4,600	0.23	C
	Clay Station Rd	Green Rd	2	4,500	0.23	C
	Green Rd	Wilton Rd	2	4,500	0.23	C
	Wilton Rd	SR 99	2	5,800	0.29	C
Eagles Nest Rd	Kiefer Blvd	Jackson Rd	2	500	0.03	A
	Jackson Rd	Florin Rd	2	500	0.03	A
	Florin Rd	Grant Line Rd	2	200	0.01	A
Elder Creek Rd	Bradshaw Rd	Excelsior Rd	2	2,000	0.10	A
Excelsior Rd	Mather Blvd	Kiefer Blvd	2	6,000	0.30	C
	Kiefer Blvd	Jackson Rd	2	5,300	0.27	C
	Jackson Rd	Elder Creek Rd	2	5,800	0.29	C
	Elder Creek Rd	Florin Rd	2	5,700	0.29	C
	Florin Rd	Gerber Rd	2	5,600	0.28	C
	Gerber Rd	Calvine Rd	2	5,400	0.27	C
Florin Rd	Bradshaw Rd	Excelsior Rd	2	4,000	0.22	A
	Excelsior Rd	Eagles Nest Rd	2	3,000	0.17	A
	Eagles Nest Rd	Sunrise Blvd	2	3,000	0.17	A
Folsom Blvd	Hazel Av	Aerojet Rd	4	14,000	0.39	A
	Aerojet Rd	US 50	4	14,500	0.40	A
Franklin Blvd	Bilby Rd	Hood Franklin Rd	2	4,700	0.24	C
	Hood Franklin Rd	Lambert Rd	2	1,900	0.10	A
	Lambert Rd	Twin Cities Rd	2	1,300	0.07	A
Gerber Rd	Bradshaw Rd	Vineyard Rd	2	4,000	0.22	A
	Vineyard Rd	Excelsior Rd	2	2,400	0.13	A
Hazel Av	Gold Country Blvd	US 50	6	53,900	1.00	E
	US 50	Folsom Blvd	4	48,000	**1.33**	**F**
Hood-Franklin Rd	Kammerer Rd Ext	Franklin Rd	2	4,500	0.25	
Jackson Rd	Bradshaw Rd	Excelsior Rd	2	10,800	0.47	D
	Excelsior Rd	Eagles Nest Rd	2	9,200	0.40	D
	Eagles Nest Rd	Sunrise Blvd	2	9,200	0.40	D
Jackson Rd	Sunrise Blvd	Grant Line Rd	2	13,800	**0.60**	**E**
	Grant Line Rd	Dillard Rd	2	13,200	0.58	D
Kiefer Blvd	Eagles Nest Rd	Sunrise Blvd	2	500	0.03	A
	Grant Line Rd	Jackson Rd	2	2,700	0.16	B
Scott Rd (South)	White Rock Rd	Latrobe Rd	2	2,200	0.11	B

Roadway	Segment		Existing Conditions			
	From	To	Travel Lanes	Daily Traffic Volume	Volume-Capacity Ratio	Segment LOS
Sunrise Blvd	Zinfandel Dr	US 50	6	84,100	**1.56**	**F**
	Jackson Rd	Florin Rd	2	13,300	0.74	C
	Florin Rd	Grant Line Rd	2	11,100	0.62	B
Twin Cities Rd	I-5	Franklin Rd	2	4,300	0.22	C
	Franklin Rd	SR 99	2	6,200	0.31	C
White Rock Rd	Rancho Cordova Pkwy	Villagio Dr	2	3,400	0.20	B
	Villagio Dr	Grant Line Rd	2	3,400	0.20	B
Vineyard Rd	Gerber Rd	Calvine Rd	2	5,400	0.30	A
Wilton Rd	Grant Line Rd	Dillard Rd	2	10,900	0.55	D
Rancho Cordova						
Douglas Rd	Zinfandel Dr	Sunrise Blvd	2	6,800	0.38	A
	Sunrise Blvd	Rancho Cordova Pkwy	5	4,000	0.09	A
	Rancho Cordova Pkwy	Grant Line Rd	2	4,000	0.22	A
Folsom Blvd	Zinfandel Dr	Kilgore Rd	4	17,000	0.47	A
Folsom Blvd	Kilgore Rd	Sunrise Blvd	4	18,000	0.50	A
	Sunrise Blvd	Mercantile Dr	4	12,700	0.35	A
	Mercantile Dr	Hazel Av	4	12,700	0.35	A
Sunrise Blvd	Folsom Blvd	Trade Center Dr	6	52,400	**0.97**	**E**
	Trade Center Dr	White Rock Rd	6	40,200	0.74	C
	White Rock Rd	International Blvd	4	28,200	0.78	C
	International Blvd	Douglas Rd	6	28,200	0.52	A
	Douglas Rd	Chrysanthy	6	24,500	0.45	A
	Chrysanthy	Kiefer Blvd	5	24,500	0.54	A
	Kiefer Blvd	Jackson Rd	2	17,500	**0.97**	**E**
White Rock Rd	International Blvd	Zinfandel Dr	2	11,400	0.63	B
	Zinfandel Dr	Sunrise Blvd	6	19,900	0.37	A
	Sunrise Blvd	City Limits	2	13,000	0.72	C
Zinfandel Dr	US 50	White Rock Rd	6	43,300	0.80	D
	White Rock Rd	International Blvd	6	19,700	0.36	A
	International Blvd	City Limits	4	7,100	0.20	A
Elk Grove						
Bond Rd	SR 99	Elk Grove Florin Rd	4	49,200	**1.37**	**F**
	Elk Grove Florin Rd	Waterman Rd	4	18,800	0.52	A
	Waterman Rd	Bradshaw Rd	4	18,600	0.52	A
	Bradshaw Rd	Grant Line Rd	2	9,100	0.51	A
Bradshaw Rd	Calvine Rd	Sheldon Rd	2	9,300	0.52	A
	Sheldon Rd	Bond Rd	2	8,100	0.45	A
	Bond Rd	Elk Grove Blvd	2	5,100	0.28	A
	Elk Grove Blvd	Grant Line Rd	2	3,400	0.19	A
Bruceville Rd	Laguna Blvd	Elk Grove Blvd	4	21,700	0.60	B
	Elk Grove Blvd	Whitelock Pkwy	4	23,000	0.64	B
	Whitelock Pkwy	Kammerer Rd	2	4,500	0.25	A

Roadway	Segment		Existing Conditions			
	From	To	Travel Lanes	Daily Traffic Volume	Volume-Capacity Ratio	Segment LOS
Elk Grove Blvd	I-5	Franklin Blvd	6	24,100	0.45	A
	Franklin Rd	Bruceville Rd	6	29,600	0.55	A
	Bruceville Rd	Big Horn Blvd	6	40,700	0.75	C
	Big Horn Blvd	W Stockton Blvd	6	39,500	0.73	C
	W Stockton Blvd	SR 99	6	45,400	0.84	D
Elk Grove Blvd	SR 99	E Stockton Blvd	4	40,000	**1.11**	**F**
	E Stockton Blvd	Elk Grove Florin Rd	4	37,700	**1.05**	**F**
	Elk Grove Florin Rd	Waterman Rd	2	20,700	**1.15**	**F**
	Waterman Rd	Bradshaw Rd	2	13,800	0.77	C
	Bradshaw Rd	Grant Line Rd	2	6,000	0.33	A
Excelsior Rd	Calvine Rd	Sheldon Rd	2	4,000	0.22	A
Franklin Blvd	Laguna Blvd	Elk Grove Blvd	4	23,800	0.66	B
	Elk Grove Blvd	Whitelock Pkwy	4	12,700	0.35	A
Franklin Blvd	Whitelock Pkwy	Bilby Rd	2	0	0.00	A
Laguna Blvd	I-5	Franklin Blvd	6	32,100	0.59	A
	Franklin Rd	Bruceville Rd	6	36,500	0.68	B
	Bruceville Rd	Big Horn Blvd	6	36,500	0.68	B
	Big Horn Blvd	SR 99	8	57,800	0.80	D
Sheldon Rd	SR 99	Elk Grove Florin Rd	4	0	0.00	A
	Elk Grove Florin Rd	Waterman Rd	2	9,100	0.51	A
	Waterman Rd	Bradshaw Rd	2	7,100	0.39	A
	Bradshaw Rd	Excelsior Rd	2	5,000	0.28	A
	Excelsior Rd	Grant Line Rd	2	5,800	0.32	A
Waterman Rd	Calvine Rd	Sheldon Rd	2	7,600	0.42	A
	Sheldon Rd	Bond Rd	2	8,400	0.47	A
	Bond Rd	Elk Grove Blvd	2	10,400	0.58	A
	Elk Grove Blvd	Grant Line Rd	2	7,500	0.42	A
Whitelock Pkwy	Franklin Rd	Bruceville Rd	4	12,900	0.36	A
	Bruceville Rd	Big Horn Blvd	4	3,000	0.08	A
	Big Horn Blvd	W Stockton Blvd	4	3,000	0.08	A

Source: DKS Associates 2010.
Note: Bold indicates segments that would not meet the LOS standard for the local jurisdiction.

Table 16-7 shows the existing intersection LOS on the signalized and multi-way stop sign-controlled intersections along the project alignment.

Table 16-7 shows that two intersections along the project alignment currently do not meet the LOS standards of the jurisdictions that control them: White Rock Road at Prairie City Road (three-way stop controlled) and Grant Line Road at Jackson Road (signal controlled), Most of the traffic counts were conducted between 2007 and 2009 by local jurisdictions or by consultants as part of recent traffic studies.

Table 16-7. Existing (2008) Peak Hour Intersection Levels of Service

Roadway	Cross-Street	Existing Conditions			
		AM Peak Hour		PM Peak Hour	
		Average Delay	LOS	Average Delay	LOS
White Rock Road	Valley View Pkwy	16.6	B	23.5	C
	Latrobe Rd	22.7	C	31.8	C
	Stonebriar Dr	20.6	C	14.8	B
	Scott Rd (North)	17.1	C	23.9	C
	Prairie City Rd	51.4	**F**	99.6	**F**
Grant Line Road	Kiefer Blvd	11.7	B	14.4	B
	Jackson Rd	87.1	F	76.0	E
	Sunrise Blvd	31.2	C	33.8	C
	Eagles Nest Rd	9.9	A	9.9	A
	Calvine Rd	20.3	C	15.2	B
	Wilton Rd	37.9	D	41.9	D
	Bond Rd	10.2	B	10.2	B
	Elk Grove Blvd	11.5	B	12.0	B
	E Stockton Blvd	30.0	D	28.0	D
Kammerer Road	SR 99 NB Ramps	5.8	A	5.3	A
	SR 99 SB Ramps	6.7	A	6.6	A
	W Stockton Blvd	1.1	A	1.1	A
	Lent Ranch Pkwy	1.1	A	1.1	A

Source: DKS Associates 2010.
Note: Bold indicates LOS F conditions.

16.3.2.2 Freeway Mainline

Table 16-8 shows the existing (2008) peak hour LOS on key segments of the freeway mainline in the traffic analysis study area. Currently, portions of US 50 operate at LOS F conditions during peak commute hours.

Table 16-8. Existing (2008) Peak Hour Freeway Mainline Levels of Service

Freeway	Segment		Existing Conditions			
			AM Peak Hour		PM Peak Hour	
	From	To	V/C	LOS	V/C	LOS
I-5	**Northbound I-5**					
	South of	Kammerer Rd	0.27	A	0.45	B
	North of	Kammerer Rd	0.36	B	0.45	B
	Southbound I-5					
	North of	Kammerer Rd	0.45	B	0.48	B
	South of	Kammerer Rd	0.45	B	0.43	B
Hwy 99	**Northbound Hwy 99**					
	South of	Grant Line Rd	0.51	B	0.47	B
	North of	Grant Line Rd	0.45	B	0.41	B
	Southbound Hwy 99					
	North of	Grant Line Rd	0.42	B	0.46	B
	South of	Grant Line Rd	0.45	B	0.52	B
US 50	**Eastbound US 50**					
	Folsom Blvd	Prairie City Rd	0.67	C	**1.12**	**F**
	Prairie City Rd	Oak Av Pkwy	0.69	C	**1.04**	**F**
	Oak Av Pkwy	E Bidwell St/Scott Rd				
	E Bidwell St/Scott Rd	Empire Ranch Rd	0.52	B	0.80	D
	Empire Ranch Rd	El Dorado Hills/Latrobe Rd				
	El Dorado Hills/Latrobe Rd	Silva Valley Rd	0.63	C	**1.06**	**F**
	Silva Valley Rd	Bass Lake Rd				
	Westbound US 50					
	Bass Lake Rd	Silva Valley Rd	0.94	E	0.49	B
	Silva Valley Rd	El Dorado Hills/Latrobe Rd				
	El Dorado Hills/Latrobe Rd	Empire Ranch Rd	**1.04**	**F**	0.61	C
	Empire Ranch Rd	E Bidwell St/Scott Rd				
	E Bidwell St/Scott Rd	Oak Av Pkwy	0.92	E	0.57	C
	Oak Av Pkwy	Prairie City Rd				
	Prairie City Rd	Folsom Blvd	**1.03**	**F**	0.73	C

Source: DKS Associates 2010.
Note: Bold indicates LOS F conditions.

16.3.2.3 Freeway Ramps

Table 16-9 shows the existing (2008) peak hour merge/diverge/weave LOS for key freeway ramps in the traffic analysis study area.

Table 16-9. Existing (2008) Peak Hour Freeway Ramp Merge/Diverge/Weaving Levels of Service

Freeway Ramp	Merge, Diverge, or Weave Maneuver	AM Peak Hour		PM Peak Hour	
		Density	LOS	Density	LOS
Eastbound US 50					
Prairie City Road off-ramp	Diverge	23.9	C	38.4	E
Prairie City Road slip on-ramp	Merge	20.2	C	29.1	D
Prairie City Rd flyover on - Oak Avenue Pkwy off	Weave	15.5	B	26.1	C
Oak Avenue Parkway loop on-ramp	Merge				
Oak Avenue Parkway direct on-ramp	Add				
E. Bidwell Street - Scott Road direct off-ramp	Drop	10	B	21.8	C
E. Bidwell Street - Scott Road loop on-ramp	Add	NA	NA	NA	NA
E. Bidwell Street - Scott Road direct on-ramp	Merge	7.9	A	13.4	B
Empire Ranch Road direct off-ramp	Diverge	NA	NA	NA	NA
Empire Ranch Road loop on-ramp	Merge	NA	NA	NA	NA
Empire Ranch Road direct on-ramp	Merge	NA	NA	NA	NA
El Dorado Hills Boulevard - Latrobe Road off-ramp	Diverge	19.8	B	26.4	C
El Dorado Hills Boulevard - Latrobe Road on-ramp	Merge	19.3	B	22.3	C
Silva Valley Road direct off-ramp	Diverge	NA	NA	NA	NA
Silva Valley Road loop on-ramp	Merge	NA	NA	NA	NA
Silva Valley Road direct on-ramp	Merge	NA	NA	NA	NA
Westbound US 50					
Silva Valley Road direct off-ramp	Drop	NA	NA	NA	NA
Silva Valley Road loop on-ramp	Merge	NA	NA	NA	NA
Silva Valley Road direct on-ramp	Add	NA	NA	NA	NA
El Dorado Hills Boulevard - Latrobe Road off-ramp	Diverge	39	E	20.4	C
El Dorado Hills Boulevard - Latrobe Road on-ramp	Merge	26.6	E	25.6	C
Empire Ranch Road direct off-ramp	Drop	NA	NA	NA	NA
Empire Ranch Road loop on-ramp	Merge	NA	NA	NA	NA
Empire Ranch Road direct on-ramp	Add				
E. Bidwell Street - Scott Road direct off-ramp	Drop	28.9	D	16.7	B
E. Bidwell Street - Scott Road loop on-ramp	Merge	25	C	18.3	B
E. Bidwell Street - Scott Road direct on-ramp	Add	24.2	C	15.9	B
Oak Avenue Parkway direct off-ramp	Drop	NA	NA	NA	NA
Oak Avenue Parkway loop on-ramp	Merge	NA	NA	NA	NA
Oak Avenue Parkway slip on - Prairie City Rd off	Weave	33.9	D	24.7	C
Prairie City Road loop on-ramp	Merge	31.9	D	25.9	C
Prairie City Road direct on-ramp	Add	30.8	D	25.6	C
Northbound I-5					
Kammerer Road direct off-ramp	Diverge	6.5	A	14.0	B
Kammerer Road loop on-ramp	Merge	12.5	B	18.9	B
Kammerer Road direct on-ramp	Merge	12.5	B	16.7	B
Southbound I-5					
Kammerer Road direct off-ramp	Diverge	14.0	B	15.0	B
Kammerer Road loop on-ramp	Merge	19.2	B	19.3	B
Kammerer Road direct on-ramp	Merge	16.2	B	16.6	B

Freeway Ramp	Merge, Diverge, or Weave Maneuver	AM Peak Hour		PM Peak Hour	
		Density	LOS	Density	LOS
Northbound HWY 99					
Grant Line Road direct off-ramp	Diverge	6.5	A	14.0	B
Grant Line Road loop on-ramp	Merge	12.5	B	18.9	B
Grant Line Road direct on-ramp	Merge	12.5	B	16.7	B
Southbound HWY99					
Grant Line Road direct off-ramp	Diverge	14.0	B	15.0	B
Grant Line Road loop on-ramp	Merge	19.2	B	19.3	B
Grant Line Road direct on-ramp	Merge	16.2	B	16.6	B
Source: DKS Associates 2010.					

16.3.3 Existing Transit Service

Local transit service in the traffic analysis study area is currently provided by Sacramento Regional Transit (RT), local governments and social service agencies. Fixed-route bus service providers include RT, El Dorado Transit, Folsom Stage Lines, e-tran in Elk Grove and South County Transit/Link (SCT/Link). RT also operates light-rail services within, the cities of Sacramento, Rancho Cordova, Folsom and adjoining unincorporated areas.

Although there are a number of transit routes and services within the urbanized portion of the traffic analysis study area, only a few transit routes cover the portion of the traffic analysis study area near the project alignment. The urbanized portions of the traffic analysis study area are also served by “dial-a-ride” transit services, but most of the areas around the proposed project are not. The existing transit services are described below.

16.3.3.1 Sacramento Regional Transit

The Sacramento Regional Transit District (RT) operates 65 bus routes and 37.4 miles of light rail covering a 418 square-mile service area. Buses and light rail run 365 days a year using 56 light rail vehicles, 216 buses powered by compressed natural gas (CNG) and 17 shuttle vans. Buses operate daily from 4:30-a.m. to 10 p.m. every 15 to 75 minutes, depending on the route. Light rail trains begin operation at 3:50 a.m. with service every 15 minutes during the day and every 30 minutes in the evening. The Blue Line trains operate from the Watt/I-80 Station through Downtown Sacramento to the Meadowview Station until 10:38 p.m. The Gold Line trains operate from Downtown Sacramento Valley Station to Folsom until 7:23 p.m. and to the Sunrise station until after 9:00 p.m.

Passenger amenities include 47 light rail stops or stations, 29 bus and light rail transfer centers and 18 park-and-ride lots. RT also serves more than 3,500 bus stops throughout Sacramento County.

Annual ridership has steadily increased on both the bus and light rail systems from 14 million passengers in 1987 to more than 31 million passengers in FY 2006. Weekday light rail ridership averages about 43,000, which accounts for approximately 48% of the total system ridership. Bus weekday ridership has reached an average of 45,470 passengers per day.

RT's entire bus and light rail system is accessible to the disabled community. In addition, Paratransit, Inc. (PI) operates a door-to-door, shared ride, paratransit service for individuals in the greater Sacramento area who are unable to use RT buses and light rail due to a disability. RT helps finance the costs of this service as part of its responsibilities under the Americans with Disabilities Act (ADA). Riders must meet the ADA eligibility requirements to qualify and must register in advance with RT to receive Paratransit service.

PI's services in the Sacramento region consist of two types: Demand Response (DR) and Consolidated Transportation Service Agency (CTSA). DR services are scheduled and operated directly by PI with buses and taxies. DR trips can be scheduled from two days in advance up to the same day as the service request. In addition, some DR service is provided on a subscription basis. CTSA services are operated by various agencies under contract to PI. The operators of CTSA services are employed by agencies and not by PI. Many agencies use volunteer operators to provide their services. Paratransit ridership has more than doubled since 1993.

16.3.3.2 El Dorado County Transit

El Dorado Transit is the primary public transit service provider in El Dorado County and provides local transit services within and between community areas of the County including Placerville, Cameron Park and El Dorado Hills. In addition to transit stops throughout these communities, transit service is also provided to/from park-and-ride locations in Placerville, Shingle Springs, Cameron Park and El Dorado Hills. The El Dorado Hills park-and-ride is located on White Rock Road east of Latrobe Road. El Dorado Transit also provides commuter service to/from Folsom, with stops at Kaiser Permanente, Folsom Lake College and the Sacramento Regional Transit Iron Point Road light rail station, and downtown Sacramento

16.3.3.3 Elk Grove e-tRAN

The e-tran is the bus system of Elk Grove. Routes are coordinated with RT buses and light rail and South County Transit/Link (SCT/Link) to areas outside the city. Main transfer points are at the Cosumnes River College, Meadowview Light Rail Station, and Laguna Town Hall. The e-van provides services required under the Americans with Disabilities Act (ADA) and for seniors that are age 75 years old and older. Services are funded with Transportation Development Act (TDA) and Federal Transit Administration (FTA) funds.

The system operates 10 commuter routes, 6 local routes, 5 e-tran (Neighborhood Shuttle) routes, and 7 supplemental routes. In June 2008, 94,168 riders were accommodated.

16.3.3.4 Folsom Stage Line

The Folsom Stage Line buses run Monday through Friday. The three local bus routes provide a convenient way for riders to travel to major employers and points of interest within Folsom. The bus routes also connect with the Historic District, Glenn Drive, and Iron Point Road light rail stations.

16.3.3.5 SCT/LINK

South County Transit/Link (SCT/Link) provides bus service in Galt and surrounding areas. Four in-town bus routes are operated in Galt. The Highway 99 Express provides direct intercity service with Lodi, Elk Grove, and Florin/65th Street Transit Center in Sacramento. The Delta Route provides service to the Delta area, Galt, and Lodi. SCT/Link also provides Dial-A-Ride services.

16.3.4 Existing Bicycle Facilities

Bicycle facilities in Sacramento and El Dorado County are classified as follows:

- **Class I**: Off-street bicycle trails or paths that are physically separated from the streets or roads used by motorized vehicles.
- **Class II**: On-street bicycle lanes with signs, striped lane markings, and pavement legends.
- **Class III**: On-street bicycle routes marked by signs and pavement legends and shared with motor vehicles and pedestrians.

Table 16-10 lists the major existing bike paths and lanes in the traffic analysis study area. There is a limited bikeway system in the vicinity of the project alignment.

In 1994, the Sacramento County adopted the 2010 Bikeway Master Plan. The goal of the Plan is to develop a bikeway system that will benefit the recreational and transportation needs of the public. The use of bicycles will reduce the amount of vehicle emissions and improve air quality. The Bikeway Master Plan calls for 790 miles of on-street bike lanes and 110 miles of off-street bike trails planned for construction in Sacramento County. The County Bikeway Master Plan is currently being updated.

The El Dorado County Bicycle Transportation Plan (EDCTC 2005) provides a blueprint for the development of a bicycle transportation system on the western slope of El Dorado County. The 2004 plan is in compliance with Caltrans Streets and Highways Code (sections 890-894.2), enabling the county to be eligible for State Bicycle Transportation Account (BTA) funds. The Bicycle Transportation Plan addresses bicycle transportation issues and goals within the County including those related to bicycle commuting, safety and education, implementation and maintenance of bicycle facilities, the integration of bicycle and pedestrian facilities in land use development, integration of bicycle facilities with multi-modal transportation connections, funding and bicycle facilities connectivity. The Bicycle Transportation Plan also identifies existing and proposed/planned future bicycle facilities within the County.

Table 16-10. Major Existing Bike Paths and Bike Lanes in the Traffic Analysis Study Area

Street/Path Name	Start	End	Length (miles)
Off-Street Paths			
Folsom South Canal Path	State Route 16	Jedediah Smith Memorial Path	10.9
Jedediah Smith Memorial Path	Discovery Park	Folsom Dam	30.6
Laguna Creek Path	Bradshaw Road	Vineyard Road	1.0
Lake Natoma Path	Jedediah Smith Memorial Path	Folsom C.L.	5.6
Manlove Rd Overcrossing	Manlove Road	Salmon Falls Drive	0.2
Mather Field Path	Arnold Way	Femoyer Street	2.4
On-Street Bike Lanes			
Big Horn Boulevard	Franklin Boulevard	Whitelock Parkway	4.4
Bond Road	East Stockton Boulevard	Elk Grove-Florin Road	1.0
Bradshaw Road	Mira Del Rio Drive	Calvine Road	5.6
Branch Center Road	Goethe Road	Kiefer Boulevard	0.7
Bruceville Road	Elk Grove Boulevard	Whitelock Parkway	1.0
Calvine Road	SR 99	Grant Line Road	4.6
Coloma Road	Sunrise Boulevard	Gold Country Boulevard	1.1
Douglas Road	Sunrise Boulevard	Jaeger Road	1.0
Elk Grove Boulevard	Elk Grove-Florin Road	Harbour Point Drive	6.0
Elk Grove Boulevard	Waterman Road	Bradshaw Road	1.0
Elk Grove-Florin Road	Florin Road	Valley Oak Lane	5.4
Folsom Boulevard	Sunrise Boulevard	Natoma Station Drive	6.6
Franklin Road	Cosumnes River Boulevard	Bilby Road	5.9
French Road	Florin Road	Gerber Road	1.0
Gold Country Boulevard	Lake Natoma Path	Hazel Avenue	3.1
Gold Express Drive	Sunrise Boulevard	Gold Rush Drive	0.4
Gold Rush Drive	Gold Country Boulevard	Coloma Road	0.5
International Drive	Mather Road	Kilgore Road	1.9
Iron Point Road	Folsom Boulevard	Empire Ranch Road	5.8
Kiefer Boulevard	Grant Line Road	SR 16	0.5
Laguna Boulevard	West Stockton Boulevard	Harbour Point Drive	4.4
Latrobe Road	US 50	Dunlap Ranch Road	3.4
Manlove Road	Montoya Street	Folsom Boulevard	0.3
Mayhew Road	Folsom Boulevard	Kiefer Boulevard	1.4
Power Inn Road	Sacramento C.L.	Geneva Point Drive	2.3
Power Inn Road	Auberry Drive	Sheldon Road	1.0
Rosemont Drive	Kiefer Boulevard	Mayhew Road	0.5
Sunrise Boulevard	Douglas Rd	Grant Line Road	5.1
Valley Oak Lane	Elk Grove-Florin Road	East Stockton Boulevard	0.6
Waterman Road	New Connector	Calvine Road	0.8
Whitelock Parkway	Franklin Road	Big Horn Boulevard	2.9
White Rock Road	Carson Crossing	Silva Valley Parkway	2.2
Zinfandel Drive	US 50	Rancho Cordova South C.L.	2.0

16.3.5 Truck and Goods Movement

The traffic flows on roadways in the traffic analysis study area includes trucks, which carry goods to and from destinations within the traffic analysis study area as well as some trucks that pass through the traffic analysis study area. Some traffic count data separate heavy trucks (those with more than three axles) from autos and light trucks. Table 16-11 provides estimates of truck volumes along the project alignment based on available count data.

Table 16-11. Estimated Existing Daily Truck Volumes within the Traffic Analysis Study Area

Roadway	Segment		Travel Lanes	Total Daily Traffic Volume	Estimated Trucks[1]	
	From	To			Daily Volume	Percent
White Rock Rd	US 50	Valley View Pkwy	2	9,300	280	3.0%
	Valley View Pkwy	Latrobe Rd	2	13,700	550	4.0%
	Latrobe Rd	Windfield Way	4	10,100	300	3.0%
	Windfield Way	Four Seasons Dr	2	7,800	230	3.0%
	Four Seasons Dr	County Line	2	6,400	190	3.0%
	County Line	Scott Rd (North)	2	8,500	260	3.0%
	Scott Rd (North)	Prairie City Rd	2	5,700	460	8.0%
	Prairie City Rd	Grant Line Rd	2	9,900	790	8.0%
Grant Line Rd	White Rock Rd	Douglas Rd	2	9,600	480	5.0%
	Douglas Road	Kiefer Blvd	2	8,800	530	6.0%
	Kiefer Blvd	Jackson Rd	2	7,700	390	5.0%
	Jackson Rd	Sunrise Blvd	2	5,600	280	5.0%
	Sunrise Blvd	Eagles Nest Rd	2	14,700	880	6.0%
	Eagles Nest Rd	Calvine Rd	2	14,700	880	6.0%
	Calvine Rd	Sheldon Rd	2	11,900	710	6.0%
	Sheldon Rd	Wilton Rd	2	16,200	970	6.0%
	Wilton Rd	Bond Rd	2	14,700	880	6.0%
	Bond Rd	Elk Grove Blvd	2	9,400	560	6.0%
	Elk Grove Blvd	Bradshaw Rd	2	6,300	380	6.0%
	Bradshaw Rd	Waterman Rd	2	9,300	560	6.0%
	Waterman Rd	E Stockton Blvd	2	13,500	810	6.0%
	E Stockton Blvd	SR 99	4	15,800	950	6.0%
Kammerer Road	SR 99	W Stockton Blvd	2	4,000	120	3.0%
	W Stockton Blvd	Lent Ranch Pkwy	2	2,500	80	3.0%
	Lent Ranch Pkwy	Lotz Pkwy	2	2,500	80	3.0%
	Lotz Pkwy	Bruceville Rd	2	2,500	80	3.0%
Source: DKS Associates based on available truck count data.						

16.4 Regulatory Setting

CEQA requires consideration of impacts to traffic and transportation. In addition, other policies and regulations influence traffic and transportation. Relevant laws and guidelines are described below.

16.4.1 General Plans and Policies

The traffic analysis study area is located within three incorporated cities and two counties; the proposed project traverses El Dorado and Sacramento counties and the cities of Folsom, Rancho Cordova and Elk Grove. State law requires that each of these jurisdictions adopt "a comprehensive, long-term General Plan for [its] physical development." The general plan establishes city or county policies regarding the location of housing, business, industry, roads, parks, open space, agriculture and other land uses; protection of the public from noise and other environmental hazards; and the conservation of natural resources. The legislative body of each city (the City Council) and each county (the Board of Supervisors) adopts Level of Service (LOS) policies for its roadway system and other ordinances to carry out the policies of its general plan.

General Plans for Sacramento and El Dorado counties and the cities of Elk Grove, Rancho Cordova and Folsom all contain policies relevant to transportation projects. The following policies are of particular relevance to the proposed project.

16.4.1.1 El Dorado County General Plan

Goals and policies of the El Dorado County General Plan relating to traffic and transportation that El Dorado County has found to be applicable to the project are listed below:

- To plan for and provide a unified, coordinated, and cost-efficient countywide road and highway system that ensures the safe, orderly, and efficient movement of people and goods.
- To coordinate planning and implementation of roadway improvements with new development to maintain adequate level of service on County roads.
- Level of Service (LOS) for County-maintained roads and state highways within the unincorporated areas of the county shall not be worse than LOS E in the Community Regions or LOS D in the Rural Centers and Rural Regions except as specified in Table TC-2 or, after December 31, 2008, Table TC-3 (see El Dorado County General Plan for Tables TC-2 and TC-3). The volume to capacity ratio of the roadway segments listed in Tables TC-2 and TC-3 as applicable shall not exceed the ratio specified in that table. Level of Service will be defined in the latest edition of the Highway Capacity manual (Transportation Research Board, National Research Council) and calculated using the methodologies contained in that manual. Analysis periods shall be based on the professional judgment of the Department of Transportation which shall consider periods including, but not limited to, Weekday Average Daily Traffic (ADT), AM Peak Hour, and PM Peak hour traffic volumes.
- The County shall give priority to bikeways that will serve population centers and destinations of greatest demand and to bikeways that close gaps in the existing bikeway system.
- The County shall develop and maintain a program to construct bikeways, in conjunction with road projects, consistent with the County's *Bikeway Master Plan*, taking into account available funding for construction and maintenance.

- The County shall sign and stripe Class II bicycle routes, in accordance with the County's *Bikeway Master Plan*, on roads shown on Figure TC-1, when road width, safety, and operational conditions permit safe bicycle operation.

El Dorado County has a Level of Service "E" policy for roadways within the community regions. White Rock Road is within the El Dorado Hills Community region.

16.4.1.2 Sacramento County General Plan

Goals and policies of the Sacramento County General Plan relating to traffic and transportation that have been found to be applicable to the project are listed below:

- Sacramento County shall conduct land use and transportation planning with a regional perspective.
- Plan and design the roadway system in a manner that meets Level of Service (LOS) D on rural roadways and LOS E on urban roadways, unless it is infeasible to implement project alternatives or mitigation measures that would achieve LOS D on rural roadways or LOS E on urban roadways, The urban areas are those areas within the Urban Services Boundary as shown in the Land Use Element of the Sacramento County General Plan. The areas outside the Urban Services Boundary are considered rural.
- Sacramento County shall promote and support the network of Transportation Corridors as designated on the Transportation Plan accompanying this Element.
- Sacramento County shall utilize design and development standards which support travel by transit, walking, bicycling, and clean alternative fuel and low emission vehicles.
- Incorporate Low Impact Design (LID) techniques to the greatest extent feasible to improve water quality runoff and erosion control, infiltration, groundwater recharge, visual aesthetics, etc. LID techniques may include but are not limited to:
  - Bioretention techniques, such as filtration strips, swales, and tree box filters
  - Permeable hardscape
  - Green roofs
  - Erosion and sediment controls
  - Use recycled and/or recyclable materials whenever feasible.
- When feasible, incorporate lighter colored (higher albedo) materials and surfaces, such as lighter-colored pavements, and encourage the creation of tree canopy to reduce the urban "heat island" effect.
- On a Smart Growth Street, the County shall strive to maintain operations and capacity on urban roadways and intersections at LOS E or better, unless maintaining this LOS would, in the County's judgment, be infeasible and conflict with the achievement of other Smart Growth Street objectives. Congestion in excess of LOS E may be acceptable provided that provisions are made to improve overall mobility, reduce overall VMT and/or promote non-automobile transportation.
- Incorporate preferential consideration for buses and private HOV's at strategic congestion points (e.g., bridges and on-ramps) directed at discouraging drive-alone commuting.

- Sacramento County shall apply the following Level of Service (LOS) standards for planning roads in the unincorporated area:
  - Rural collectors: LOS D
  - Urban area roads: LOS E

  and may proceed with additional capacity projects within the scope of the adopted Transportation Plan when the Board of Supervisors has determined that the implementation of all feasible measures which will reduce travel demand in the affected corridor will not provide the target level of service
- Sacramento County shall support a program to develop a regional network of High Occupancy Vehicle (HOV) lanes throughout the urban area that includes provisions to designate existing mixed flow lanes for HOV use.

Sacramento County has a Level of Service “E” policy within the Urban Service Boundary and has a Level of Service “D” policy outside the Urban Service Boundary. White Rock Road is inside the Urban Service Boundary west of Prairie City Road and outside the Urban Service Boundary east of Prairie City Road.

16.4.1.3 City of Folsom General Plan

The City of Folsom General Plan contains several policies that may apply to potential traffic and transportation project impacts. Policies most relevant to the Connector traffic and transportation analysis are listed below.

- The City shall plan for an integrated circulation system which provides for travel by private vehicles, commercial vehicle routes, a public transportation system, and for pedestrian and bicycle routes
- The City should plan for the expansion of future public transit routes (bus and fixed rail service).
  1. Transit routes should coincide with major destinations for employment and shopping, the location of major institutions, concentrations of multifamily housing, and other land uses likely to attract public transit ridership.
  2. The City should preserve existing railroad rights-of-way for their potential future use as public transit routes.
  3. Bus routes should follow major roads with service to residential neighborhoods via collector streets.
- The City should develop and maintain a bikeway and pedestrian master plan that links residential developments with sources of employment, public open space, parks, schools, neighborhood shopping areas, the central commercial district, other major recreational destinations, and adjoining communities.
  1. The City should ensure that new residential developments incorporate pedestrian and bicycle paths or routes when there are nearby schools, parks, public open spaces, sources of employment or other destinations for such travel. Such paths or routes should be designed so that schools and parks accessible to area residents. Pedestrian/bicycle over- and under-crossings may be provided when necessary to cross arterial roads or expressways.

2. The City should establish and maintain an internal pathway system that links parks sources of employment and public open spaces using right-of-way and parkways.
3. Where on-street bikeways are not feasible, the City should provide for Class I off-street bikeways.
4. The City should endeavor to provide routes for recreational travel, providing access to important recreational areas of the City, including Folsom Lake.

- The City should strive to achieve at least a traffic Level of Service "C" throughout the City. During the course of the Plan buildout it may occur that temporary higher Level of Service results where roadway improvements have not been adequately phased as development proceeds. However, this situation will be minimized based on annual traffic studies as approved by the City of Folsom and Monitoring programs. Resolution No. 3798.
- Because the Traffic Studies upon which this Circulation Element are based shows various intersections which will not achieve Level of Service "C", the City should adopt a mandatory TSM program that applies to existing as well as future development and will ensure the assumed reduction in peak hour trips. Prior to adoption of the Program by the City, all discretionary development permits issued by the City should require the applicants to participate in the TSM program when enacted. Specific Studies should be conducted to determine the most desirable methods for achieving the required level of trip reduction.

16.4.1.4 City of Rancho Cordova General Plan

The City of Rancho Cordova General Plan contains several policies that may apply to potential transportation project impacts. The policies most relevant to the Connector traffic and transportation analysis are described below.

- Seek to maintain operations on all roadways and intersections at Level of Service D or better at all times, including peak travel times, unless maintaining this Level of Service would, in the City's judgment, be infeasible or conflict with the achievement of other goals. Congestion in excess of Level of Service D may be accepted in these cases, provided that provisions are made to improve traffic flow or promote non-vehicular transportation as part of a development project or a City-initiated project.
- Provide on-street bike lanes along all project roadway segments and on local and major roadways when necessary to provide for interconnected routes. On-street bike routes may be provided on local, connector, and major roadways as deemed necessary by the City.

16.4.1.5 City of Elk Grove General Plan

The City of Grove General Plan contains several policies that may apply to potential transportation project impacts. The policies most relevant to the Connector traffic and transportation analysis are described below.

- The City shall require that all roadways and intersections in Elk Grove operate at a minimum Level of Service "D" at all times
- The City recognizes that Level of Service D may not be achieved on some roadway segments, and may also not be achieved at some intersections. Roadways on which LOS D is projected to be exceeded are shown in the General Plan Background Report, based on the latest traffic modeling conducted by the City. On these roadways, the City shall ensure that improvements to construct

the ultimate roadway system as shown in this Circulation Element are completed, with the recognition that maintenance of the desired level of service may not be achievable.

The City of Elk Grove Transportation Capital Improvement Program 2010–2015 (TCIP) describes transportation capital improvements planned by the City for the five-year period from fiscal year 2010/11 through fiscal year 2014/15 and sets forth a funding strategy for their implementation.

16.4.2 Other Plans and Policies

16.4.2.1 Sacramento Area Council of Governments – Metropolitan Transportation Plan

SACOG is responsible for preparing the long-range transportation plan in the six-county area that includes Sacramento, Yolo, Yuba, Sutter, Placer, and El Dorado counties. For this region, a long-range regional transportation plan is required to cover at least a 20-year planning horizon and must be updated every 3 years. SACOG's long-range plan is called the Metropolitan Transportation Plan (MTP). The MTP provides a regional vision for surface transportation, including all modes of transportation. The plan is constrained by the funding that the region can reasonably be expected to receive from the state and federal government. If a city, county, or public agency within the SACOG region wants to pursue state or federal transportation monies, the project must be preliminarily evaluated and subsequently included in the MTP. SACOG is currently in the process of updating the 2035 MTP.

16.4.2.2 El Dorado County Transportation Commission – Regional Transportation Plan

The El Dorado County Transportation Commission (EDCTC) is the Regional Transportation Planning Agency (RTPA) for El Dorado County (excluding the Tahoe Basin) and is responsible for the preparation of the El Dorado County RTP. The El Dorado County 2025 RTP was developed by the EDCTC to document the policy direction, actions and funding recommendations intended to meet El Dorado County's short and long range transportation needs over the next 20 years. The RTP is designed to be a blueprint for the systematic development of a balanced, comprehensive, multi-modal transportation system.

In general, RTPs are developed to provide a clear vision of the regional transportation goals, objectives, and policies, complemented by short-term and long-term strategies for implementation. The 2025 RTP also serves as the El Dorado County portion of the Sacramento Area Council of Governments (SACOG) Metropolitan Transportation Plan (MTP). The 2025 RTP identifies the County's 10-year Capital Improvement Program (CIP) in its regional road network short-term action plan.

16.5 Impacts and Mitigation Discussion

16.5.1 Thresholds of Significance

Significance criteria for impacts on the transportation system are based upon the applicable standards of each jurisdiction.

16.5.1.1 Roadway Level of Service Impacts

Unincorporated Sacramento County

A project is considered to have a significant effect if it would:

- result in a roadway operating at an acceptable LOS (LOS "D" for rural areas and LOS "E" for urban areas) to deteriorate to an unacceptable LOS; or
- increase the volume to capacity (V/C) ratio by more than 0.05 on a roadway that is operating at an unacceptable LOS without the project.

City of Elk Grove

A project is considered to have a significant effect if it would:

- result in a roadway operating at an acceptable LOS "D" or better to deteriorate to an unacceptable LOS "E" or worse; or
- increase the V/C ratio by 0.05 or more on a roadway that is operating at an unacceptable LOS without the project.

City of Folsom

A project is considered to have a significant effect if it would:

- result in a roadway operating at an acceptable LOS "C" or better to deteriorate to an unacceptable LOS "D" or worse; or
- increase the V/C ratio by 0.05 or more on a roadway that is operating at an unacceptable LOS without the project.

City of Rancho Cordova

A project is considered to have a significant effect if it would:

- result in a roadway operating at an acceptable LOS "D" or better to deteriorate to an unacceptable LOS "E" or worse; or
- increase the V/C ratio by 0.05 or more on a roadway that is operating at an unacceptable LOS without the project.

El Dorado County

A project is considered to have a significant effect if it would:

- result in a roadway operating at an acceptable LOS "E" or better to deteriorate to an unacceptable LOS "F" or worse; or
- increase the V/C ratio by more than 0.02 on a roadway that is operating at an unacceptable LOS without the project.

Freeway System

For the freeway system, a significant impact occurs when:

- An increase in traffic volumes results in the traffic operations of the freeway mixed flow lanes deteriorating from LOS "E" or better to LOS "F."
- Any increase in traffic volumes on freeway mixed flow lanes where unacceptable LOS "F" conditions exist without the project or alternative.

16.5.1.2 Bicycle and Pedestrian Facilities

A project is considered to have a significant effect if it would:

- Adversely affect an existing or planned bikeway or pedestrian facility

16.5.1.3 Transit

A project is considered to have a significant effect if it would:

- Adversely affect existing and planned transit facilities, routes, or services
- Be inconsistent with General Plan principles for transit-supportive development.

16.5.1.4 Safety

A project is considered to have a significant effect if it would:

- Increase hazards due to a design feature (e.g., sharp curves or dangerous intersections)

16.5.2 Methodology for Forecasting Future Travel Demand

In addition to the Existing Conditions baseline, traffic conditions with the project were compared to a range of conditions and scenarios for 2025, 2035, and 2045, to provide a comprehensive basis for determining the traffic impacts of the proposed project.

16.5.2.1 Sacramento Metropolitan Travel Demand Model

The primary travel forecasting tool used for the Connector EIR is the Sacramento Metropolitan Travel Demand Model (SACMET) model. This model was used for development of SACOG's 2006 MTP and for regional air quality conformity analyses. It has provided the basis for other recent regional studies, corridor analyses, and environmental documents. SACOG maintains SACMET over time, updating base year and forecast year demographic data and networks, and working with a technical advisory committee to periodically update and enhance the model. Finally, many local jurisdictions use the model as the basis for general plans and environmental studies. For all of these reasons, this model provides the best starting point for travel forecasts for this project.

Documentation on this model is provided in Sacramento Regional Travel Demand Model Version 2001 – SACMET 01 (SACOG and DKS Associates 2002).

The Connector would affect traffic patterns and volumes on arterial and collector roadways in a broad area covering southeast Sacramento County and western El Dorado County. SACMET does not include some of the arterial roadways or most of the major collector roadways in that subregional area. To evaluate the impact of the proposed project on that roadway system adequately, modifications to SACMET were needed. Modifying a regional model to provide additional detail in the model's transportation system for a corridor transportation analysis is a common practice.

Through discussions with the Connector's Project Development Team (PDT) the following enhancements were made to the SACMET model for the purposes of preparing travel forecasts for the project alternatives:

- The traffic analysis zones (TAZs) and roadway network in models used by JPA jurisdictions for evaluating General Plan Updates or EIR on Specific Plans were substituted for the SACMET zone system and roadway network in the study area.
- Existing and future development levels were refined as described in Section 16.4.2.3.

16.5.2.2 Induced Travel Demand

When a major new or improved transportation facility, such as the Connector, is introduced into a heavily congested travel corridor, it would not only affect people's route choice but also potentially affect the mode and origin/destination of trips in that corridor. A new or widened regional transportation facility could "induce" travel and increase vehicle miles of travel (VMT) in the corridor by allowing people to travel further in the same amount of time.

In general terms, induced travel can come from the following sources:

- A change in trip generation – either an increase in the number of total person trips related to development or an increase in motorized person trips per development unit
- A change in trip distribution – an increase in average motorized person trip distance
- A change in mode choice – an increase in the share of travel by private motorized vehicles
- A change in route choice – a shift in vehicle travel to new or improved facilities from unimproved facilities within a corridor or to an improved corridor due to diversion of traffic from other corridors.

The model used for this Program EIR follows nationally accepted best practices in the engineering profession. As required under best practices, the model is capable of forecasting differences in trip distribution, mode choice, and route choice (traffic assignment) with the proposed project.

The feedback loop in the SACMET model to both the trip distribution and mode choice models was being used in the forecasting for this Program EIR. This model feature ensures that the model adequately predicts how the proposed project would change trip distribution and mode choice (and resulting traffic volumes and VMT) compared to existing conditions and future without-project conditions. The results of the travel forecasting effort are summarized in Section 16.5.3.1.

16.5.2.3 Development Projections

The proposed project will be built in phases. While full implementation of all phases/elements of the Connector might take many years, it is reasonable to expect that the proposed project would be complete by 2025. The traffic impact analysis of the proposed project analyzes existing conditions (2008), conditions in 2025, conditions in 2035. and cumulative conditions (2045). Thus development forecasts for 2025, 2035 and 2045 were utilized to prepare future traffic forecasts.

The expected growth in housing and employment in South and East Sacramento County and in Western El Dorado County will have the largest influence on travel demand in the traffic analysis study area. To show projected growth in those areas, development is summarized in Table 16-12 by SubRAD, which are community-level geographic areas used by SACOG for planning purposes. Figure 16-2 shows the SubRADs within the traffic analysis study area.

Outside the traffic analysis study area, SACOG's 2035 development forecasts (the amount and location of housing and employment) for the adopted MTP were used to prepare 2035 traffic forecasts for this EIR. Within the traffic analysis study area, the total 2035 housing levels by jurisdiction within the traffic analysis study area are consistent with SACOG's projected 2035 development levels by jurisdiction. However, housing units were allocated to: 1) each of SubRADs based on input from the Project Development Team (PDT) and 2) each of the smaller traffic analysis zones (TAZ) used in the travel demand model based on detailed existing and projected land use information prepared by the JPA jurisdictions.

The total assumed employment levels within the traffic analysis study area used in the EIR analysis differ with SACOG's assumed 2035 levels in three jurisdictions: the cities of Folsom, Rancho Cordova and Elk Grove.

The 2035 employment level in the "infill" portion of Rancho Cordova, west of Sunrise Boulevard (SubRADs 122 and 123) was increased by about 2,400 jobs since SACOG's estimate of existing employment is low. A somewhat higher level of employment (about 8,000 additional employees) than SACOG's 2035 levels was assumed for the City of Folsom. Again, SACOG's estimate of existing employment levels for Folsom are about 4,000 less than estimates made by the City of Folsom based on detailed parcel data. In Elk Grove, about 13,500 additional jobs were assumed by 2035 based on input from the City.

The EIR analysis assumes that development of the proposed Cordova Hills project along Grant Line Road is a "reasonably foreseeable" development and a portion of its proposed ultimate development was assumed by 2035 (in SubRAD 222). However, this EIR analysis assumes a lower growth in SubRAD 170 by 2035 than SACOG, which results in the same amount of total growth in housing and jobs by 2035 as SACOG within the unincorporated area of Sacramento County.

Development estimates for 2045 ("cumulative conditions") reflect buildout of residential uses in the traffic analysis study area with a growth in jobs that results in about the same jobs per household in the traffic analysis study area as current levels.

The future without-project scenario assumes that three new proposed aggregate quarries will be developed in East Sacramento County, south of Folsom's SOI, including Teichert's recently approved quarry. The assumed amount of aggregate that would be produced and volume of truck traffic generated by these quarries in this Draft Program EIR are consistent with the assumptions now being used for the on-going Truck Management Plan that Sacramento County is preparing with key stakeholders.

16.5.2.4 Future Transportation System (2035 and Beyond)

2035 Roadway System ("Future without-Project" Scenario)

The 2035 roadway system within the traffic analysis study area for the "future without-project" scenario (shown in Figure 16-3) includes the roadway improvements in SACOG's adopted Metropolitan Transportation Plan (MTP). The MTP represents the transportation system that would be implemented by 2035 based on "constrained funding". In 2035, the MTP has the following improvements along the project alignment:

- White Rock Road would be widened to 1) six lanes from US 50 west to Latrobe Road 2) 4 lanes from Manchester Drive west to the Sacramento County Line and 3) 6 lanes from the El Dorado County line west to Grant Line Road.
- Grant Line Road would be widened to 1) four lanes from White Rock Road south to Bradshaw Road and 2) six lanes from Bradshaw Road to SR 99
- Kammerer Road would be 1) widened to six lanes from SR 99 to Bruceville Road and 2) extended as a four lane road from Bruceville Road to I-5

However, based on input from the Connector Project Development Team (PDT), the following changes to the MTP were assumed:

- The number of lanes on White Rock Road from the El Dorado County line to Scott Road (E) was reduced from 6 to 4 to be consistent with the maximum number of lanes allowed on that segment in the Proposed Sacramento County General Plan.
- An extension of Hazel Avenue from the future Easton Valley Parkway south to White Rock Road was not assumed since the PDT felt that this extension would not occur by 2035
- The number of lanes on Scott Road (E) between White Rock Road and future Road B was reduced from 6 (in the MTP) to 4 and the number of lanes on Prairie City Road from US 50 to the future Easton Valley Parkway was increased from 4 (in the MTP) to 6 to be consistent with the proposed roadway improvements in the City of Folsom's plans for the Sphere of Influence (SOI) south of US 50.
- The EIR analysis assumes that development of the proposed Cordova Hills project along Grant Line Road is a "reasonably foreseeable" development and thus its proposed roadway connections to Grant Line Road were thus assumed.

Under the future without-project scenario, access along the roadways segments that are part of proposed project represents "business as usual," with some limitations on new driveways, but a substantial number of driveways already exist. The future without-project scenario also includes numerous at-grade intersections with their locations based on adopted and proposed General Plans and Specific Plans. Table 16-13 shows all of cross-streets along the project alignment and the traffic control (i.e., signal, interchanges, etc.) that was assumed at each.

Revised Table 16-13. Assumed Travel Lanes and Access to Connector for Proposed Project

Connector Roadway	Cross Street	Future without Project			Future with Project			
		Lanes - Facility Type	Traffic Signal	Comments on Assumed Access	Lanes - Facility Type	Traffic Signal	Interchange	Comments on Assumed Access[1]
White Rock Road	**US 50 EB Ramps**	4-T	1		4-T	1		
	Vine/Valley View Pkwy		1			1		
	Sunset			Right in/out				Right in/out
	Keables Lane							
	Monte Verde Dr							
	Post St			Left in/Right out				Left in/Right out
	Latrobe Road		1			1		
	Windfield Way		1			1		
	Manchester Drive		1			1		
	Bailey Circle			Right in/out				Right in/out
	Stonebriar/ Four Seasons		1			1		
	Carson Crossing		1			1		
	Empire Ranch Road	4-T	1		4-E		1	
	Placerville Rd/Payen Rd		1					Right in/out
	RR Crossing			At-Grade Crossing				At-Grade Crossing
	Scott Road (E)		1				1	
	Collector	6-T		Right in/out	4 + 2 HOV - E			No connection
	Oak Avenue Pkwy		1			1		Acceptable 2035 LOS as signalized intersection
	Scott Rd (W)		1					Existing access eliminated and realigned with Prairie City Rd Interchange
	Collector			Right in/out				No connection
	Prairie City Rd		1				1	
	OHV Park East Ent			Right in/out (except events)				Connected to realigned Scott Rd (W) with access to Prairie City Rd Interchange
	OHV Park West Ent/ Aerojet Rd		1			1		

[1] Other connections will only be allowed along the Proposed Project if the JPA determines that the design would ensure an acceptable LOS and meet performance standards for the Connector.

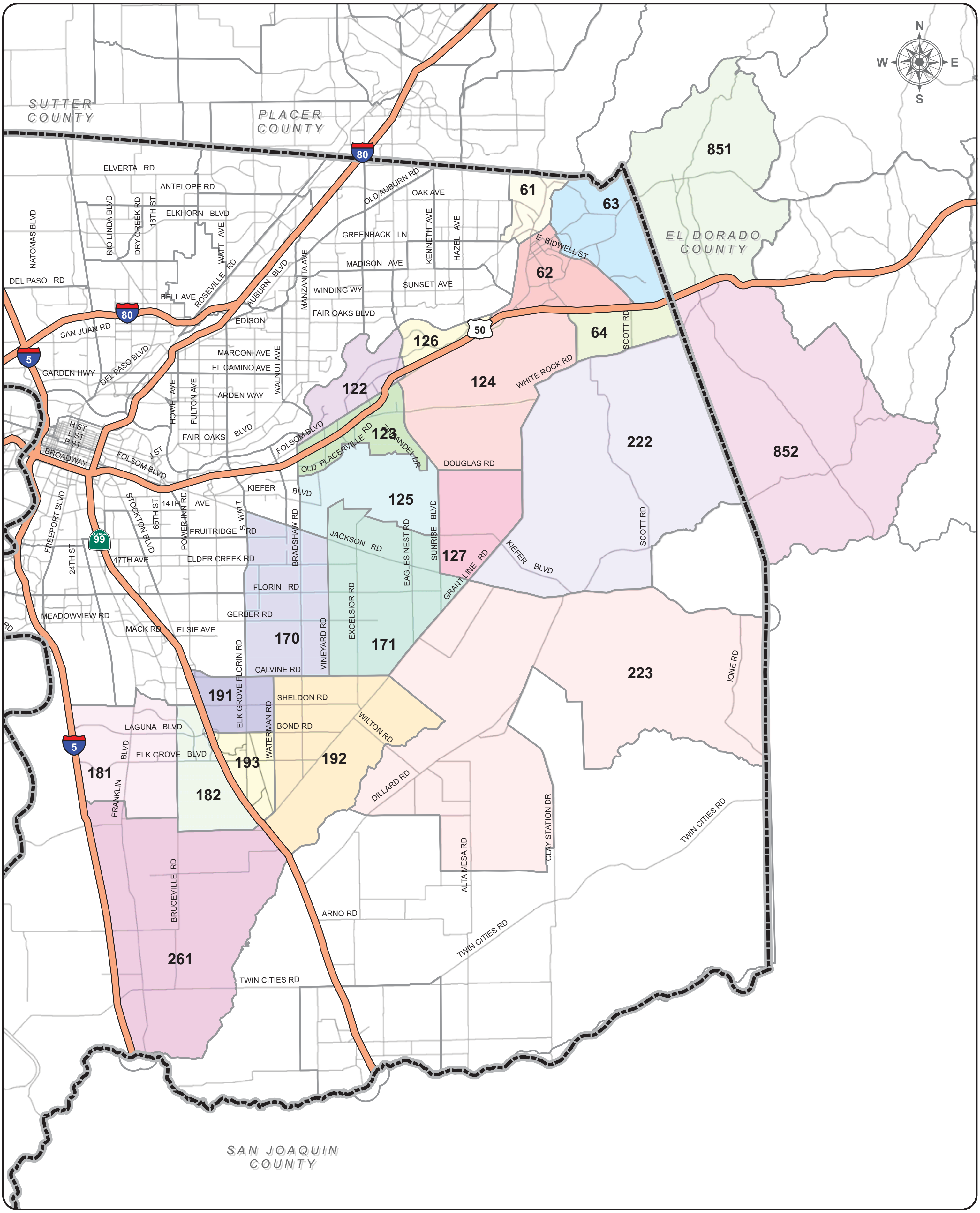
Connector Roadway	Cross Street	Future without Project: Lanes - Facility Type	Future without Project: Traffic Signal	Future without Project: Comments on Assumed Access	Future with Project: Lanes - Facility Type	Future with Project: Traffic Signal	Future with Project: Interchange	Future with Project: Comments on Assumed Access[1]
Grant Line Road	**Grant Line Rd**	4-T	1		4-E		1	
	Teichert Entrance			Realign across from either North Douglas access or White Rock Rd				No access between White Rock Rd and Centennial
	North Douglas Access (future Centennial)		1	Centennial extension post-2035		1		Future interchange with interim signal
	Douglas Rd		1				1	Potential Right in/out access for residence north of Douglas Rd
	Glory Lane			Access through Cordova Hills or Right in/out				Frontage road to Douglas Road, or other potential design option that ensures an acceptable LOS and meets performance standards for the Connector, as determined by the JPA)
	Cordova Hills		1					
	Chrysanthy Blvd		1				1	
	University		1				1	
	Kiefer Blvd		1				1	
	Rancho Cordova Pkwy		1	Rt in/RT out to driveways		1		Acceptable 2035 LOS as signalized intersection
	Jackson Rd		1				1	Frontage road to Michlen Ct for driveway access north of Jackson Rd
	Sunrise Blvd		1				1	Frontage road connecting existing six driveways on SE side to single right in/ out access; access to residence near Sunrise Blvd via frontage road
	Eagles Nest Rd/ Sloughhouse Rd		1			1		Right in/out for residence

Revised Table 16-13. Continued

Connector Roadway	Cross Street	Future without Project: Lanes - Facility Type	Future without Project: Traffic Signal	Future without Project: Comments on Assumed Access	Future with Project: Lanes - Facility Type	Future with Project: Traffic Signal	Future with Project: Interchange	Future with Project: Comments on Assumed Access[1]
Grant Line Road	**Calvine Rd**	4-T	1	Rt in/RT out to driveways	4-T	1		Three field entrances connected via frontage road with one access point; Residence access Calvine Rd via frontage road; North private drive access via frontage road to Sloughhouse Rd
	Farm Road			All driveways and local roads remain open. Median with Right in/out (except signalized intersections)				High Access Roadway: Maintain access to all driveways and local roads with Right in/ out with signals at same locations as Baseline Reduced Access Roadway: Reduce the number of driveways and local road connections along Grant Line Road and provide access to properties via alternative access Deer Creek Causeway: No access on causeway. Maintain access to all driveways and local roads along Grant Line Road
	Richert Lane							
	Poppy Seed Lane							
	Spanish Grant Rd							
	Public Road							
	Bradley Ranch Rd							
	Beitzel Rd							
	Graybill Lane							
	Oak Pond Lane							
	Sheldon Woods Way							
	Sheldon Rd		1			1		
	Mooney Rd							
	Siefker Ct		1					
	Aleilani Lane		1			1		
	Wilton Road		1			1		
	Pleasant Grove School Rd			Right in/out				
	De Souza Lane			Realign with Sherman Oaks				
	Sherman Oaks Ct		1	Right in/out for all driveways and local roads				
	Upton Ct							
	Menlo Oaks Ct							
	Clark Lake Lane							
	Bond Road		1			1		

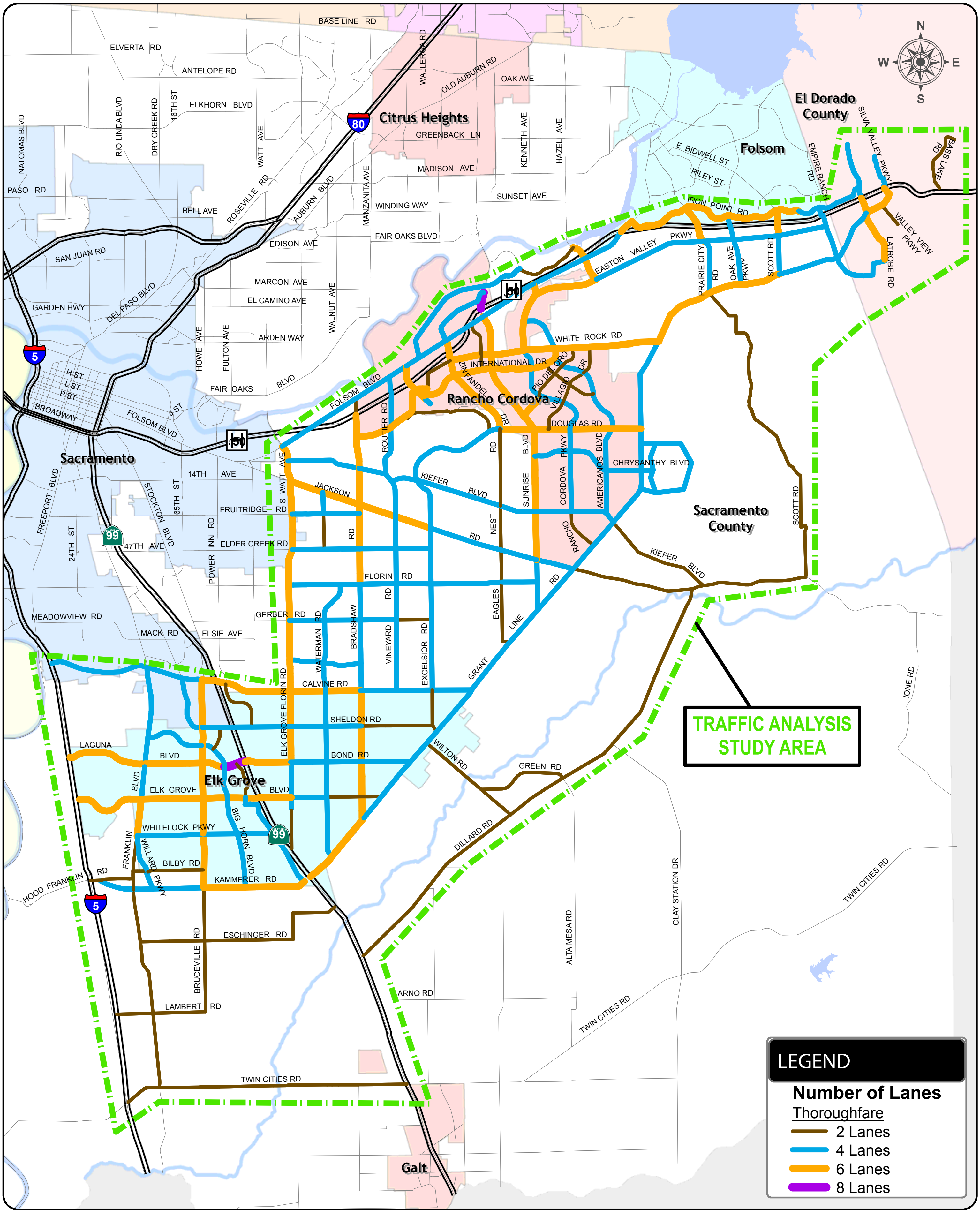
Revised Table 16-13. Continued

Connector Roadway	Cross Street	Future without Project			Future with Project			
		Lanes - Facility Type	Traffic Signal	Comments on Assumed Access	Lanes - Facility Type	Traffic Signal	Interchange	Comments on Assumed Access[1]
Grant Line Road	Equestrian Dr	4-T		All driveways and local roads remain open				Cul-de-sac; access to Wrangler Dr.
	Pavich Lane							Right in/out
	Freeman Rd				4-T			Right in/out
	Jetmar Way							Realigned to Elk Grove Blvd
	Elk Grove Blvd		1	Left in (no LT out) could be considered at some local roads		1		Driveway access via frontage roads to Bradshaw Rd and Elk Grove Blvd
	Bradshaw Rd		1			1		
	Mosher Rd	6-T	1		6-T	1		One access for 2 residents on NW side; frontages roads to Mosher & Bradshaw
	Waterman Road		1			1		
	UPRR			Grade separated				Grade separated
	E. Stockton Blvd		1			1		Driveways routed to E. Stockton/Survey
	SR 99 NB Ramps		1			1		
Kammerer Road	**SR 99 SB Ramps**	6-T	1		6-T	1		
	W Stockton Blvd		1	3 existing right in/ out access points		1		Existing right in/out access points maintained
	Lent Ranch Pkwy		1			1		
	Lotz Pkwy		1	3 existing right in/ out access points		1		Existing right in/ out access points maintained
	Collector		1			1		
	Big Horn Blvd		1			1		
	Rau Road			Right in/out				Frontage road to Bruceville or Big Horn
	Collector 2		1			1		No access to Kammerer Bypass Option
	Bruceville Rd	4-T	1		4-E	1		
	Willard Pkwy		1			1		
	UPRR			Grade separated				Grade separated
	Franklin Blvd		1			1		
	Hood Franklin Rd			Right in/out				Right in/out
	I-5 NB Ramps		1			1		
Red = Future Roadways		**Total**	**49**		**Total**	**34-36**	**10**	**Bold = Major Cross-Streets**
Source: DKS Associates 2010.		T = Thoroughfare E = Expressway			3 additional signals with Sheldon No Build Option			



DKS Associates
TRANSPORTATION SOLUTIONS

FIGURE 16-2
SACOG SUBRAD'S
WITHIN TRAFFIC ANALYSIS STUDY AREA
CAPITAL SOUTHEAST CONNECTOR



DKS Associates
TRANSPORTATION SOLUTIONS

***Revised* FIGURE 16-3**
2035 ROADWAY SYSTEM
WITHIN TRAFFIC ANALYSIS STUDY AREA
CAPITAL SOUTHEAST CONNECTOR

Project Roadway System

On the Connector's expressway segments, a minimum distance of one-mile spacing would be required between access points unless an analysis can show that a smaller spacing will not degrade traffic operations. Grade-separated interchanges would be constructed, where feasible, at cross-streets where LOS C conditions cannot be maintained with an at-grade signal-controlled intersection. By 2035, most of the cross-streets on the expressway segments would require grade-separated interchanges to meet the required LOS C standard.

The primary difference between the future without-project scenario and the proposed project is the amount and type of access along the project alignment. The proposed project would reduce the amount of access, especially on segments designated to have an expressway standard (Grant Line Road from north of Calvine Road to White Rock Road and White Rock Road from Grant Line Road to the El Dorado County line). Table 16-13 compares the assumed access along the project alignment under the future without-project scenario, to access with the proposed project and its options.

Options in Sheldon Area

The difference between the options for the proposed project is the design and alignment of the proposed project in the Sheldon area. Traffic volumes on Grant Line Road between Sheldon Road and Bond Road are projected to increase from 14,000 to 16,000 daily vehicles today to about 30,000 to 35,000 daily vehicles in 2035 under the future without-project scenario, and up to 40,000 daily vehicles in 2035 under the various project options. Accommodating that high level of traffic volume is a challenge in the Sheldon area due to the high number of access points.

There are approximately 65 driveways, 20 small local (public and private) roadways and 4 arterial roadways (Calvine Road, Sheldon Road, Wilton Road and Bond Road) that provide access to Grant Line Road between Calvine Road and Bond Road. On average there is a driveway or local road intersecting Grant Line Road every 160 feet between Calvine Road and Bond Road. On other segments of Grant Line Road, the concentration of driveways or small local roadways is much less than the Sheldon area.

Under the future without-project scenario, access would be maintained to all of these driveways and local roadways along Grant Line Road. However, with a 2035 volume exceeding 30,000 daily vehicles on Grant Line road through the Sheldon area, left turn access should only be allowed at signalized intersections for safety reasons. Thus any unsignalized locations would be restricted to right-turns, which would cause a substantial increase in U-turns at signalized intersections. Traffic signals would be warranted based on traffic volumes at the following locations in the Sheldon area:

- Bond Road
- Wilton Road
- Sheldon Road
- Calvine Road

Merchants in the commercial area of Sheldon, between Bond Road and Sheldon Road, would be very concerned about limiting left turn access to these few signalized intersections. Therefore, it was assumed that accessibility to commercial businesses along Grant Line Road would be addressed through a combination of additional traffic signals (which may not meet signal warrants) and alternative access points. Traffic signals were also assumed to be installed at the following locations along Grant Line Road:

- Siefker Court
- Aleilani Lane
- Sherman Oaks Court

Thus there would be seven traffic signals in the 2.7 miles from Bond Road to Calvine Road under the future without-project scenario. The project options in the Sheldon area are described in Chapter 2. The major elements of these options are provided below.

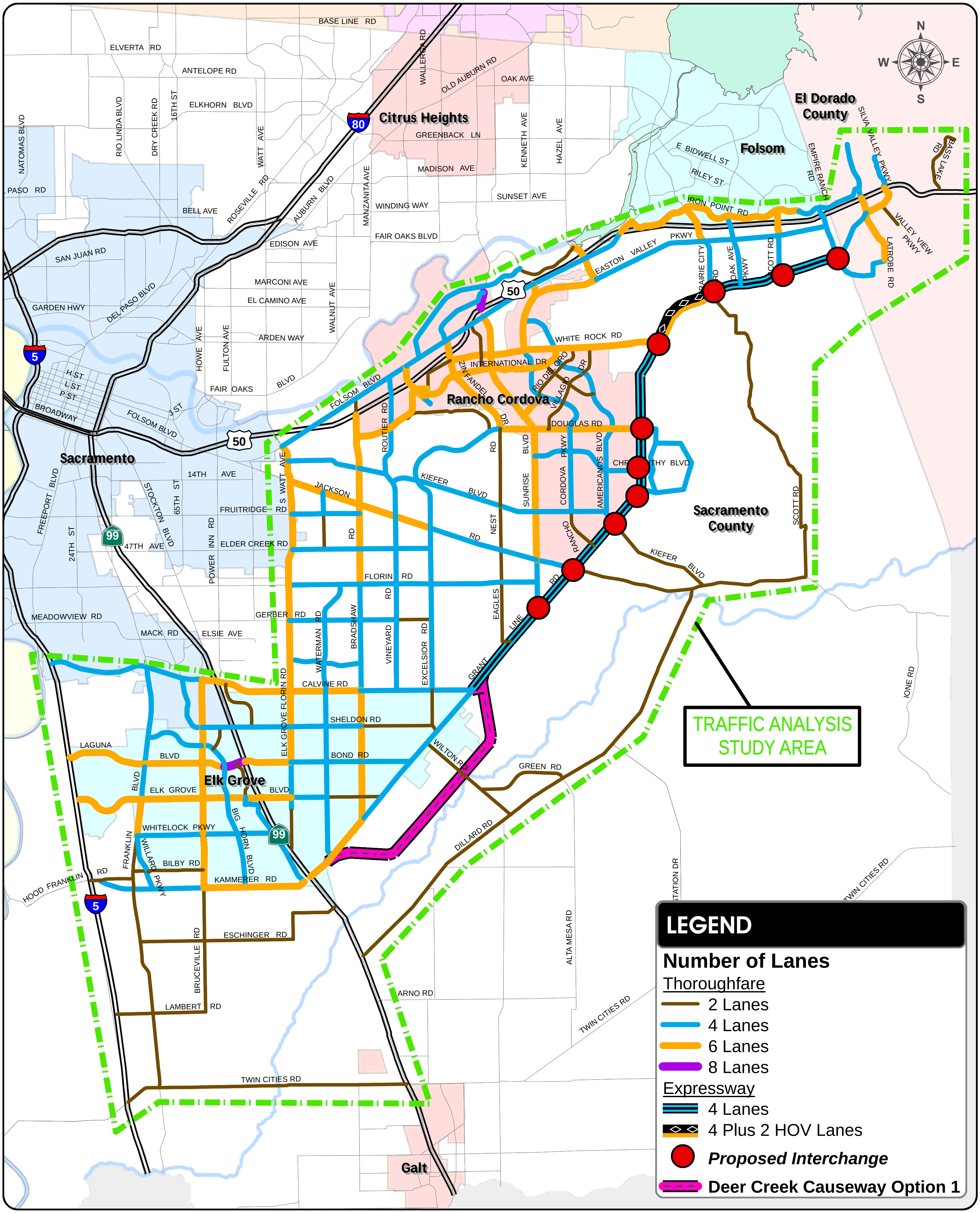
Deer Creek Causeway – Two options were defined. Option 1 would start at Grant line Road near Waterman Road while Option 2 would start at Grant line Road near Bradshaw Road. Both options would allow through traffic to bypass the Sheldon Area via alignments that travel around the east side of the Sheldon area along the Deer Creek floodplain and connect back to Grant Line Road north of Calvine Road. This bypass road would have three travel lanes, one continuous lane in each direction plus a third alternating “passing lane”. No access would be provided along the bypass road.

Reduced Access Roadway Option – The intent of the four-lane Reduced Access Roadway option is to reduce the number of driveways and local roads that access Grant Line Road between Bond Road and Calvine Road and provide access to properties along this segment of Grant Line Road using new alternative access roads. A large reduction is very desirable for safety. Signalized intersection access would be provided at Bond Road, Wilton Road, Aleilani Lane, Sheldon Road and Calvine Road. U-turns plus left-turns in to a local roadway would be allowed at one additional location in each direction between Calvine Rd and Sheldon Rd. The remaining unsignalized access points along Grant Line Road between Calvine Road and Bond Road would be restricted to right turn in/out.

High Access Roadway Option – This four lane option would have the same design and access control along Grant Line Road between Bond Road and Calvine Road as the Baseline.

Table 16-14 summarizes the differences in how access would be accommodated along Grant Line Road in the Sheldon area between the High Access Roadway Option and the Reduced Access Roadway Option.

Figures 16-4 through 16-7 show the assumed roadway system within the traffic analysis study area (TASA) for each of the project options.



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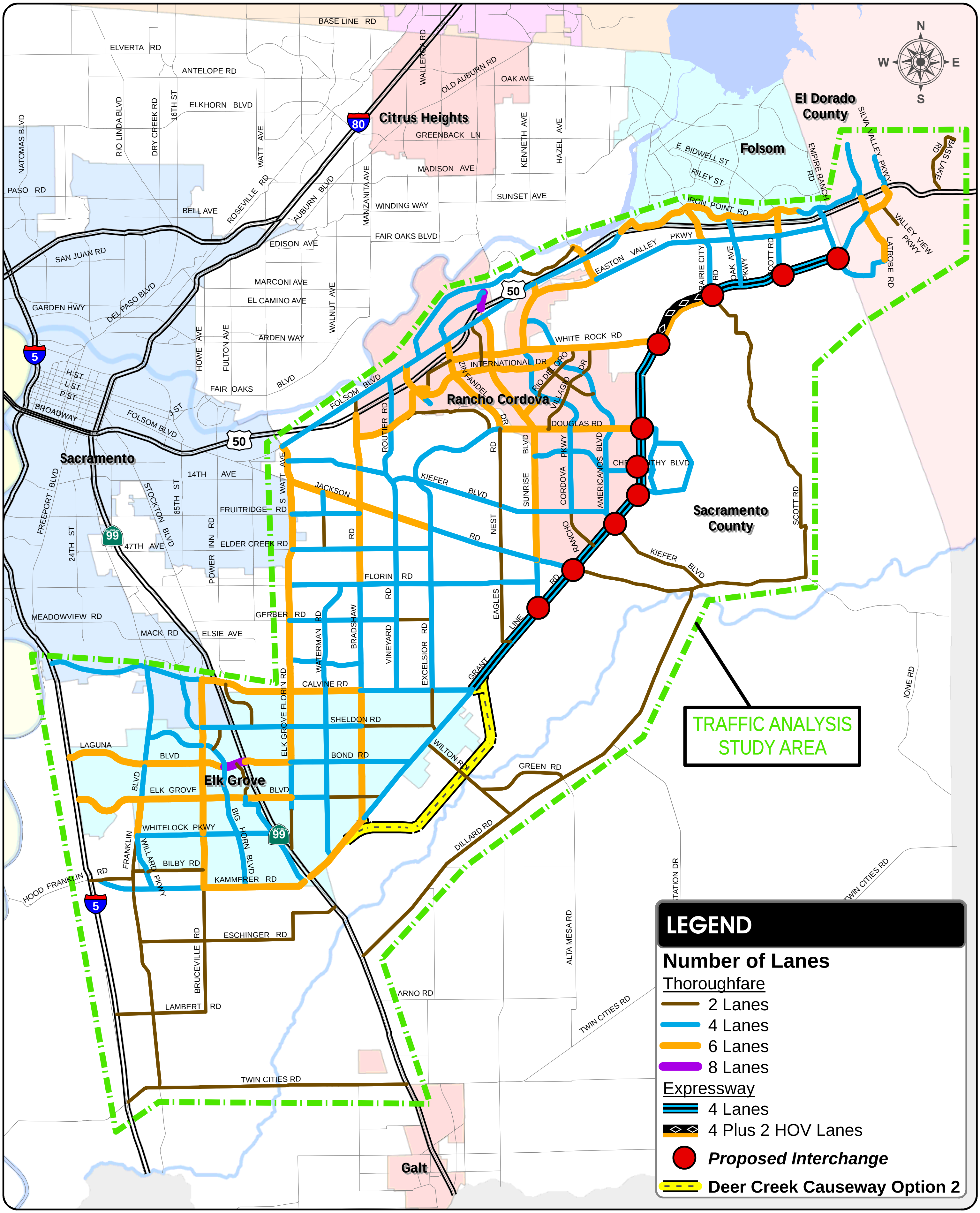
Revised FIGURE 16-4

2035 ROADWAY SYSTEM FOR PROPOSED PROJECT WITH DEER CREEK CAUSEWAY OPTION 1
WITHIN TRAFFIC ANALYSIS STUDY AREA

CAPITAL SOUTHEAST CONNECTOR



Revised FIGURE 16-5

2035 ROADWAY SYSTEM FOR PROPOSED PROJECT WITH DEER CREEK CAUSEWAY OPTION 2 WITHIN TRAFFIC ANALYSIS STUDY AREA

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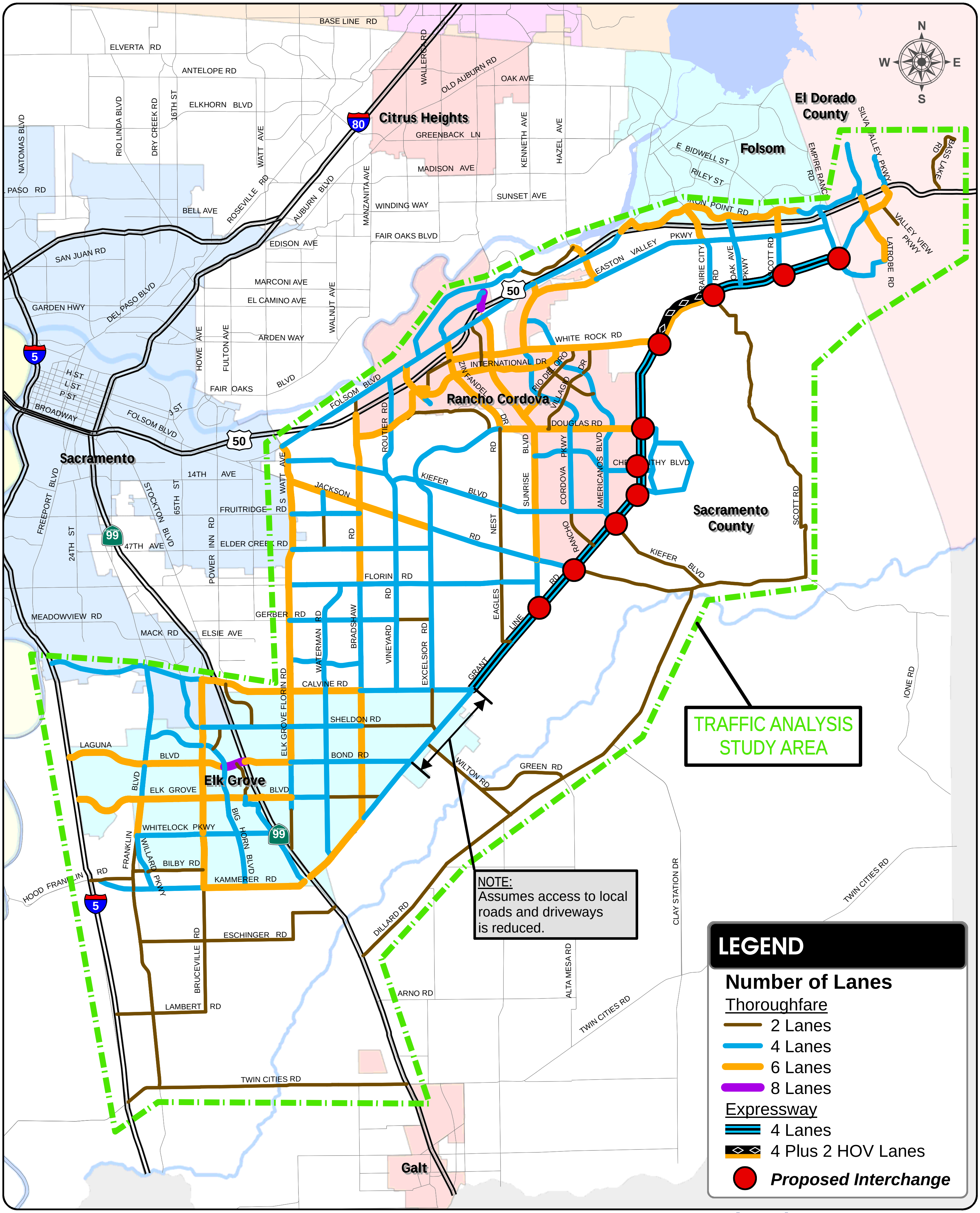

Revised FIGURE 16-6

2035 ROADWAY SYSTEM FOR PROPOSED PROJECT WITH REDUCED ACCESS ROADWAY WITHIN TRAFFIC ANALYSIS STUDY AREA

CAPITAL SOUTHEAST CONNECTOR

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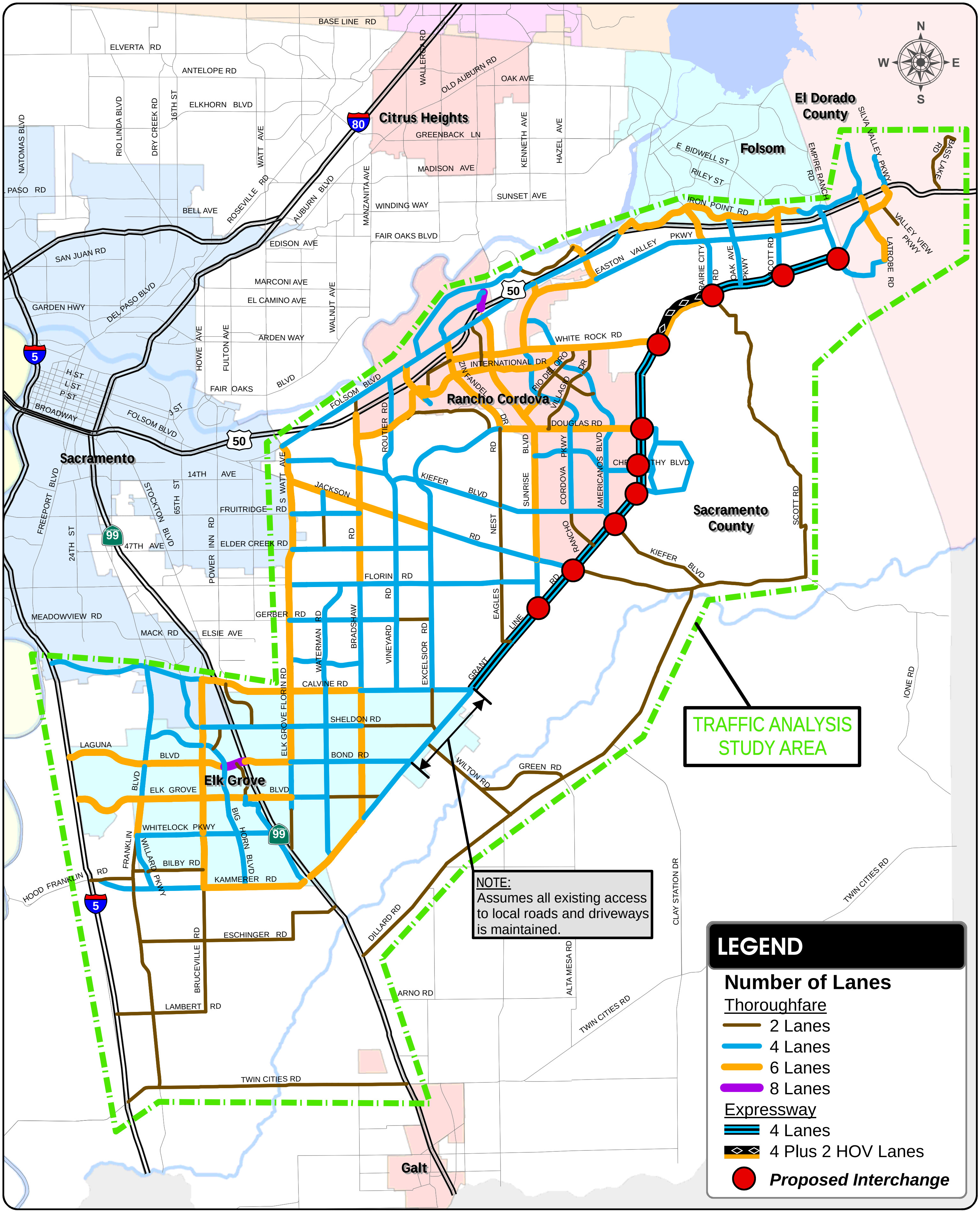

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Revised FIGURE 16-7
2035 ROADWAY SYSTEM FOR PROPOSED PROJECT WITH HIGH ACCESS ROADWAY WITHIN TRAFFIC ANALYSIS STUDY AREA
CAPITAL SOUTHEAST CONNECTOR

Table 16-14. Summary of Access Options on Grant Line Road in Sheldon Area

Components		High Access Roadway	Reduced Access Roadway
Design Components	Driveways and local road connections to Grant Line Rd	All (or nearly all) of existing connections remain (right turn in/out)	Reduce number of connections to improve safety and operations. The number of driveways and local roads that would be combined or eliminated (with access provided via alternative connections) would be determined in a project-specific environmental review. A large reduction is very desirable for safety. The remaining unsignalized access points will be right turn in/out.
	Nearest connection upstream from signalized intersection	No restriction assumed on existing connections	Restricted within 750 feet (would eliminate some existing connections)
	Right turn in/out access at driveways and local roads	No special treatment	Lanes for acceleration & deceleration, typically for groups of driveways
	Median	Non-traversable between signalized intersections	
	Left turns out of access points	Only at signalized intersections	
	Left turns into access points	Restricted	Limited to signalized intersections and one location in each direction between Calvine Rd and Sheldon Rd (with signalization)[a]
	Through Travel lanes	4	
	Left turn lanes	Double left turn lanes at Wilton Rd and Sheldon Rd and single left turn lanes at other intersections	
	Minimum Signal Spacing	600 feet	Arterials plus Aleilani Lane
	Signalized Intersections (all movements allowed)	**7 Total** Bond Road Sieker Court Wilton Road Aleilani Lane Sherman Oaks Ct Sheldon Road Calvine Road	**5 Total** Bond Road Wilton Road Aleilani Lane Sheldon Road Calvine Road
Performance Components	Level of Service	LOS F will result in commercial area	LOS D will result in commercial area (LOS C achieved w/o signal at Aleilani Lane)
	Safety (estimated crash rate per million vehicle-miles)	> 5	Depends on number of unsignalized access points and design features: - Moderate access reduction: 3 to 5 - Eliminate most access points: < 2
	2035 Traffic Volume Calvine Rd to Sheldon Rd Sheldon Rd to Wilton Rd Wilton Rd to Bond Rd	 31,000 38,900 34,000	 31,000 to 31,600 39,000 to 40,000 35,000 to 36,400

Source: DKS Associates 2010.

[a] Signal warrants would not be met, so limited to one location to reduce out-of-direction travel. Locations should be at least 1/2 mile from signalized intersections.

Future Without-Project Transit System

Outside the Connector traffic analysis study area, the EIR analysis assumed implementation of 2035 transit service that SACOG assumed in its analysis of the MTP. Within the traffic analysis study area, the Connector EIR analysis assumed the amount of transit service would be equivalent to the amount of service in the 2035 MTP analysis (measured in "bus revenue hours"), but routing and headways were modified to better reflect Regional Transit's recently adopted Transit Action Plan. The MTP "funded constrained" transit system with the traffic analysis study area has about triple the 2005 service level. SACOG has projected that population in the traffic analysis study area would double between 2005 and 2035. Thus the MTP assumes that transit service in the traffic analysis study area would increase faster than population growth.

The Connector EIR analysis assumed that 2035 future without-project transit service in the traffic analysis study area will include the following elements:

- Maintenance of existing local bus routes plus new local bus service in high growth areas
- Attempts to reach 15 minute service all day on the "high bus" routes identified in Regional Transit's Transit Action Plan. However, the 2035 Baseline transit system was constrained to SACOG's "funding constrained" 2035 transit service levels, which would not allow full implementation of Regional Transit's 2035 "high bus" network in the traffic analysis study area.
- The percent of service on "high bus" routes versus "local bus" routes would increase somewhat over existing levels as well as over the 2035 MTP analysis assumptions to reflect Regional Transit's Transit Action Plan.

Transit System with Proposed Project

The Connector JPA Board has adopted transit policies stating that the JPA, as part of the project, will provide capital funding for cost-effective transit facilities along the project alignment and provide some funding for strategic, cost-effective capital improvements on routes parallel to the project alignment that show strong potential for successful, well utilized service.

Initially, it was assumed that the provision of capital improvements by the JPA would allow transit providers to focus more funding on operations and thus facilitate some increase in transit service levels. It was therefore assumed that there would be a modest increase in bus service over the future without-project levels in 2035 with the implementation of any of the project options under the JPA's transit policies.

All of the project options assumed increased frequency, transit signal priority equipment and selected transit queue jumps on the following "high bus" routes in RT's Transit Action Plan:

- Bradshaw Road
- Rancho Cordova Parkway
- Easton Valley Parkway

All of the project options also assume:

- Extension of the future Easton Valley Parkway "high bus" route to the employment centers in both Rancho Cordova and the El Dorado Hills. It is also assumed that the Easton Valley Parkway route would be limited to RT's 2035 "high bus" network (between Hazel Avenue and Scott Road)

- A peak period only commute service from Lent Ranch to the El Dorado Hills Town Center along Grant Line Road and White Rock Road
- Six park and ride lots at strategic locations along Kammerer Road, Grant Line Road and White Rock Road.

Based on comments from Regional Transit on the Draft PEIR, however, it is no longer assumed that the provision of capital improvements by the JPA would allow transit providers to focus enough funding on operations to facilitate a significant increase in transit service levels. Therefore, the analysis has been revised to assume that, despite future funding for transit facilities that would result from the proposed project, the project would not result in an increase in transit service compared to existing conditions, or future without-project conditions.

Revised travel demand forecasts indicate that removing the additional transit services outlined above would result in the following changes in traffic volumes for the project options:

- Daily traffic volumes would only change on a limited number of roadway segments within the traffic analysis study area (TASA) – only some of the roadways that are close to the transit services that were removed in the revised analysis. Traffic volumes on the majority of the roadway segments in the TASA would remain the same as the volumes in the Draft PEIR.
- For the roadway segments that would have changes in daily traffic volumes due to the reduction in assumed transit service, none would change by more that 2 percent and the majority of the roadway segments would not change by more than 1 percent under any of the project options
- VMT within the TASA would increase by less than 0.1 percent due to reduction in assumed transit service

This analysis demonstrates that removing the assumed transit services would result in marginal changes in traffic volumes on some roadway segments. Therefore, the traffic volumes remain the same under the transit system with or without the Project.

16.5.3 Impacts of the Proposed Project

16.5.3.1 Analysis of the Existing Traffic Conditions Baseline

To determine whether the proposed project would significantly impact the existing environment, the existing conditions in 2008 were compared to the existing conditions with the Project in section 16.5.5.6, below. The existing conditions in 2008 with the Project are referred to as the "existing-plus-project" conditions. This approach complies with the intent of the *Communities for a Better Environment*, by providing a significance determination based on the change from existing conditions and avoiding the use of a hypothetical baseline condition.

16.5.3.2 Analysis of Future Traffic Conditions (2035 and Beyond)

Change in Traffic Volumes

Compared to the future without-project conditions, the proposed project would reduce access along the project alignment, especially on segments designated to have an expressway standard (Grant Line Road from north of Calvine Road to White Rock Road and White Rock Road from Grant Line Road, to the El Dorado County line).

With grade-separated interchanges in the 16 miles that are designated as an expressway standard, posted travel speeds would be increased (from 50-55 mph to 60-65 mph) and, more significantly, delay for through travel along the project caused by signalized intersections would be almost eliminated. The elimination of signals would also double the capacity of each travel lane on the Connector. The result would be a substantial decrease in travel times along the expressway portions of the Connector, allowing people to travel further in the same amount of time. As discussed in Section 16.5.2.2, this change in travel time would "induce" some travel and increase vehicle miles of travel (VMT) in the corridor.

To help show how the Connector would affect traffic patterns and volumes, a set of "difference plots" were prepared that show which roadways would have increases and which would have decreases in volumes due to implementation of the proposed project when compared to the future without-project conditions. Figures 16-8 through 16-11 show these differences for each project option, with red colors on roadways that would receive increases in volumes (compared to the Baseline) and green colors on roadways with decreases in volume. The width of the red or green bands on each roadway provides an indication of the magnitude of the change in traffic volumes (compared to the future without-project conditions with larger changes having the widest band widths).

These figures show that compared to the future without-project conditions, all of the options for the proposed project would decrease traffic on many arterial/collector roadway segments in the traffic analysis study area, as well as decrease traffic volumes on portions of US 50, SR 99 and I-5. While all of the project options would decrease traffic volumes on many roadway segments, they would all cause increases in traffic volumes on 1) the Connector (Kammerer Road, Grant Line Road and the portion of White Rock Road east of Grant Line Road) and 2) most major roadways that provide access to the Connector near where they intersect the Connector.

Table 16-15 summarizes the projected 2035 daily traffic volumes on segments along the project alignment under each project option and shows the projected change in 2035 daily traffic volumes compared to the future without-project conditions. This table provides the magnitude of volume increase on Connector segments shown graphically in Figures 16-4 through 16-7.

Table 16-16 compares estimated 2035 daily traffic volumes on the "non-project" roadways within the traffic analysis study area under each of the project options and shows the change in traffic volumes compared to the future without-project conditions. Table 16-17 shows the change in traffic volume on the freeway system in the traffic analysis study area. These tables provide the magnitude of volume change (increases and decreases) on study area roadways shown graphically in Figures 16-4 through 16-7. These table show that compared to the future without-project conditions, all of the options for the proposed project would decrease traffic on many arterial/collector roadway segments in the traffic analysis study area, as well as decrease traffic volumes on portions of US 50, SR 99 and I-5.

Analysis of Access in El Dorado County

As the traffic analysis for the Program EIR was developed, El Dorado County and citizen's groups in the El Dorado Hills area expressed concerned over how traffic will flow to and from the easternmost segment of the Connector project. The MTP, as well as the El Dorado County General Plan and the proposed Folsom SOI Specific Plan, include assumptions that several transportation improvements will be implemented over the next 25 years to increase both the number and capacity of the roadway connections between US 50 and White Rock Road as this region develops. The Connector

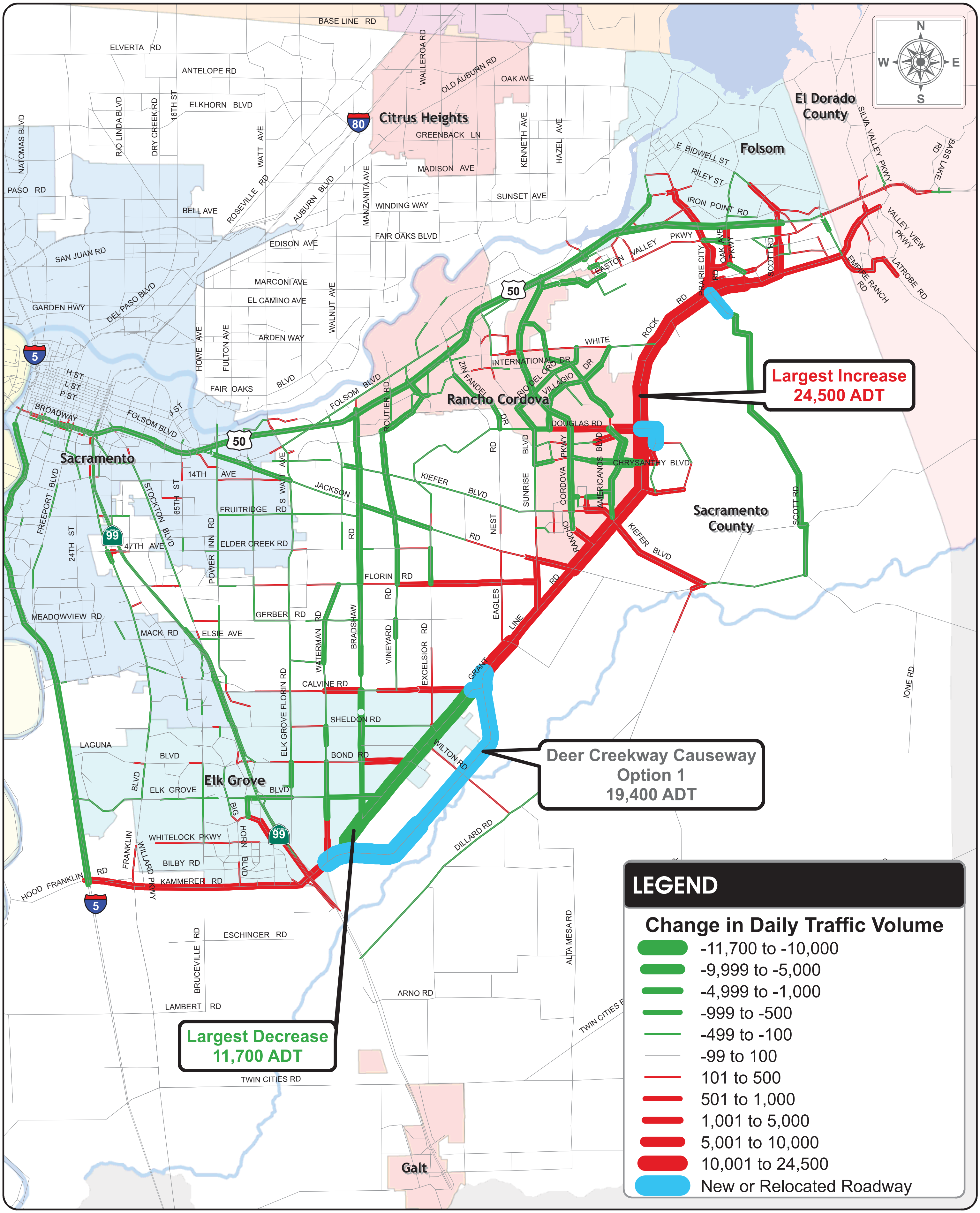

FIGURE 16-8
CHANGE IN 2035 DAILY TRAFFIC VOLUME
DEER CREEK CAUSEWAY OPTION 1
CAPITAL SOUTHEAST CONNECTOR

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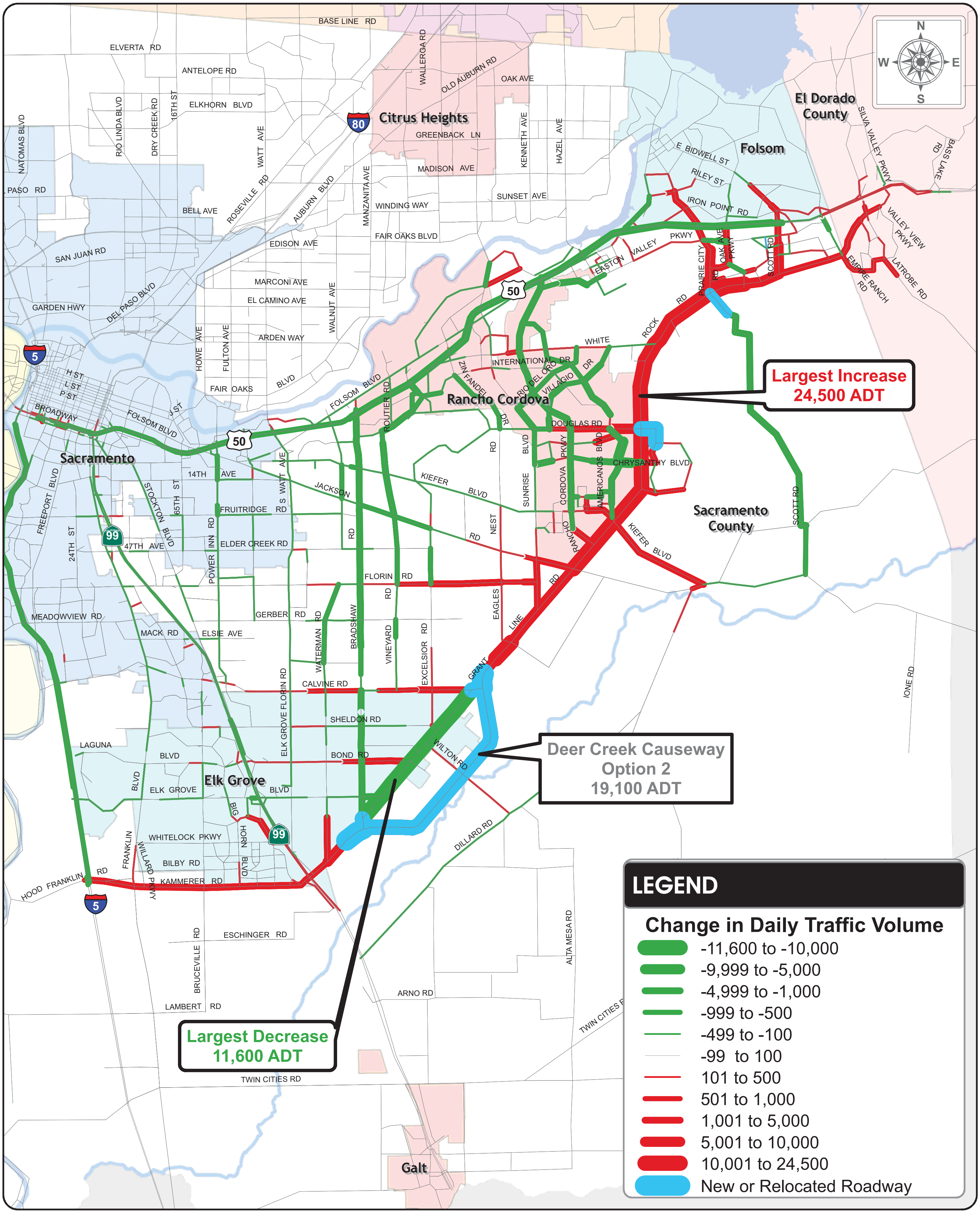

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FIGURE 16-9
CHANGE IN 2035 DAILY TRAFFIC VOLUME
DEER CREEK CAUSEWAY OPTION 2
CAPITAL SOUTHEAST CONNECTOR

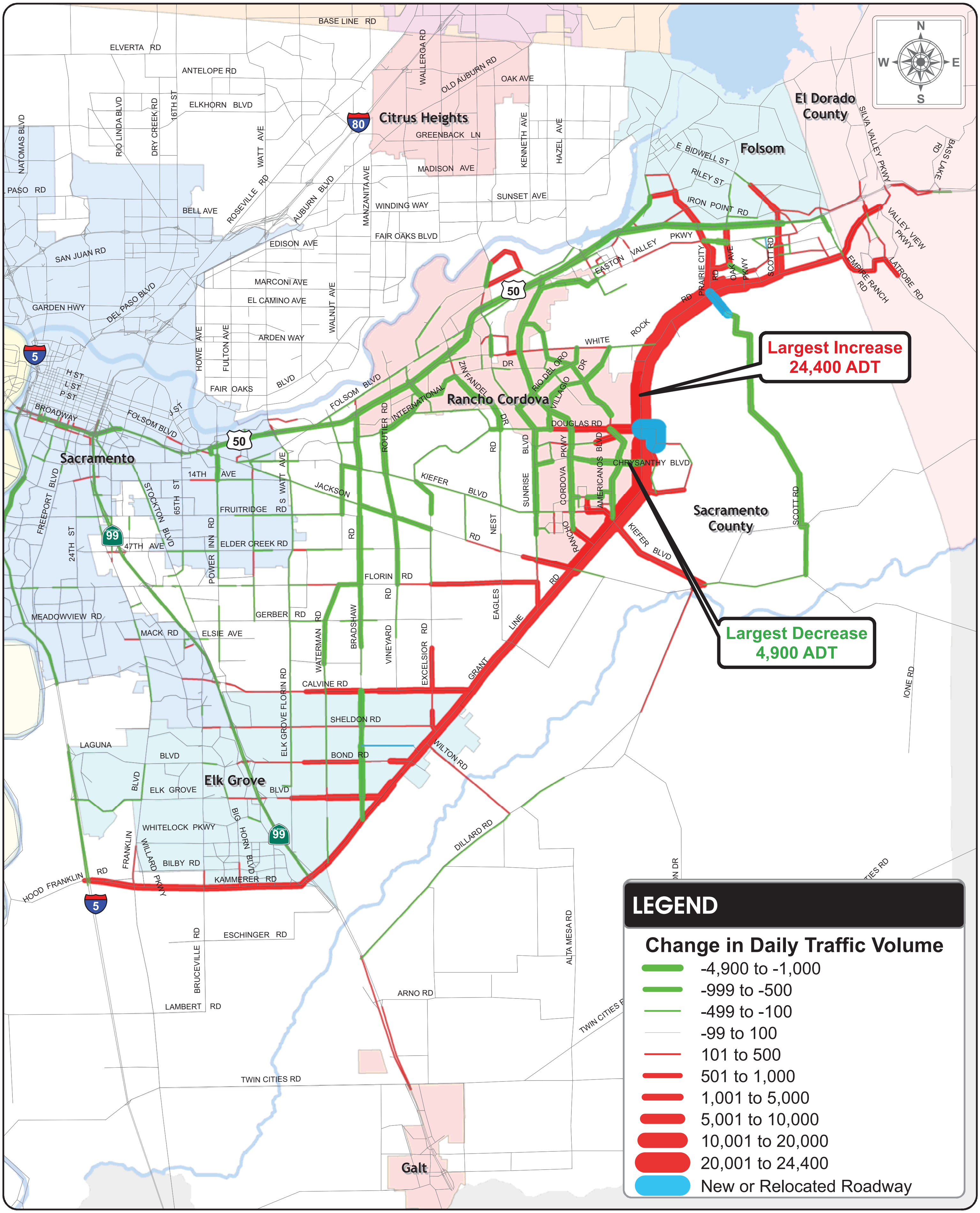

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FIGURE 16-10
CHANGE IN 2035 DAILY TRAFFIC VOLUME
REDUCED ACCESS ROADWAY
CAPITAL SOUTHEAST CONNECTOR

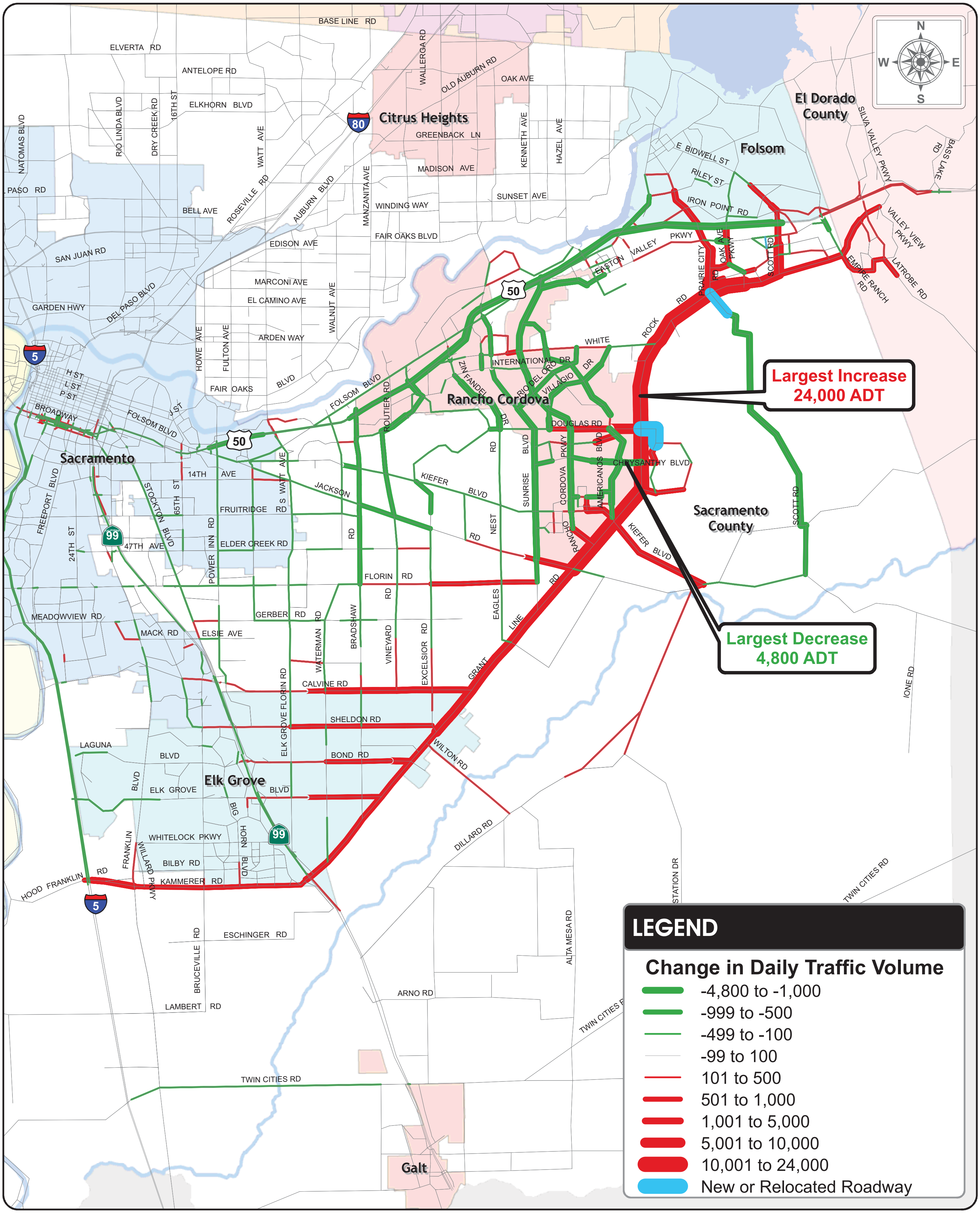

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FIGURE 16-11
CHANGE IN 2035 DAILY TRAFFIC VOLUME
HIGH ACCESS ROADWAY
CAPITAL SOUTHEAST CONNECTOR

Program EIR analysis assumes that these roadway improvements are part of the future without-project conditions transportation system and will be implemented in the year identified in the MTP.

However, El Dorado County expressed concern that some of these roadway improvements may not occur in a timely manner and thus could affect traffic volumes on White Rock Road and Latrobe Road through El Dorado Hills. Specifically, El Dorado County requested more information on how the planned connections through the Folsom SOI, as well as the proposed West Access to the El Dorado Hills Business Park, will feed traffic to and from the Connector.

To address these issues, the JPA coordinated with El Dorado County Department of Transportation and the City of Folsom to evaluate future traffic conditions in the El Dorado Hills and Folsom SOI area. The JPA conducted an analysis to provide more information on future travel patterns traveling to and from the eastern portion of the Connector and to determine how the timing of roadway improvements will impact traffic patterns and volumes. This analysis is provided in Appendix J. It is important to note that the proposed Connector project would upgrade White Rock Road between Grant Line Road and the El Dorado County line from a “thoroughfare” to an “expressway” facility but it would not change the planned improvements to White Rock Road in El Dorado County from those anticipated in the County’s General Plan.

Changes in Roadway Segment Levels of Service

Table 16-18 shows the estimated 2035 levels of service (LOS) on segments of the project alignment for each project option. This table shows that under the project options, all segments of the Connector would operate at LOS D or better conditions in 2035 except the following:

- In the Sheldon area, the analysis indicates that Grant Line Road between Bond Road and Sheldon Road would operate at LOS E or F conditions under the Reduced Access Roadway and High Access Roadway options. The roadway segment capacities used in this analysis are consistent with those used by local jurisdictions and are based on moderate to high cross-street volumes. Since cross-street volumes in the Sheldon area will be low, the capacity of Grant Line Road between Bond Road and Sheldon Road will be higher than typical capacities and thus levels of service will be better.
- Grant Line Road between East Stockton and SR 99 would operate at LOS F

Table 16-19 shows the estimated volume/capacity ratio and the resulting LOS in 2035 on other “non-project” roadway segments in the traffic analysis study area under for each project option.

The comparison between the future without-project conditions and the project options under 2035 conditions indicates that there would be significant LOS impacts on some roadway segments. These impacts are discussed in Section 16.5.5.

Changes in Intersection Levels of Service

Table 16-20 shows the estimated 2035 AM and PM peak hour LOS at signalized intersections along the project alignment for each project option. This table shows that under the project options, all intersections along the Connector would operate at LOS D or better conditions in 2035 except for Grant Road at Wilton Road and at Aleilani Lane, which would operate at LOS F under the High Access Roadway option.

AM and PM peak hour LOS was also calculated for the major intersections in the traffic analysis study area that 1) would have a significant increase in traffic volume under one or more of the project compared to the future without-project conditions and 2) are located on roadway segments that would operate at LOS D or worse based on the segment-based LOS analysis. Table 16-21 provides peak hour LOS at 15 intersections that met those criteria.

Changes in Freeway Levels of Service

Table 16-22 shows the estimated 2035 peak hour levels of service (LOS) on segments of the freeway mainline for each of the project options. Table 16-23 shows the estimated 2035 peak hour levels of service (LOS) on freeway ramps using merge, diverge and weaving analysis.

Changes in Systemwide Congestion and Delay

The proposed project would have an impact on travel patterns in a fairly wide area. Although the project would increase traffic volumes on some roadway segments, a larger number of roadways would have decreases in traffic volumes. In addition to measuring changes in traffic volumes and LOS on individual roadway segments (discussed above), the following system-wide measures were defined to show the impacts and benefits to the roadway system as a whole:

- Vehicle-Miles of Travel (VMT) and Vehicle-Hours of Travel (VHT) – shown in Table 16-24
- Vehicle-Miles of Travel (VMT) by LOS Category – shown in Table 16-25
- Vehicle-Hours of Travel (VHT) by LOS Category – shown in Table 16-26
- Vehicle delay – shown in Table 16-27

These system-wide measures were estimated for 2035 conditions using the travel demand model for the roadway system within the traffic analysis study area during the Peak Period, The "Peak Period" covers six hours: the three-hour morning commute period (6 to 9 AM) plus the three-hour evening commute period (3 to 6 PM). For each measure, separate estimates are provided for the proposed project (all of the roadway segments that make up the Connector) and the non-project (the remaining non-connector roadway segments within the traffic analysis study area).
Tables 16-24 and 25 shows the percentage of the total VMT and VHT in the full traffic analysis study area in three LOS categories. The VMT is summarized for roadways that would operate LOS A-C, LOS D/E and LOS F conditions.

Vehicle delay can be measured in a number of ways. For the analysis summarized in Table 16-26, vehicle delay was defined as the additional travel time that vehicles would take to travel on a roadway segment beyond the time that it would take under a given LOS threshold. The added travel time was measured systemwide for two LOS thresholds:

- > LOS C Delay – the added travel time for vehicles faced with LOS D, E and F conditions
- > LOS E Delay – the added travel time for vehicles faced with LOS F conditions

The information in Tables 16-24 through 16-27 indicates that, compared to the future without-project conditions, the project options would:

- Increase the total VMT on the proposed project and decrease the total VMT on the remainder of the roadway system in the traffic analysis study area. Overall VMT on the entire roadway system serving the traffic analysis study area would increase by 1.4% to 1.7%. By allowing people to travel further in the same amount of time, the proposed project would “induce” some travel and increase vehicle miles of travel (VMT) in the corridor compared to the Baseline.

- Reduce the percent of VMT and VHT that would occur on congested roadways.
- Substantially reduce delay along the project alignment and reduce overall delay on the entire roadway system serving the traffic analysis study area.

Compared to the Reduced Access Roadway and High Access Roadway Options, the Deer Creek Causeway Option would result in a larger increase in VMT in the traffic analysis study area.

Table 16-24. Peak Period Vehicle-Miles of Travel (VMT) and Vehicle-Hours of Travel (VHT) in Traffic Analysis Study Area (TASA)

				Proposed Project			
		2008		Deer Creek Causeway		Reduced Access	High Access
Measure	Facility	Baseline	2035	Option 1	Option 2	Roadway	Roadway
Vehicle-Miles of Travel (VMT)							
VMT	Proposed Project	168,865	537,861	749,855	755,317	685,464	677,672
	Non-Project	3,993,135	6,703,229	6,613,760	6,605,387	6,656,969	6,660,363
	Total TASA	4,162,000	7,241,090	7,363,615	7,360,704	7,342,433	7,338,035
Change from 2035	Proposed Project			211,994	217,456	147,603	139,811
	Non-Project			(89,470)	(97,843)	(46,260)	(42,866)
	Total TASA			122,524	119,613	101,343	96,945
Percent Change from 2035	Proposed Project			39.4%	40.4%	27.4%	26.0%
	Non-Project			-1.3%	-1.5%	-0.7%	-0.6%
	Total TASA			1.7%	1.7%	1.4%	1.3%
Vehicle-Hours of Travel (VHT)							
VHT	Proposed Project	4,623	12,926	13,680	13,796	14,724	14,694
	Non-Project	121,650	210,226	209,750	209,220	208,595	208,625
	Total TASA	126,274	223,152	223,429	223,015	223,318	223,318
Change from 2035	Proposed Project			754	870	1,798	1,768
	Non-Project			(476)	(1,007)	(1,631)	(1,601)
	Total TASA			278	(136)	167	167
Percent Change from 2035	Proposed Project			5.8%	6.7%	13.9%	13.7%
	Non-Project			-0.2%	-0.5%	-0.8%	-0.8%
	Total TASA			0.1%	-0.1%	0.1%	0.1%

Source: DKS Associates 2010.

Note: See Figure 16-1 for boundary of the traffic analysis study area. The “Peak Period” covers six hours: the three hour morning commute period (6 to 9 AM) and the three hour evening commute period (3 to 6 PM).

Table 16-25. Peak Period Vehicle-Miles of Travel by LOS Category in Traffic Analysis Study Area

Facility	LOS	2008 Baseline	2035	Proposed Project: Deer Creek Causeway Option 1	Proposed Project: Deer Creek Causeway Option 2	Proposed Project: Reduced Access Roadway	Proposed Project: High Access Roadway
Vehicle-Miles of Travel (VMT) in the traffic analysis study area							
Along Project Alignment	A-C	106,041	345,024	529,885	535,608	471,014	458,122
	D-E	42,503	165,989	158,237	158,004	187,899	184,244
	F	20,320	26,848	61,733	61,704	26,551	35,305
	Total	**168,865**	**537,861**	**749,855**	**755,317**	**685,464**	**677,672**
Non-Project Roadways	A-C	2,557,715	4,095,380	4,079,870	4,058,972	4,086,664	4,092,721
	D-E	835,167	1,684,328	1,640,702	1,680,561	1,664,360	1,665,625
	F	600,252	923,522	893,188	865,853	905,945	902,017
	Total	**3,993,135**	**6,703,229**	**6,613,760**	**6,605,387**	**6,656,969**	**6,660,363**
All	A-C	2,663,757	4,440,404	4,609,755	4,594,580	4,557,678	4,550,844
	D-E	877,670	1,850,316	1,798,939	1,838,566	1,852,259	1,849,869
	F	620,573	950,370	954,920	927,558	932,496	937,322
	Total	**4,162,000**	**7,241,090**	**7,363,615**	**7,360,704**	**7,342,433**	**7,338,035**
Percent of Total Vehicle-Miles of Travel (VMT) in the traffic analysis study area							
Along Project Alignment	A-C	62.80%	64.1%	70.7%	70.9%	68.7%	67.6%
	D-E	25.20%	30.9%	21.1%	20.9%	27.4%	27.2%
	F	12.00%	5.0%	8.2%	8.2%	3.9%	5.2%
	Total	**100.00%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
Non-Project Roadways	A-C	64.10%	61.1%	61.7%	61.4%	61.4%	61.4%
	D-E	20.90%	25.1%	24.8%	25.4%	25.0%	25.0%
	F	15.00%	13.8%	13.5%	13.2%	13.6%	13.6%
	Total	**100.00%**	**100.0%**	**100.0%**	**100.1%**	**100.0%**	**100.1%**
All	A-C	64.00%	61.3%	62.6%	62.4%	62.1%	62.0%
	D-E	21.10%	25.6%	24.4%	25.0%	25.2%	25.2%
	F	14.90%	13.1%	13.0%	12.6%	12.7%	12.8%
	Total	**100.00%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

Source: DKS Associates 2010.

Note: See Figure 16-1 for boundary of the traffic analysis study area. The "Peak Period" covers six hours: the three hour morning commute period (6 to 9 AM) and the three hour evening commute period (3 to 6 PM)

Table 16-26. Peak Period Vehicle-Hours of Travel by LOS Category in Traffic Analysis Study Area

Facility	LOS	2008 Baseline	2035	Proposed Project			
				Deer Creek Causeway		Reduced Access Roadway	High Access Roadway
				Option 1	Option 2		
Vehicle-Hours of Travel (VHT) in the traffic analysis study area							
Along Project Alignment	A-C	2,423	7,857	9,192	9,313	9,609	9,432
	D-E	1,057	4,042	3,580	3,569	4,313	4,244
	F	1,143	1,027	908	914	802	1,017
	Total	**4,623**	**12,926**	**13,680**	**13,796**	**14,724**	**14,694**
Non-Project Roadways	A-C	69,391	122,192	123,063	122,503	121,715	121,825
	D-E	21,156	45,779	44,620	45,511	45,277	45,320
	F	31,103	42,255	42,067	41,206	41,602	41,479
	Total	**121,650**	**210,226**	**209,750**	**209,220**	**208,595**	**208,625**
All	A-C	71,814	130,048	132,255	131,816	131,324	131,258
	D-E	22,213	49,821	48,199	49,080	49,690	49,564
	F	32,247	43,282	42,975	42,120	42,305	42,497
	Total	**126,274**	**223,152**	**223,429**	**223,015**	**223,318**	**223,318**
Percent of Total Vehicle-Hours of Travel (VHT) in the traffic analysis study area							
Along Project Alignment	A-C	52.40%	60.8%	67.2%	67.5%	65.3%	64.2%
	D-E	22.90%	31.3%	26.2%	25.9%	29.3%	28.9%
	F	24.70%	7.9%	6.6%	6.6%	5.4%	6.9%
	Total	**100.00%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
Non-Project Roadways	A-C	57.00%	58.1%	58.7%	58.6%	58.4%	58.4%
	D-E	17.40%	21.8%	21.3%	21.8%	21.7%	21.7%
	F	25.60%	20.1%	20.1%	19.7%	19.9%	19.9%
	Total	**100.00%**	**100.0%**	**100.0%**	**100.1%**	**100.0%**	**100.1%**
All	A-C	56.90%	58.3%	59.2%	59.1%	58.8%	58.8%
	D-E	17.60%	22.3%	21.6%	22.0%	22.3%	22.2%
	F	25.50%	19.4%	19.2%	18.9%	18.9%	19.0%
	Total	**100.00%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

Source: DKS Associates 2010.

Note: See Figure 16-1 for boundary of the traffic analysis study area. The "Peak Period" covers six hours: the three hour morning commute period (6 to 9 AM) and the three hour evening commute period (3 to 6 PM)

Table 16-27. Peak Period Vehicle Delay in Traffic Analysis Study Area

Measure	Roadway Segments	2008 Baseline	2035	Proposed Project: Deer Creek Causeway Option 1	Proposed Project: Deer Creek Causeway Option 2	Proposed Project: Reduced Access Roadway	Proposed Project: High Access Roadway
> LOS C Delay[a]	Proposed Project	40,862	36,221	27,351	27,430	26,920	27,600
	Non-Project	1,089,698	1,392,976	1,365,969	1,352,409	1,357,521	1,360,102
	Total TASA	1,130,560	1,429,197	1,393,320	1,379,838	1,384,441	1,387,702
Change from Baseline	Proposed Project			(8,870)	(8,791)	(9,301)	(8,621)
	Non-Project			(27,007)	(40,568)	(35,455)	(32,874)
	Total TASA			(35,877)	(49,359)	(44,756)	(41,495)
Percent Change from Baseline	Proposed Project			-24.5%	-24.3%	-25.7%	-23.8%
	Non-Project			-1.9%	-2.9%	-2.5%	-2.4%
	Total TASA			-2.5%	-3.5%	-3.1%	-2.9%
> LOS E Delay[b]	Proposed Project	26,545	13,144	7,583	7,886	6,358	6,381
	Non-Project	770,636	827,431	817,538	804,030	807,018	810,755
	Total TASA	797,181	840,575	825,121	811,916	813,376	817,136
Change from Baseline	Proposed Project			(5,561)	(5,258)	(6,785)	(6,763)
	Non-Project			(9,893)	(23,401)	(20,413)	(16,676)
	Total TASA			(15,454)	(28,659)	(27,199)	(23,439)
Percent Change from Baseline	Proposed Project			-42.3%	-40.0%	-51.6%	-51.5%
	Non-Project			-1.2%	-2.8%	-2.5%	-2.0%
	Total TASA			-1.8%	-3.4%	-3.2%	-2.8%

Source: DKS Associates 2010.

Note: See Figure 16-1 for boundary of the traffic analysis study area. The “Peak Period” covers six hours: the three hour morning commute period (6 to 9 AM) and the three hour evening commute period (3 to 6 PM).

[a] > LOS C is the added travel time for vehicles faced with LOS D, E and F conditions in the TASA during the six hour Peak Period

[b] > LOS E is the added travel time for vehicles faced with LOS F conditions in the TASA during the six hour Peak Period

Change in Travel Times

Table 16-28 compares the estimated 2035 travel times along the project alignment for the future without-project conditions to each of the project options. Each shows that the proposed project would decrease travel times along the Corridor. The Reduced Access Roadway Option would achieve the greatest decrease in travel time (an 18% to 24% decrease) while the High Access Roadway Option would result in the smallest decrease in travel time (a 9% to 18% decrease).

With grade-separated interchanges in the17.9 miles between Grant Line Road at Calvine Road and White Rock Road at the El Dorado County Line, that are designated as an expressway standard, posted travel speeds would be increased (from 50-55 mph to 60-65 mph) and, more significantly, delay for through travel along the Connector caused by signalized intersections would be almost eliminated. Therefore, most of the travel time reduction resulting from implementing the proposed project would occur in the expressway segment.

Table 16-28. Peak Period Vehicle Delay in Traffic Analysis Study Area

Segment	Distance (miles)	2035 PM Peak Hour Travel Time (minutes)									
		Future Without-Project Conditions		Deer Creek Causeway				Reduced Access Roadway		High Access Roadway	
				Option 1		Option 2					
		North/ East Bound	South/ West Bound	North/ East Bound	South/ West Bound	North/ East Bound	South/ West Bound	North/ East Bound	South/ West Bound	North/ East Bound	South/ West Bound
1 - US 50/Silva Valley to Sacramento Co Line	2.3	6.3	5.4	7.2	6.5	7.0	6.6	6.9	6.6	7.8	6.8
2 - El Dorado Co Line to Grant Line Rd	6.3	9.1	16.4	7.8	8.1	7.9	8.1	6.1	8.1	7.8	8.1
3 - Grant Line Rd to Calvine Road	11.6	22.7	23.5	17.0	17.3	17.6	17.3	17.5	17.8	17.5	17.9
4 - Calvine Rd to Bond Rd	2.7	6.7	6.9	5.2	5.0	5.2	5.0	4.5	4.6	7.3	7.2
5- Bond Rd to SR 99	4.3	8.5	9.1	9.3	10.7	9.3	10.7	7.7	8.1	8.3	9.7
6 - SR 99 to I-5	6.5	9.6	9.8	7.9	8.2	8.8	9.1	8.9	8.7	8.8	9.0
Total Corridor	**33.7**	**62.9**	**71.0**	**54.2**	**55.8**	**55.8**	**56.9**	**51.6**	**53.8**	**57.5**	**58.6**
Difference from Future Without-Project Conditions				-8.7	-15.2	-7.1	-14.2	-11.3	-17.2	-5.4	-12.5
Percent Difference				-14%	-21%	-11%	-20%	-18%	-24%	-9%	-18%
2 & 3 - Expressway Segments	**17.9**	**31.8**	**39.9**	**24.7**	**25.3**	**25.6**	**25.5**	**23.6**	**25.9**	**25.2**	**26.0**
Difference from Future Without-Project Conditions				-7.1	-14.6	-6.2	-14.4	-8.1	-14.0	-6.5	-13.9
Percent Difference				-22%	-37%	-20%	-36%	-26%	-35%	-21%	-35%
Source: DKS Associates 2010.											

Change in Transit Use

For the purposes of the Connector EIR, all of the project options assume increased frequency, transit signal priority equipment and selected transit queue jumps on three "high bus" routes in RT's Transit Action Plan: Bradshaw Road, Rancho Cordova Parkway and Easton Valley Parkway

All of the proposed project options also assume:

- Extension of the future Easton Valley Parkway "high bus" route to the employment centers in both Rancho Cordova and the El Dorado Hills. The Baseline assumes that the Easton Valley Parkway route would be limited to RT's 2035 "high bus" network (between Hazel Avenue and Scott Road)
- A peak period only commute service from Lent Ranch to the El Dorado Hills Town Center along Grant Line Road and White Rock Road.
- Six park and ride lots at strategic locations along Kammerer Road, Grant Line Road and White Rock Road.

Safety Concerns

The proposed project would use "access management" to reduce the amount of access points and to use design features to control access points, especially on segments designated to have an expressway standard (Grant Line Road from north of Calvine Road to White Rock Road and White Rock Road from Grant Line Road to the El Dorado County line). Access control increases the capacity of a roadway and reduces delay. It maximizes a roadway's efficiency and helps to preserve the level of service of a roadway as development occurs. Yet, a major benefit of access management is a reduction in accidents.

An important resource in the design of streets and highways in the US is "A Policy on Geometric Design of Highways and Streets" (American Association of State Highway and Transportation Officials 2004) – also called the AASHTO "Green Book". This manual emphasizes access control and access management, and indicates that "as the number of driveways along a highway increases, the crash rate also increases". It provides considerable information on average crash rates (i.e., accidents per million vehicle-miles on a roadway) for different facility types which vary by the number of access points per mile.

Most segments along the project alignment currently have a limited number of existing unsignalized access points (i.e., driveways and local roadways) between the arterial roadways and thoroughfares that intersect the Connector and measures have been identified to further control access on those segments. However, Grant Line Road has about 89 existing access points in the 2.7 mile section from Calvine Road to Bond Road through the Sheldon area – or about 33 access points per mile. On average there is a driveway or local road intersecting Grant Line Road every 160 feet between Calvine Road and Bond Road.

Under the future without-project conditions and the High Access Roadway Option, all of the access points along Grant Line Road through the Sheldon area would be maintained. Under the Reduced Access Roadway Option, access to Grant Line Road from driveways and local roadways would be reduced and replaced by combined driveways or alternative access roads. Access was assumed to provided at only five signalized intersections along Grant Line Road: Bond Road, Wilton Road, Aleilani Lane, Sheldon Road and Calvine Road.

Under Deer Creek Causeway Option 1, the proposed project would have no access between it connections to Grant Line near Waterman Road and north of Calvine Road. Likewise, the proposed project under Deer Creek Causeway Option 2 would have no access between it connections to Grant Line near Bradshaw Road and north of Calvine Road. These options would have less than one access point per mile.

Information in the ASSHTO Green Book indicates that:

- Crash rates in the Sheldon Area for the High Access Roadway Option will be similar to the future without-project conditions
- Crash rates for the Reduced Access Roadway Option and both Deer Creek Causeway Options 1 and 2 would be less than half the rate for the future without-project conditions. Therefore, these options would substantially improve safety in the Sheldon area.

Construction Related Traffic Management

During construction, emergency access to and in the vicinity of the proposed project potentially could be affected by lane closures, detours, and construction-related traffic, as set forth in Impact HAZ-6 (Draft PEIR, p. 9-15). Mitigation Measure HAZ-1 would reduce this impact to a less-than-significant level by requiring the preparation of a Traffic Management Plan (TMP) during the final stage of project design to ensure that there is no interference with emergency vehicles/services, or response/evacuation plans.

The TMP would provide a detailed plan on how traffic would be maintained throughout the construction process and demonstrate that significant traffic congestion levels would be avoided. Typical TMP measures would include:

- Maintaining exiting travel lanes while construction occurs adjacent to the roadway, even if lanes need to be temporarily narrowed
- Construction of temporary traffic bypasses with the same number of travel lanes and similar capacity to travel lanes that are temporarily closed
- Allow some reduction in travel lanes or capacity but not during peak travel hours

The construction of the proposed project would likely occur in phases and would require accommodating existing traffic flows and maintaining existing access to properties along the corridor (both on the project alignment and on roadways adjacent to the alignment). The proposed project alignment primarily travels through areas with limited development. Thus along the corridor there does not appear to be locations with constraints that would preclude use of typical construction traffic management methods that would maintain existing traffic and access.

Many jurisdictions and agencies also require the preparation of a TMP for a roadway improvement project. With this requirement, and the lack of constraints to typical construction traffic management methods along the proposed project alignment, there would not be significant traffic–related impacts during the project construction period.

16.5.4 Off-Corridor Multi-Use Path Alternative

The Off-Corridor Multi-Use Path may induce some auto users to shift to non-motorized modes for travel within the traffic analysis study area but it is not anticipated that it would significantly reduce traffic volumes or the resulting level of service impacts for the proposed project or its options, including impacts on project roadways, non-project roadways and freeways.

The Off-Corridor Multi-Use Path would provide benefits to bikeway or pedestrian facilities that would be in additional to the benefits provided by the proposed project. The Off-Corridor Multi-Use Path would also have the same impacts related to transit and safety as the proposed project

16.5.5 Impacts of the Project Options Under 2035 Conditions (Comparing "Future Without-Project" Conditions)

16.5.5.1 Kammerer Road Bypass Option

The Kammerer Road Bypass involves shifts in the proposed project alignment in two short sections:

- West of Franklin Boulevard this bypass would shift the Connector to the south, extend eastward and then shift north to tie back into the proposed Kammerer Road extension east of the proposed Willard Parkway extension, Franklin Boulevard and the proposed Willard Parkway and thus would result in the same levels of service in this segment as the proposed Connector alignment.
- East of Bruceville Road the proposed project alignment would again shift south, continue east and tie back into existing Kammerer Road just east of Big Horn Road.

These shifts in alignment would increase the travel distance and travel time somewhat for vehicles using the western portion of the Connector. It was assumed that the proposed extensions of Willard Parkway and Big Horn Boulevard would extend further south to intersect the Kammerer Road Bypass. Thus this bypass would maintain access on the Connector to Franklin Boulevard, the proposed Willard Parkway, Bruceville Road and Big Horn Boulevard with signalized intersections.

However, the future north-south collector roadway between Bruceville Road and Big Horn Boulevard was assumed to not extend south of existing Kammerer Road to intersect the Kammerer Road Bypass, Not having access to that collector would result in some increase in the volumes on Bruceville Road and Big Horn Boulevard as they intersect the Connector. However, the levels of service at all of the signalized intersections along the Kammerer Road Bypass should be similar as those under the proposed project.

The analysis indicates that the Kammerer Road Bypass would have the same LOS impacts, as the proposed project, including project roadways, non-project roadways and freeways. The Kammerer Road Bypass would also have the same impacts related to bikeways and pedestrian facilities, transit, and safety as the proposed project.

16.5.5.2 Deer Creek Causeway Option 1

Impact TRF-1: Proposed Project with Deer Creek Causeway Option 1 would increase traffic volumes but not adversely affect levels of service along the project alignment.

As shown in Figure 16-8 and Tables 16-15 and 16-18, the proposed project with Deer Creek Causeway Option 1 would cause traffic increases on all of the roadway segments that make up the proposed project, especially the expressway segments.

Grade-separated interchanges would substantially increase the capacity of the expressway segments of the proposed project and thus provide acceptable levels of service on those segments. The segment analysis indicates that increases in daily traffic volumes on the thoroughfare segments of the proposed project with Deer Creek Causeway Option 1 would result in a significant LOS impact on one segment located in Elk Grove:

- Grant Line Road from East Stockton Boulevard to SR 99 – the increase in traffic due to the project would cause LOS D conditions under the 2035 Baseline to worsen to LOS E conditions

While the roadway segment analysis indicates that this segment would operate at LOS E, the peak hour intersection analysis (see Table 16-20) indicates the following:

- The Grant Line Road/East Stockton Boulevard would operate at LOS B conditions in 2035.
- The Grant Line Road/SR 99 Northbound Ramps would operate at LOS B conditions in 2035.

Since the peak hour analysis indicates acceptable operations in 2035 with the provision of additional turn lanes, no additional measures are required to mitigate the LOS impacts on the segments of Grant Line Road from East Stockton Boulevard to SR 99

Impact TRF-2: Proposed Project with Deer Creek Causeway Option 1 would increase traffic volumes and adversely affect levels of service on non-project roadway segments and intersections in the traffic analysis study area

As shown in Figure 16-8 and Tables 16-16 and 16-19, the proposed project with Deer Creek Causeway Option 1 would decrease traffic on most non-project roadway segments in the traffic analysis study area. However, the proposed project with Deer Creek Causeway Option 1 would cause traffic increases on most of the proposed project's cross streets near where they intersect the Connector. The segment analysis indicates that increases in daily traffic volumes on these segments would result in significant LOS impacts on the following segments:

- Prairie City Road from Easton Valley Road to White Rock Road – the increase in traffic due to the project would cause the volume/capacity ratio on this LOS D segment to increase by more than 0.05 and result in LOS F conditions.
- Scott Road (E) from US 50 to Easton Valley Parkway – the increase in traffic due to the project would cause the volume/capacity ratio on this LOS E segment to increase by more than 0.05 and result in LOS F conditions.

As shown on Table 16-21, the proposed project with Deer Creek Causeway Option 1 would result in LOS impacts at the following intersections on roadways that provide access to the Connector:

- Latrobe Road and Town Center Boulevard – the increase in traffic due to the project would increase delay at this LOS F intersection by more than 5 seconds.

- White Rock Road and Rancho Cordova Parkway – the increase in traffic due to the project would increase delay at this intersection by more than 5 seconds but would remain at LOS E conditions.
- East Bidwell Street and Iron Point Road – the increase in traffic due to the project would increase delay at this LOS E intersection by more than 5 seconds and cause LOS F conditions.

This is a ***significant impact***.

Mitigation Measure TRF-1: Widen roadway segments and intersections

Potential mitigation measures for this impact are as follows:

- Widen Prairie City Road from Easton Valley Road to White Rock Road to six lanes
- Widen Scott Road (E) from US 50 to Easton Valley Parkway to eight lanes
- Latrobe Road and Town Center Boulevard – The 2035 analysis was based on the existing geometry at this intersection. Currently the westbound approach exiting the Town Center has a left-turn lane, a shared through and right-turn lane and a separate right-turn lane. The LOS impact at this intersection can be reduced to a less-than-significant level by providing a left-turn lane, a through and two right-turn lanes on the westbound approach.
- White Rock Road and Rancho Cordova Parkway – It was assumed that this intersection would have two left turn lanes, three through lanes and a separate right turn lane on each approach. The represents the typical maximum at-grade geometrics used by the City of Rancho Cordova. Additional improvements that could mitigate the LOS impact might include four-through lanes or a triple left-turn lane on one or more approach or a grade separation.
- East Bidwell Street and Iron Point Road - It was assumed that this intersection would have two left turn lanes, three through lanes and a separate right turn lane on each approach. This represents the typical maximum at-grade geometrics used by the City of Folsom. Additional improvements might include four through-lanes or a triple left-turn lane on one or more approach.

The measures required to mitigate the LOS impacts on non-project roadway segments would involve improvements beyond those planned by local jurisdictions, including some improvements which may not meet the policies of local jurisdictions due concerns about adverse impacts to bicyclists and pedestrians. Improvements on non-project roadways would need to be implemented by local jurisdictions. Since local jurisdictions may choose not to implement them and the Capital SouthEast Connector JPA cannot ensure their implementation, this impact is considered ***significant and unavoidable.***

Impact TRF-3: The proposed project with Deer Creek Causeway Option 1 would not adversely affect traffic levels of service on freeways in the traffic analysis study area

As shown in Figure 16-8 and Tables 16-17, 16-22 and 16-23, the proposed project with Deer Creek Causeway Option 1 would decrease traffic on most of the freeway segments in the traffic analysis study area and not cause any LOS impacts on the freeway mainline or at any ramps junctions. The proposed project with Deer Creek Causeway Option 1 would thus provide a benefit to freeway traffic operations compared to the future without-project conditions.

This impact is considered less than significant under the proposed project with Deer Creek Causeway Option 1.

Impact TRF-4: The proposed project with Deer Creek Causeway Option 1 would not adversely affect existing or planned bikeway or pedestrian facilities

The proposed project would not adversely affect any existing or planned bicycle or pedestrian facilities. The future without-project conditions would likely have on-street (Class II) bike lanes along all segments of the alignment of the proposed project. The proposed project with Deer Creek Causeway Option 1 would add off-street (Class I) bike trails along the expressway segments of the project and thereby provide two types of bikeways in those segments, which would provide a benefit compared to the future without-project conditions.

This impact is considered less than significant for the proposed project with Deer Creek Causeway Option 1.

Impact TRF-5: The proposed project with Deer Creek Causeway Option 1 would not adversely affect existing or planned transit facilities, routes or services

The transit policies adopted by the Connector JPA Board as part of the project would provide capital funding, beyond what would be available under the future without-project conditions, for cost-effective transit facilities. To the extent that the implementation of the JPA's transit policies will not decrease funding available for transit service in the future, or impact existing or planned transit, and may increase transit service in the future, this impact is considered less than significant under the proposed project with Deer Creek Causeway Option 1.

Impact TRF-6: The proposed project with Deer Creek Causeway Option 1 would not conflicts with General Plan principles for transit-supportive development

The transit policies adopted by the Connector JPA Board as part of the project would target capital improvements to transit facilities and services in a way that encourages smart growth in the traffic analysis study area, especially the creation of villages or "nodes" of development of significant size and density that are easy to serve by transit, to reach desired levels of transit ridership beyond that available under the Baseline. The proposed project with Deer Creek Causeway Option 1 would thus provide a benefit to transit-supportive development compared to the future without-project conditions.

This impact is considered less than significant under the proposed project with Deer Creek Causeway Option 1.

Impact TRF-7: The proposed project with Deer Creek Causeway Option 1 would not increase hazards due to design features

The proposed project would reduce the number of existing access points along the project alignment by eliminating many (but not all) existing driveways as well as connections to smaller local roadways. It would also limit the number of new access points along the project alignment to planned arterial roadways and some new major collector roadways.

Deer Creek Causeway Option 1 would not have any access to the proposed project between Waterman Road and Calvine Road.

Accident/crash rates decrease as the number of access points decrease. Deer Creek Causeway Option 1 would reduce access from an average of 33 access points per mile under the future without-project conditions through the Sheldon area to less than one access point per mile. The accident/crash rate for Deer Creek Causeway Option 1 would be less than half the rate for the Baseline. The proposed project with Deer Creek Causeway Option 1 would thus provide a benefit to safety compared to the future without-project conditions.

This impact is considered less than significant under the proposed project with Deer Creek Causeway Option 1.

16.5.5.3 Deer Creek Causeway Option 2

Impact TRF-8: Proposed Project with Deer Creek Causeway Option 2 would increase traffic volumes but not adversely affect levels of service along the project alignment.

As shown in Figure 16-9 and Tables 16-15 and 16-18, the proposed project with Deer Creek Causeway Option 2 would cause traffic increases on all of the roadway segments that make up the proposed project, especially the expressway segments.

Grade-separated interchanges would substantially increase the capacity of the expressway segments of the proposed project and thus provide acceptable levels of service on those segments. The segment analysis indicates that increases in daily traffic volumes on the thoroughfare segments of the proposed project with Deer Creek Causeway Option 2 would result in a significant LOS impact on one segment located in Elk Grove:

- Grant Line Road from East Stockton Boulevard to SR 99 – the increase in traffic due to the project would cause LOS D conditions under the 2035 future without-project conditions to worsen to LOS E conditions

While the roadway segment analysis indicates that this segment would operate at LOS E, the peak hour intersection analysis (see Table 16-20) indicates the following:

- The Grant Line Road/East Stockton Boulevard would operate at LOS B conditions in 2035.
- The Grant Line Road/SR 99 Northbound Ramps would operate at LOS B conditions in 2035.

Since the peak hour analysis indicates an acceptable operations in 2035 with the provision of additional turn lanes, no additional measures are required to mitigate the LOS impacts on the segments of Grant Line Road from East Stockton Boulevard to SR 99.

Impact TRF-9: Proposed Project with Deer Creek Causeway Option 2 would increase traffic volumes and adversely affect levels of service on non-project roadway segments and intersections in the traffic analysis study area

As shown in Figure 16-9 and Tables 16-16 and 16-19, the proposed project with Deer Creek Causeway Option 2 would decrease traffic on most non-project roadway segments in the traffic analysis study area. However, the proposed project with Deer Creek Causeway Option 2 would cause traffic increases on most of the proposed project's cross streets near where they intersect the Connector. The segment analysis indicates that increases in daily traffic volumes on these segments would result in significant LOS impacts on the following segments:

- Prairie City Road from Easton Valley Road to White Rock Road – the increase in traffic due to the project would cause the volume/capacity ratio on this LOS D segment to increase by more than 0.05 and result in LOS F conditions.
- Scott Road (E) from US 50 to Easton Valley Parkway – the increase in traffic due to the project would cause the volume/capacity ratio on this LOS E segment to increase by more than 0.05 and result in LOS F conditions.

As shown on Table 16-21, the proposed project with Deer Creek Causeway Option 2 would result in LOS impacts at the following intersections on roadways that provide access to the Connector:

- Latrobe Road and Town Center Boulevard – the increase in traffic due to the project would increase delay at this LOS F intersection by more than 5 seconds.
- White Rock Road and Rancho Cordova Parkway – the increase in traffic due to the project would increase delay at this intersection by more than 5 seconds but would remain at LOS E conditions.
- East Bidwell Street and Iron Point Road – the increase in traffic due to the project would increase delay at this LOS E intersection by more than 5 seconds and cause LOS F conditions.

This is a significant impact.

Mitigation Measure TRF-2: Widen roadway segments and intersections

The improvements needed to mitigate this impact are the same as Mitigation Measure TRF-1.

The measures required to mitigate the LOS impacts on non-project roadway segments would involve improvements beyond those planned by local jurisdictions, including some improvements which may not meet the policies of local jurisdictions due concerns about adverse impacts to bicyclists and pedestrians. Improvements on non-project roadways would need to be implemented by local jurisdictions. Since local jurisdictions may choose not to implement them and the Capital SouthEast Connector JPA cannot ensure their implementation, this impact is considered ***significant and unavoidable***

Impact TRF-10: The proposed project with Deer Creek Causeway Option 2 would not adversely affect traffic levels of service on freeways in the traffic analysis study area

As shown in Figure 16-9 and Tables 16-17, 16-22 and 16-23, the proposed project with Deer Creek Causeway Option 2 would decrease traffic on most of the freeway segments in the traffic analysis study area and not cause any LOS impacts on the freeway mainline or at any ramps junctions. The proposed project with Deer Creek Causeway Option 2 would thus provide a benefit to freeway traffic operations compared to the future without-project conditions.

This impact is considered less than significant under the proposed project with Deer Creek Causeway Option 2.

Impact TRF-11: The proposed project with Deer Creek Causeway Option 2 would not adversely affect existing or planned bikeway or pedestrian facilities

The proposed project would not adversely affect any existing or planned bicycle or pedestrian facilities. The future without-project conditions would likely have on-street (Class II) bike lanes along all segments of the alignment of the proposed project. The proposed project with Deer Creek

Causeway Option 2 would add off-street (Class I) bike trails along the expressway segments of the project and thereby provide two types of bikeways in those segments, which would provide a benefit compared to the future without-project conditions.

This impact is considered less than significant for the proposed project with Deer Creek Causeway Option 2.

Impact TRF-12: The proposed project with Deer Creek Causeway Option 2 would not adversely affect existing or planned transit facilities, routes or services

The transit policies adopted by the Connector JPA Board as part of the project would provide capital funding, beyond what would be available under the future without-project conditions, for cost-effective transit facilities. To the extent that the implementation of the JPA's transit policies will not decrease funding available for transit service in the future, or impact existing or planned transit, and may increase transit service in the future, this impact is considered less than significant under the proposed project with Deer Creek Causeway Option 2.

Impact TRF-13: The proposed project with Deer Creek Causeway Option 2 would not conflict with General Plan principles for transit-supportive development

The transit policies adopted by the Connector JPA Board as part of the project would target capital improvements to transit facilities and services in a way that encourages smart growth in the traffic analysis study area, especially the creation of villages or "nodes" of development of significant size and density that are easy to serve by transit, to reach desired levels of transit ridership beyond that available under the future without-project conditions. The proposed project with Deer Creek Causeway Option 2 would thus provide a benefit to transit-supportive development compared to the future without-project conditions.

This impact is considered less than significant under the proposed project with Deer Creek Causeway Option 2.

Impact TRF-14: The proposed project with Deer Creek Causeway Option 2 would not increase hazards due to design features

The proposed project would reduce the number of existing access points along the project alignment by eliminating many (but not all) existing driveways as well as connections to smaller local roadways. It would also limit the number of new access points along the project alignment to planned arterial roadways and some new major collector roadways.

Deer Creek Causeway Option 2 would not have any access to the proposed project between Bradshaw Road and Calvine Road.

Accident/crash rates decrease as the number of access points decrease. Deer Creek Causeway Option 2 would reduce access from an average of 33 access points per mile under the Baseline through the Sheldon area to less than one access point per mile. The accident/crash rate for Deer Creek Causeway Option 2 would be less than half the rate for the Baseline. The proposed project with Deer Creek Causeway Option 2 would thus provide a benefit to safety compared to the future without-project conditions.

This impact is considered less than significant under the proposed project with Deer Creek Causeway Option 2.

16.5.5.4 Reduced Access Roadway Option

Impact TRF-15: The proposed project with the Reduced Access Roadway Option would Increase traffic volumes but not adversely affect levels of service along the project alignment.

As shown in Figure 16-10 and Tables 16-15 and 16-18, the proposed project with the Reduced Access Roadway Option would cause traffic increases in 2035 compared to the future without-project conditions on all of the roadway segments that make up the proposed project, especially the expressway segments.

Grade-separated interchanges would substantially increase the capacity of the expressway segments of the proposed project and thus provide acceptable levels of service on those segments in 2035 with the proposed project. The segment analysis indicates that increases in daily traffic volumes on the thoroughfare segments of the proposed project with the Reduced Access Roadway Option would result in significant LOS impacts in 2035 on the following segments located in Elk Grove:

- Grant Line Road from Wilton Road to Bond Road – the increase in traffic due to the project would cause LOS D conditions to worsen to LOS E conditions
- Grant Line Road from East Stockton Boulevard to SR 99 – the increase in traffic due to the project would cause LOS D conditions to worsen to LOS E conditions

While the roadway segment capacities used in this analysis are consistent with those used by local jurisdictions, they are based on high to moderate cross-street volumes. Since cross-street volumes in the Sheldon area will be relatively low, the capacity of Grant Line Road between Bond Road and Sheldon Road with the Reduced Access Roadway Option will be somewhat higher than the assumed segment capacities and thus levels of service will be better. While the roadway segment analysis indicates that Grant Line Road from Sheldon Road to Bond Road would operate at LOS E, the peak hour intersection analysis indicates the following:

- The Grant Line Road/Wilton Road would operate at LOS C conditions in 2035. This analysis assumes that two southbound to eastbound left-turn lanes would be provided at this intersection
- The Grant Line Road/Bond Road would operate at LOS B conditions in 2035.

While the roadway segment analysis indicates that Grant Line Road from East Stockton Boulevard to SR 99 would operate at LOS E, the peak hour intersection analysis (shown in Table 16-20) indicates the following:

- The Grant Line Road/East Stockton Boulevard would operate at LOS B conditions in 2035.
- The Grant Line Road/SR 99 Northbound Ramps would operate at LOS B conditions in 2035.

Since the peak hour analysis indicates an acceptable operations in 2035 with the provision of additional turn lanes, no additional measures are required to mitigate the LOS impacts on the following roadway segments:

- Grant Line Road from Wilton Road to Bond Road
- Grant Line Road from East Stockton Boulevard to SR 99

Impact TRF-16: The proposed project with the Reduced Access Roadway Option would increase traffic volumes and adversely affect levels of service on some non-project roadways and intersections in the traffic analysis study area

As shown in Figure 16-10 and Tables 16-16 and 16-19, the proposed project with the Reduced Access Roadway Option would decrease traffic on most non-project roadway segments in the traffic analysis study area and thus provide a benefit to traffic operations on a number of roadways However, the proposed project with the Reduced Access Roadway option would cause traffic increases on the proposed project's cross streets near where they intersect the proposed project. The segment analysis indicates that increases in daily traffic volumes on these segments would result in significant LOS impacts on the following segments:

- Prairie City Road from Easton Valley Road to White Rock Road – the increase in traffic due to the project would cause the volume/capacity ratio on this LOS D segment to increase by more than 0.05 and result in LOS F conditions.
- Scott Road (E) from US 50 to Easton Valley Parkway – the increase in traffic due to the project would cause the volume/capacity ratio on this LOS E segment to increase by more than 0.05 and result in LOS F conditions.
- Elk Grove Boulevard from Waterman Road to Bradshaw Road – the increase in traffic due to the project would cause the volume/capacity ratio on this LOS E segment to increase by more than 0.05 and result in LOS F conditions.

As shown on Table 16-21, the proposed project with the Reduced Access Roadway Option would result in LOS impacts at the following intersections on roadways that provide access to the Connector:

- Latrobe Road and Town Center Boulevard – the increase in traffic due to the project would increase delay at this LOS F intersection by more than 5 seconds.
- White Rock Road and Rancho Cordova Parkway – the increase in traffic due to the project would increase delay at this intersection by more than 5 seconds but would remain at LOS E conditions.
- East Bidwell Street and Iron Point Road – the increase in traffic due to the project would increase delay at this LOS E intersection by more than 5 seconds and cause LOS F conditions.

This is a significant impact.

Mitigation Measure TRF-3: Widen roadway segments and intersections

The improvements needed to mitigate this impact are the same as Mitigation Measure TRF-1 except for one.

The widening of Elk Grove Boulevard from Waterman Road to Bradshaw Road to four lanes would also be required for Mitigation Measure TRF-2

The measures required to mitigate the LOS impacts on non-project roadway segments would involve improvements beyond those planned by local jurisdictions, including some improvements which may not meet the policies of local jurisdictions due concerns about adverse impacts to bicyclists and pedestrians. Improvements on non-project roadways would need to be implemented by local jurisdictions. Since local jurisdictions may choose not to implement them and the Capital SouthEast Connector JPA cannot ensure their implementation, this impact is considered significant and unavoidable.

Impact TRF-17: The proposed project with the Reduced Access Roadway Option would not adversely affect traffic levels of service on freeways in the traffic analysis study area

As shown in Figure 16-10 and Tables 16-17, 16-22 and 16-23, the proposed project with the Reduced Access Roadway Option would decrease traffic on most of the freeway segments in the traffic analysis study area and not cause any LOS impacts on the freeway mainline or at any ramps junctions. The proposed project with the Reduced Access Roadway Option would thus provide a benefit to freeway traffic operations compared to the future without-project conditions.

This impact is considered less than significant under all of the project options.

Impact TRF-18: The proposed project with the Reduced Access Roadway Option would not adversely affect existing or planned bikeway or pedestrian facilities

The proposed project would not adversely affect any existing or planned bicycle or pedestrian facilities. The future without-project conditions would likely have on-street (Class II) bike lanes along all segments of the alignment of the proposed project. The proposed project with the Reduced Access Roadway Option would add off-street (Class I) bike trails along the expressway segments of the project and thereby provide two types of bikeways in those segments, which would provide a benefit compared to the future without-project conditions.

This impact is considered less than significant under all of the project options.

Impact TRF-19: The proposed project with the Reduced Access Roadway Option would not adversely affect existing or planned transit facilities, routes or services

The transit policies adopted by the Connector JPA Board as part of the project would provide capital funding, beyond what would be available under the future without-project conditions, for cost-effective transit facilities. To the extent that the implementation of the JPA's transit policies will not decrease funding available for transit service in the future, or impact existing or planned transit, and may increase transit service in the future, this impact is considered less than significant under the proposed project with the Reduced Access Roadway Option.

Impact TRF-20: The proposed project with the Reduced Access Roadway Option would not conflict with General Plan principles for transit-supportive development

The transit policies adopted by the Connector JPA Board as part of the project would target capital improvements to transit facilities and services in a way that encourages smart growth in the traffic analysis study area, especially the creation of villages or "nodes" of development of significant size and density that are easy to serve by transit, to reach desired levels of transit ridership beyond that available under the future without-project conditions. The proposed project with the Reduced Access Roadway Option would thus provide a benefit to transit-supportive development compared to the future without-project conditions.

This impact is considered less than significant under the proposed project with the Reduced Access Roadway Option.

Impact TRF-21: The proposed project with the Reduced Access Roadway Option would not increase hazards due to design features

The proposed project would reduce the number of existing access points along the project alignment through the Sheldon area. It would also limit the number of new intersections with planned arterial roadways along the project alignment and some new major collector roadways. Under the Reduced Access Roadway Option, access to Grant Line Road from driveways and local roadways between Calvine Road and Bond Road would be consistent with Table 2-2 at page 2-20.

Generally, accident/crash rates decrease as the number of access points decrease. Because the Reduced Access Roadway Option would reduce access, the proposed project with the Reduced Access Roadway Option would provide a benefit to safety as compared to future without-project conditions. This impact is considered less than significant.

16.5.5.5 High Access Roadway Option

Impact TRF-22: Proposed Project with the High Access Roadway Option would increase traffic volumes and would adversely affect levels of service along the project alignment.

As shown in Figure 16-11 and Tables 16-15 and 16-18, the proposed project with the High Access Roadway Option would cause traffic increases on all of the roadway segments that make up the proposed project, especially the expressway segments.

Grade-separated interchanges would substantially increase the capacity of the expressway segments of the Connector and thus provide acceptable levels of service on those segments. The segment analysis indicates that increases in daily traffic volumes on the thoroughfare segments of the Connector with the High Access Roadway Option would result in significant LOS impacts on the following segments located in Elk Grove:

- Grant Line Road from Sheldon Road to Wilton Road – the increase in traffic due to the project would cause the volume/capacity ratio on this LOS E segment to increase by more than 0.05 and result in LOS F conditions.
- Grant Line Road from Wilton Road to Bond Road – the increase in traffic due to the project would cause LOS D conditions to worsen to LOS E conditions

As shown in Table 16-20, the peak hour intersection analysis indicates the following:

- The Grant Line Road/Aleilani Lane would operate at LOS F conditions in 2035.
- The Grant Line Road/Wilton Road would operate at LOS F conditions in 2035.

Mitigation Measure TRF-4: Widen roadway segments and intersections

The LOS impacts on Grant Line Road in the Sheldon area could be mitigated by widening Grant Line Road to six lanes from Sheldon Road to Bond Road since adding through lanes at the signalized intersection on Grant Line Road would reduce delay at those intersections to acceptable levels. However, a simple widening would maintain the existing access to Grant Line Road and not improve safety the compared to the future without-project conditions.

With implementation of either mitigation measure, the impact would be reduced to less than significant.

Impact TRF-23: Proposed Project with the High Access Roadway Option would increase traffic volumes and affect levels of service on non-project roadway segments in the traffic analysis study area

As shown in Figure 16-11 and Tables 16-16 and 16-19, the proposed project with the High Access Roadway Option would decrease traffic on most non-project roadway segments in the traffic analysis study area. However, the proposed project with the Reduced Access Roadway option would cause traffic increases on most of the Connector's cross streets near where they intersect the Connector. The segment analysis indicates that increases in daily traffic volumes on these segments would result in significant LOS impacts on the following segments:

Prairie City Road from Easton Valley Road to White Rock Road – the increase in traffic due to the project would cause the volume/capacity ratio on this LOS D segment to increase by more than 0.05 and result in LOS F conditions.

Scott Road (E) from US 50 to Easton Valley Parkway – the increase in traffic due to the project would cause the volume/capacity ratio on this LOS E segment to increase by more than 0.05 and result in LOS F conditions.

Elk Grove Boulevard from Waterman Road to Bradshaw Road – the increase in traffic due to the project would cause the volume/capacity ratio on this LOS E segment to increase by more than 0.05 and result in LOS F conditions.

As shown on Tables 16-21, the proposed project with the High Access Roadway Option would result in LOS impacts at the following intersections on roadways that provide access to the proposed project:

White Rock Road and Rancho Cordova Parkway – the increase in traffic due to the project would increase delay at this intersection by more than 5 seconds but would remain at LOS E conditions.

Latrobe Road and Town Center Boulevard – the increase in traffic due to the project would increase delay at this LOS F intersection by more than 5 seconds.

East Bidwell Street and Iron Point Road – the increase in traffic due to the project would increase delay at this LOS E intersection by more than 5 seconds and cause LOS F conditions.

Mitigation Measure TRF-5: Widen roadway segments and intersections

The improvements needed to mitigate this impact would be the same as Mitigation Measure TRF-1

The measures required to mitigate the LOS impacts on non-project roadway segments would involve improvements beyond those planned by local jurisdictions, including some improvements which may not meet the policies of local jurisdictions due to concerns about adverse impacts to bicyclists and pedestrians. Improvements on non-project roadways would need to be implemented by local jurisdictions. Since local jurisdictions may choose not to implement them and the Capital SouthEast Connector JPA cannot ensure their implementation, this impact is considered significant and unavoidable.

Impact TRF-24: The proposed project with the High Access Roadway Option would not adversely affect traffic levels of service on freeways in the traffic analysis study area

As shown in Figure 16-11 and Tables 16-17, 16-22 and 16-23, the proposed project with the High Access Roadway Option would decrease traffic on most of the freeway segments in the traffic analysis study area and not cause any LOS impacts on the freeway mainline or at any ramps junctions. The proposed project with the High Access Roadway Option would thus provide a benefit to freeway traffic operations compared to the future without-project conditions.

This impact is considered less than significant under the proposed project with the High Access Roadway Option.

Impact TRF-25: The proposed project with the High Access Roadway Option would not adversely affect existing or planned bikeway or pedestrian facilities

The proposed project would not adversely affect any existing or planned bicycle or pedestrian facilities. The Baseline would likely have on-street (Class II) bike lanes along all segments of the alignment of the proposed project. The proposed project with the High Access Roadway Option would add off-street (Class I) bike trails along the expressway segments of the project and thereby provide two types of bikeways in those segments, which would provide a benefit compared to the future without-project conditions.

This impact is considered less than significant under the proposed project with the High Access Roadway Option.

Impact TRF-26: The proposed project with the High Access Roadway Option would not adversely affect existing or planned transit facilities, routes or services

The transit policies adopted by the Connector JPA Board as part of the project would provide capital funding, beyond what would be available under the future without-project conditions, for cost-effective transit facilities. To the extent that the implementation of the JPA's transit policies will not decrease funding available for transit service in the future, or impact existing or planned transit, and may increase transit service in the future, this impact is considered less than significant under the proposed project with the High Access Roadway Option.

Impact TRF-27: The proposed project with the High Access Roadway Option would not conflict with General Plan principles for transit-supportive development

The transit policies adopted by the Connector JPA Board as part of the project would target capital improvements to transit facilities and services in a way that encourages smart growth in the traffic analysis study area, especially the creation of villages or "nodes" of development of significant size and density that are easy to serve by transit, to reach desired levels of transit ridership beyond that available under the future without-project conditions. The proposed project with the High Access Roadway Option would thus provide a benefit to transit services compared to the future without-project conditions.

This impact is considered less than significant under the proposed project with the High Access Roadway Option.

Impact TRF-28: The proposed project with the High Access Roadway Option would not increase hazards due to design features

The proposed project would reduce the number of existing access points along the project alignment outside of the Sheldon areas by eliminating many (but not all) existing driveways as well as connections to smaller local roadways. It would also limit the number of new access points along the project alignment to planned arterial roadways and some new major collector roadways.

Under the High Access Roadway Option, access to all driveways and local roadways in the Sheldon area would be maintained, but nearly all would be limited to right turns. As under existing conditions, there would be about 33 access points per mile. The accident/crash along Grant Line Road through the Sheldon area under the High Access Roadway Option would be the same as the future without-project conditions The proposed project with the High Access Roadway Option would thus not provide any benefit to safety compared to the future without-project conditions.

This impact is considered less than significant under the proposed project with the High Access Roadway Option.

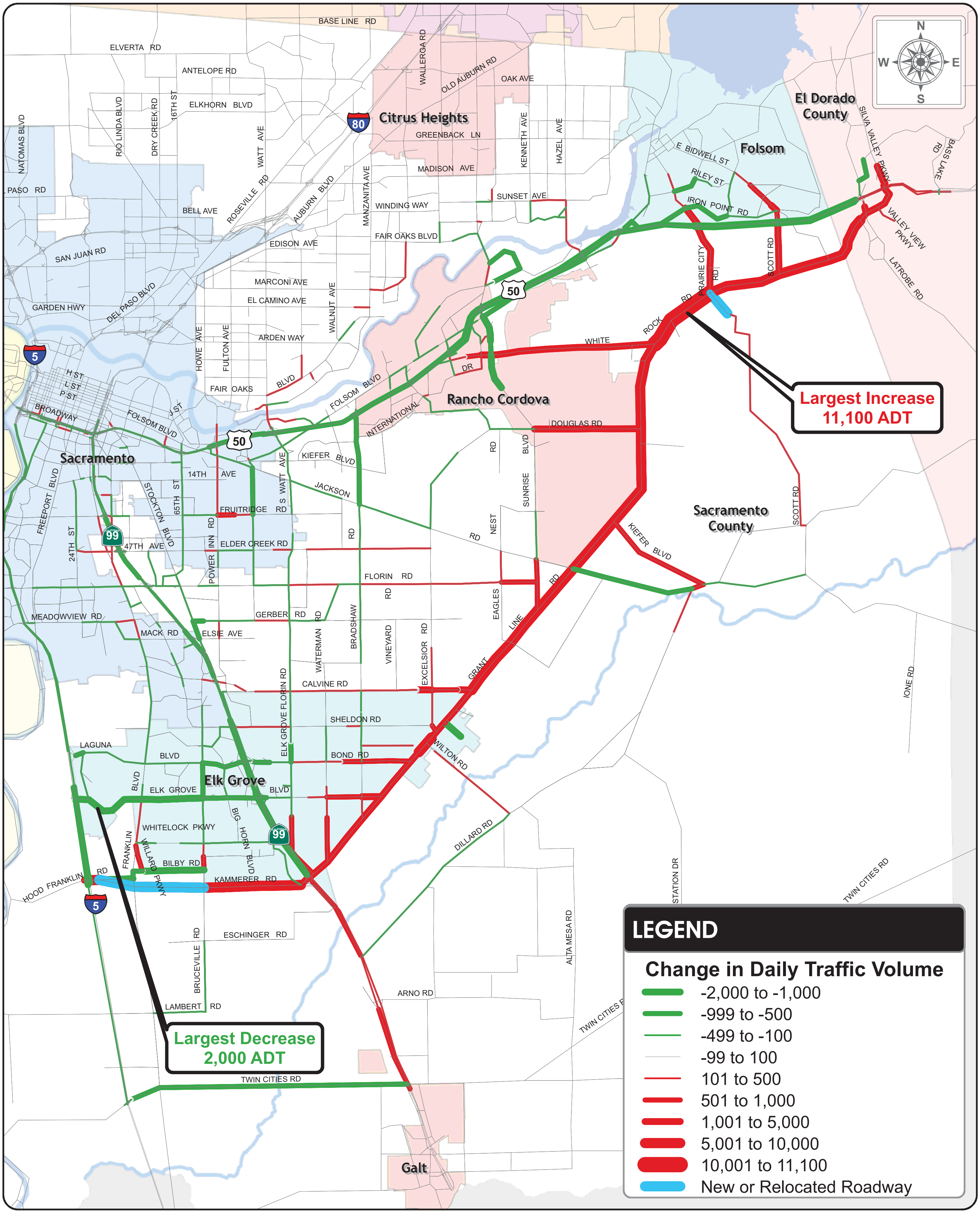
16.5.6 Analysis of 2008 Baseline (Comparing Existing-Plus-Project Conditions)

The Capital SouthEast Connector will be built in phases. While full implementation of all phases/elements of the Connector might take many years, it is reasonable to expect that the Connector Project would be complete by 2025. However, as described under section 16.2.2.1 ("Baseline") above, an analysis of Existing Plus Project conditions with and without Connector Alignment is provided in this section. This existing-plus-project analysis focuses on changes in existing daily volumes and changes in existing roadway segment levels of service to analyze the impacts of the project if the Connector could be fully implemented today.

The travel demand model was used to estimate changes in traffic volumes. For the purposes of this analysis, the number of lanes for the proposed Project is the same as the 2035 Project. On all non-project roadways, the existing number of travel lanes was assumed with and without the proposed project in the travel demand model. The proposed project would not increase or decrease existing transit services available, therefore, existing transit service levels were assumed with and without the proposed Project in the travel demand model.

Table 16-29 summarizes the projected existing-plus-project daily traffic volumes along the project alignment for each project option, and shows the projected change in 2008 daily traffic volumes compared to the 2008 No Project. Table 16-30 summarizes that information on other "non-project" roadways within the traffic analysis study area.

To help show how the Connector would affect traffic patterns and volumes, a "difference plot" was also prepared showing which roadways would have increases and which would have decreases in volumes due to implementation of the proposed project when compared to existing conditions. Figure 16-12 shows these differences with red colors on roadways that would receive increases in volumes and green colors on roadways with decreases in volume. The width of the red or green bands on each roadway provides an indication of the magnitude of the potential change in traffic volumes (compared to the existing condition) with larger changes having the widest band widths. The changes in traffic volumes would differ somewhat between the project options but by limited



DKS Associates
TRANSPORTATION SOLUTIONS

FIGURE 16-12
CHANGE IN EXISTING DAILY TRAFFIC VOLUME
EXISTING VS. EXISTING PLUS PROJECT
CAPITAL SOUTHEAST CONNECTOR

amounts except within the Sheldon area. This figure reflects the high end of the volume range for increases along Grant Line Road within the Sheldon area based on Tables 16-27 and 16-28.

16.5.6.1 Impacts of the Project Under Baseline Conditions

As shown in Figure 16-12, the proposed project would *decrease* traffic on many arterial/collector roadway segments in the traffic analysis study area, as well as *decrease* traffic volumes on portions of US 50, SR 99 and I-5. While all of the project options would decrease traffic volumes on many roadway segments, they would all cause increases in traffic volumes on 1) the Connector (Kammerer Road, Grant Line Road and the portion of White Rock Road east of Grant Line Road) and 2) most major roadways that provide access to the Connector near where they intersect the Connector.

Table 16-31 shows the estimated 2008 levels of service (LOS) on segments of the project alignment for each project option. Table 16-32 shows the estimated volume/capacity ratio, and the resulting LOS in 2008 on other "non-project" roadway segments in the traffic analysis study area.

An assessment of the roadways that would receive traffic volume increases due to the proposed project under existing conditions indicates the following:

- All segments along the Connector alignment would operate at LOS A or B conditions
- The increase in traffic volumes on the non-project roadway segments that provide access to the Connector would not cause significant LOS impacts under existing-plus-project conditions.

Based on the volume/capacity ratios and levels of service for each segment of the proposed project alignment, as reflected in the segment analysis in Table 16-31, all intersections along the project alignment would operate at LOS A or B with the proposed Project under the 2008 No Project. An assessment of peak hour LOS was also calculated for the major intersections on "non-project roadways in the traffic analysis study area that 1) would have a significant increase in traffic volume under one or more of the project options compared to the 2008 No Project, and 2) are located on roadway segments that already operate at LOS C or worse, based on the segment-based LOS analysis. That analysis indicated that the Connector would not cause significant LOS impacts at those intersections under 2008 Baseline conditions ("existing-plus-project" conditions).

A signal warrant analysis was also conducted at unsignalized intersections on those "non-project" roadways that would have a significant increase in traffic volume under one or more of the project options compared to the 2008 No Project. That analysis indicates that the volume increase due to the proposed project would not cause an unsignalized intersection to meet warrants for installation of a traffic signal.

Impact TRF-29: Increase traffic along the project alignment.

As shown in Figure 16-2 and Tables 16-27 through 16-32, the proposed project with the Reduced Access Roadway Option would cause traffic increases on all of the roadway segments that make up the proposed project, especially the expressway segments. The segment analysis indicates, however, that the Level of Service (LOS) on all roadway segments would either remain the same as existing 2008 conditions, or improve to LOS A or B. The proposed project with the Reduced Access Roadway Option would thus provide a benefit to traffic operations along the Project under 2008 conditions. This impact is considered less than significant.

Impact TRF-30: Increase traffic volumes on some non-project roadways and intersections

As shown in Figure 16-12 and Tables 16-27 through 16-32, the proposed project with the Reduced Access Roadway Option would increase traffic volumes on most non-project roadway segments in the traffic analysis study area that provide access to the Connector, but would not cause significant LOS impacts under 2008 conditions. The proposed project with the Reduced Access Roadway option would also cause traffic increases on many of the proposed project's cross streets near where they intersect the proposed project. However, as shown in Table 16-31, this would not result in LOS impacts at any of these intersections or warrant the installation of any new traffic signals. This impact is considered less than significant.

Impact TRF-31: Affect traffic levels of service on freeways in the traffic analysis study area

As shown in Figure 16-12, the proposed project with the Reduced Access Roadway Option would decrease traffic on most of the freeway segments in the traffic analysis study area and would not cause any LOS impacts on the freeway mainline segments. The proposed project with the Reduced Access Roadway Option would thus provide a benefit to freeway traffic operations under 2008 conditions. This impact is considered less than significant.

Impact TRF-32: Affect existing or planned bikeway or pedestrian facilities

The proposed project would not adversely affect any existing or planned bicycle or pedestrian facilities. Under existing conditions, some portions of the study area have on-street (Class II) bike lanes along all segments of the alignment of the proposed project, but not all. The proposed project with the Reduced Access Roadway Option would add off-street (Class I) bike trails along the expressway segments of the project and thereby provide two types of bikeways in those segments, which would provide a benefit compared to existing conditions. This impact is considered less than significant.

Impact TRF-33: Affect existing or planned transit facilities, routes or services

The transit policies adopted by the Connector JPA Board as part of its Integrated Modes Policy would provide capital funding, beyond what would be available in the absence of the Project, for cost-effective transit facilities and capital improvements on routes parallel to the Project that can demonstrate strong potential for high-use service. As there are no existing or planned transit facilities, routes, or services planned for the Project at this time, the Project has no impact on existing conditions for transit services. To the extent that the implementation of the JPA's transit policies may increase transit service in the future, it may provide a future benefit to transit services. This impact is considered less than significant.

Impact TRF-34: Consistency with General Plan principles for transit-supportive development

The transit policies adopted by the Connector JPA Board as part of its Integrated Modes Policy would target capital improvements to transit facilities and services in a way that encourages smart growth in the traffic analysis study area, especially the creation of villages or "nodes" of development of significant size and density that are easy to serve by transit, to reach desired levels of transit ridership beyond that currently available. The proposed project with the Reduced Access Roadway Option does not conflict with transit-supportive development, therefore this impact is considered less than significant.

Impact TRF-35: Increase hazards due to design features

The proposed project would reduce the number of existing access points along the project alignment by eliminating many (but not all) existing driveways as well as connections to smaller local roadways. It would also limit the number of new intersections with planned arterial roadways along the project alignment and some new major collector roadways. Under the Reduced Access Roadway Option, existing access to Grant Line Road through the Sheldon area would be consistent with Table 2-2.

Generally, accident/crash rates decrease as the number of access points decrease. Because the Reduced Access Roadway Option would reduce access, the proposed project with the Reduced Access Roadway Option would provide a benefit to safety under existing conditions. This impact is considered less than significant.

16.5.6.2 Impacts of the Project Options Under Baseline Conditions

The project options, as discussed above, include the Off-Corridor Multi-Use Path, the Kammerer Road Bypass Option, Deer Creek Causeway Options 1 and 2, and the High Access Roadway. The Reduced Access Roadway option has been analyzed in section 16.5.6, above as part of the proposed project.

As shown in Figure 16-2 and Tables 16-27, 16-28, 16-29, and 16-30, all of the Project Options would have impacts on traffic volumes on project segments, non-project roadways, and intersections, similar to those of the proposed project. All of the project options would also decrease traffic on most of the freeway segments in the traffic analysis study area and would not cause any LOS impacts on the freeway mainline segments. Because none of the project options would adversely impact existing traffic volumes, these impacts are considered less than significant.

Similarly, all of the project options would add off-street (Class I) bike trails along the expressway segments of the project, and on street (Class II) bike lanes along all segments that do not currently have Class II bike lanes, except for the Deer Creek Causeway segment, which would not include bike lanes. Because none of the project options would adversely impact existing bicycle and pedestrian facilities, this impact is considered less than significant for all project options.

In addition, none of the project options has any impact on existing or planned transit facilities, routes, or services, as there are no existing or planned transit facilities, routes, or services planned along the project options at this time. Furthermore, the proposed project options would be consistent with the JPA’s Integrated Modes Policy, and would not conflict with transit-supportive development. Therefore, these impacts are considered less than significant.

Finally, the proposed project options, with the exception of the High Access Roadway option, would reduce the number of existing access points along the project alignment by eliminating many existing driveways as well as connections to smaller local roadways. This would provide a benefit to safety as compared to existing conditions. Under the High Access Roadway option, there would be no improvement to safety, however, because it would not increase access points or create additional hazards, this impact is considered less than significant for all project options.

Off-Corridor Multi-Use Path Alternative

The Off-Corridor Multi-Use Path may induce some auto users to shift to non-motorized modes for travel within the traffic analysis study area but it is not anticipated that it would significantly reduce traffic volumes or the resulting level of service impacts for the proposed project or its options, including impacts on project roadways, non-project roadways and freeways.

The Off-Corridor Multi-Use Path would provide benefits to bikeway or pedestrian facilities that would be in additional to the benefits provided by the proposed project. The Off-Corridor Multi-Use Path would also have the same impacts related to transit and safety as the proposed project

16.5.7 Analysis of 2025 Traffic Conditions

The Capital SouthEast Connector will be built in phases. While full implementation of all phases/elements of the Connector might take many years, it is reasonable to expect that the Connector Project would be complete by 2025. A general analysis of 2025 conditions with and without the Connector Alignment project options is provided in this section, focusing on changes in daily volumes and changes in roadway segment levels of service to provide the reader with an indication of the effects of the Connector soon after its assumed completion year.

16.5.7.1 Changes in Daily Traffic Volumes

Table 16-33 summarizes the projected 2025 daily traffic volumes on segments of the project alignment under each project option and shows the projected change in 2025 daily traffic volumes compared to the Baseline.

Table 16-34 compares estimated 2025 daily traffic volumes on other “non-project” roadways in the traffic analysis study area under each of the project alignment project options and shows the change in traffic volumes compared to the Baseline.

16.5.7.2 Changes in Traffic Levels of Service

Table 16-35 shows the estimated 2025 LOS on segments of the project alignment for each project option. This table shows that under the project options, all segments of the proposed project would operate at LOS D or better conditions in 2025 except the following:

- In the Sheldon area, the analysis indicates that Grant Line Road between Bond Road and Sheldon Road would operate at LOS E conditions under the Reduced Access Roadway and High Access Roadway options. The roadway segment capacities used in this analysis are consistent with those used by local jurisdictions and are based on moderate to high cross-street volumes. Since cross-street volumes in the Sheldon area will be low, the capacity of Grant Line Road between Bond Road and Sheldon Road will be higher than typical capacities and thus levels of service will be better.
- Grant Line Road between Bradshaw Road and Waterman Road would operate at LOS E under Deer Creek Causeway Option 1. The MTP indicates that right-of-way would be preserved for six lanes on this segment but it would only be widened to 4 lanes by 2025.

Table 16-36 shows the estimated volume/capacity ratio and the resulting LOS in 2025 on other “non-project” roadway segments under project alignment for each project option.

Table 16-12. Development Assumptions within Traffic Analysis Study Area

Jurisdiction	SACOG SubRAD[1]	Housing Units 2007	Housing Units 2018 SACOG	Housing Units 2025	Housing Units 2035 SACOG	Housing Units 2035	Housing Units 2045 Cumulative	Housing Units Growth 2007 to 2035 SACOG	Housing Units Growth 2007 to 2035	Jobs 2007	Jobs 2018 SACOG	Jobs 2025	Jobs 2035 SACOG	Jobs 2035	Jobs 2045 Cumulative	Jobs Growth 2007 to 2035 SACOG	Jobs Growth 2007 to 2035
Sacramento Co	261	327	328	332	334	334	334	7	7	202	199	201	201	201	201	-1	-1
Elk Grove	181	24,147	22,437	25,633	22,647	26,458	27,761	-1,500	2,311	8,346	7,551	11,067	8,508	12,578	15,411	162	4,232
	182	2,967	7,953	11,988	16,189	17,000	19,345	13,222	14,033	8,665	14,031	22,284	24,689	29,850	42,671	16,024	21,185
	191	7,056	8,147	7,805	8,465	8,221	8,399	1,409	1,165	4,250	3,437	5,918	4,284	6,845	9,574	34	2,595
	192	4,954	10,017	5,745	10,227	6,184	6,429	5,273	1,230	3,637	2,811	4,743	3,950	5,358	8,270	313	1,721
	193	7,386	7,449	7,509	7,904	7,577	7,617	518	191	11,056	10,948	14,482	16,031	16,386	17,478	4,975	5,330
Sacramento Co	170	6,027	23,882	20,317	34,855	28,256	33,311	28,828	22,229	3,573	10,408	8,430	15,502	11,129	20,130	11,929	7,556
	171	2,800	4,887	7,839	10,638	10,638	24,999	7,838	7,838	535	4,999	4,447	6,715	6,621	21,342	6,180	6,086
	222	464	477	4,987	899	7,500	20,905	435	7,036	146	134	2,366	135	3,600	19,505	-11	3,454
	223	3,444	3,462	3,474	3,503	3,490	4,440	59	46	1,248	1,271	1,251	1,269	1,252	1,227	21	4
Rancho Cordova	122-123	22,268	21,776	23,956	22,808	24,894	31,528	540	2,626	42,641	46,264	48,760	50,865	52,159	64,144	8,224	9,518
Rancho Cordova/ Sacramento Co	124	366	3,962	15,082	23,256	23,257	30,272	22,890	22,891	20,867	29,897	37,390	42,328	46,570	61,048	21,461	25,703
Sacramento Co	125	1,700	1,760	1,739	1,756	1,760	2,203	56	60	5,962	13,362	14,042	18,604	18,531	18,713	12,642	12,569
	126	3,819	3,819	3,819	3,819	3,819	3,819	0	0	7,379	7,493	7,483	7,541	7,541	7,541	162	162
Rancho Cordova	127	1,827	15,091	13,169	21,557	19,470	24,761	19,730	17,643	65	4,487	2,434	6,878	3,750	5,846	6,813	3,685
Folsom	61-63	25,573	28,122	28,044	31,549	29,417	29,988	5,976	3,844	40,055	39,820	44,259	46,032	46,595	53,920	5,977	6,540
	64	0	0	6,078	7,323	9,454	10,212	7,323	9,454	0	0	7,660	4,266	11,916	12,919	4,266	11,916
El Dorado Co	851	13,500	14,666	14,527	15,096	15,097	17,508	1,596	1,597	2,980	6,202	3,392	7,055	3,621	4,206	4,075	641
	852	1,174	3,047	5,633	8,111	8,110	8,110	6,937	6,936	8,414	16,011	19,912	22,866	26,299	37,967	14,452	17,885
Totals for Subregion		**129,799**	**181,282**	**207,673**	**250,936**	**250,936**	**311,941**	**121,137**	**121,137**	**170,021**	**219,325**	**260,523**	**287,719**	**310,802**	**422,113**	**117,698**	**140,781**
							Percent Increase	**93%**	**93%**						**Percent Increase**	**69%**	**83%**
Percent of Buildout		**42%**	**58%**	**67%**	**80%**	**80%**	**100%**	**39%**	**39%**	**40%**	**52%**	**62%**	**68%**	**74%**	**100%**	**28%**	**33%**
							Jobs per Housing Unit			**1.31**	**1.21**	**1.25**	**1.15**	**1.24**	**1.35**	**0.97**	**1.16**

Sources: DKS Associates 2010 and SACOG.

Note: See Figure 16-2 for location of SubRADs.

Table 16-15. Change in Future (i.e., 2035 and beyond) Daily Traffic Volume from Future Without-Project Conditions – Along Proposed Project Alignment

Roadway	Segment		Travel Lanes			Average Daily Traffic Volumes						Change in 2035 Average Daily Traffic Volume from Future Without-Project Conditions			
				2035				2035 Proposed Project							
								Deer Creek Causeway				Deer Creek Causeway			
	From	To	2008	Future Without Project	Proposed Project	2008	2035	Option 1	Option 2	Reduced Access Rd	High Access Road	Option 1	Option 2	Reduced Access Rd	High Access Road
White Rock Road	US 50	Valley View Pkwy	2	6	6	9,300	20,300	20,700	20,800	20,800	20,700	400	500	500	400
	Valley View Pkwy	Latrobe Rd	2	6	6	13,700	23,800	25,000	24,900	24,900	24,800	1,200	1,100	1,100	1,000
	Latrobe Rd	Windfield Way	4	4	4	10,100	22,200	23,000	23,000	23,000	22,800	800	800	800	600
	Windfield Way	Four Seasons Dr	2	4	4	7,800	20,600	22,000	21,900	22,000	21,800	1,400	1,300	1,400	1,200
	Four Seasons Dr	Empire Ranch Rd	2	4	4	6,400	18,700	20,400	20,400	20,400	20,300	1,700	1,700	1,700	1,600
	Empire Ranch Rd	Scott Rd (North)	2	4	4E	8,500	26,300	29,500	29,500	29,500	29,400	3,200	3,200	3,200	3,100
	Scott Rd (North)	Oak Av Pkwy	2	6	4E	5,700	42,200	51,900	51,900	51,800	51,600	9,700	9,700	9,600	9,400
	Oak Av Pkwy	Prairie City Rd	2	6	4E	5,700	41,400	52,100	52,200	52,100	51,800	10,700	10,800	10,700	10,400
	Prairie City Rd	Grant Line Rd	2	6	4E+2	9,900	56,400	79,100	79,100	78,900	78,600	22,700	22,700	22,500	22,200
Grant Line Road	White Rock Rd	Douglas Rd	2	4	4E	9,600	42,400	66,900	66,900	66,800	66,400	24,500	24,500	24,400	24,000
	Douglas Rd	Chrysanthy	2	4	4E	8,800	51,000	62,100	62,100	61,900	61,600	11,100	11,100	10,900	10,600
	Chrysanthy	University	2	4	4E	7,800	38,200	61,000	61,000	60,900	60,600	22,800	22,800	22,700	22,400
	University	Kiefer Blvd	2	4	4E	7,800	35,500	56,600	56,600	56,500	56,200	21,100	21,100	21,000	20,700
	Kiefer Blvd	Rancho Cordova Pkwy	2	4	4E	7,700	32,600	45,600	45,600	45,400	45,100	13,000	13,000	12,800	12,500
	Rancho Cordova Pkwy	Jackson Rd	2	4	4E	7,700	26,800	38,100	38,100	37,900	37,600	11,300	11,300	11,100	10,800
	Jackson Rd	Sunrise Blvd	2	4	4E	5,600	21,700	31,200	31,300	31,300	31,000	9,500	9,600	9,600	9,300
	Sunrise Blvd	Eagles Nest Rd	2	4	4E	14,700	30,500	40,400	40,300	39,700	38,600	9,900	9,800	9,200	8,100
	Eagles Nest Rd	Calvine Rd	2	4	4E	14,700	33,100	43,300	43,200	42,200	40,900	10,200	10,100	9,100	7,800
	Calvine Rd	Sheldon Rd	2	4	4	11,900	25,900	15,200	15,400	31,600	31,000	(10,700)	(10,500)	5,700	5,100
	Sheldon Rd	Wilton Rd	2	4	4	16,200	34,600	24,100	24,400	40,000	38,900	(10,500)	(10,200)	5,400	4,300
	Wilton Rd	Bond Rd	2	4	4	14,700	29,700	19,400	19,500	36,400	34,000	(10,300)	(10,200)	6,700	4,300
	Bond Rd	Elk Grove Blvd	2	4	4	9,400	22,900	11,200	11,300	26,700	25,700	(11,700)	(11,600)	3,800	2,800
	Elk Grove Blvd	Bradshaw Rd	2	4	4	6,300	13,900	3,500	3,500	18,100	16,300	(10,400)	(10,400)	4,200	2,400
	Bradshaw Rd	Waterman Rd	2	6	6	9,300	32,200	36,100	37,600	35,200	34,400	3,900	5,400	3,000	2,200
	Waterman Rd	E Stockton Blvd	2	6	6	13,500	42,200	47,900	47,100	45,100	44,300	5,700	4,900	2,900	2,100
	E Stockton Blvd	SR 99	4	6	6	15,800	46,300	51,700	51,000	49,000	48,300	5,400	4,700	2,700	2,000
Deer Creek Causeway	Grant Line Rd	Grant Line Rd	NA	NA	3E	NA	NA	19,400	19,100	NA	NA	19,400	19,100	NA	NA
Kammerer Road	SR 99	W Stockton Blvd	2	6	6	4,000	41,900	43,700	43,500	43,100	42,800	1,800	1,600	1,200	900
	W Stockton Blvd	Lent Ranch Pkwy	2	6	6	2,500	41,900	43,900	43,700	43,200	42,900	2,000	1,800	1,300	1,000
	Lent Ranch Pkwy	Lotz Pkwy	2	6	6	2,500	23,800	25,600	25,400	25,000	24,700	1,800	1,600	1,200	900
	Lotz Pkwy	Big Horn	2	6	6	2,500	20,300	22,100	21,900	21,500	21,200	1,800	1,600	1,200	900
	Big Horn	Bruceville Rd	2	6	6	2,500	20,600	22,400	22,300	21,800	21,500	1,800	1,700	1,200	900
Kammerer Road Extension	Bruceville Rd	Willard Pkwy	NA	4	4E	NA	19,200	21,000	20,900	20,400	20,100	1,800	1,700	1,200	900
	Willard Pkwy	Hood-Franklin Rd	NA	4	4E	NA	22,800	24,500	24,500	24,000	23,700	1,700	1,700	1,200	900
	Hood-Franklin Rd	I-5	NA	4	4E	NA	25,100	27,000	26,900	26,400	26,200	1,900	1,800	1,300	1,100

Source: DKS Associates 2010.

Notes: Cells shaded in yellow are segments of Grant Line Road that are not a part of the Connector under the Deer Creek Causeway Option1 or Option 2.

4E = 4 lane expressway and 4E+2 = 4 lane expressway with 2 HOV lanes.

Revised Table 16-16. Change in Future (i.e., 2035 and beyond) Daily Traffic Volume from Future Without-Project Conditions – on Non-Project Roadways in TASA

	Segment		Travel Lanes		Average Daily Traffic Volumes						Change in 2035 Average Daily Traffic Volume from Future Without-Project Conditions			
							2035 Proposed Project							
							Deer Creek Causeway			Sheldon High	Deer Creek Causeway			Sheldon High
Roadway	From	To	2008	2035	2008	2035	Option 1	Option 2	Reduced Access Road	Access Roadway	Option 1	Option 2	Reduced Access Road	Access Roadway
El Dorado County														
Latrobe Rd	US 50	Town Center Blvd	6	6	40,200	72,700	73,000	73,000	73,000	73,000	300	300	300	300
	Town Center Blvd	White Rock Rd	6	6	24,700	50,500	51,000	51,000	51,000	50,900	500	500	500	400
	White Rock Rd	Golden Foothill Pkwy	4	6	19,100	40,800	40,800	40,900	40,900	41,000	0	100	100	200
Saratoga Way	Sacramento Co	Latrobe Road	2	4	2,000	21,600	21,700	21,800	21,900	21,700	100	200	300	100
Sylva Valley Pkwy	US 50	Serrano Pkwy	2	4	9,000	22,300	22,200	22,200	22,300	22,300	(100)	(100)	0	0
Valley View Pkwy	White Rock Rd	Blackstone Pkwy	2	2	3,300	12,100	12,100	12,100	12,000	12,000	0	0	(100)	(100)
West Connection to Business Park	Sacramento Co	Golden Foothill Pkwy	NA	4	NA	33,500	34,300	34,200	34,300	34,200	800	700	800	700
City of Folsom (including Sphere of Influence South of US 50)														
East Bidwell St	Iron Point Rd	US 50	6	6	50,700	62,500	63,500	63,400	63,500	63,500	1,000	900	1,000	1,000
Easton Valley Pkwy	Prairie City Rd	Oak Av Pkwy	NA	4	NA	27,500	26,900	26,800	26,700	27,100	(600)	(700)	(800)	(400)
	Oak Av Pkwy	Scott Rd	NA	4	NA	32,700	32,800	32,800	32,800	32,800	100	100	100	100
	Scott Rd	Placerville Rd	NA	4	NA	21,600	22,000	21,900	22,000	22,000	400	300	400	400
Empire Ranch Rd	Iron Point Rd	US 50	NA	4	NA	27,600	27,700	27,900	27,900	27,800	100	300	300	200
	US 50	Easton Valley Pkwy	NA	4	NA	43,900	43,200	43,200	43,200	43,200	(700)	(700)	(700)	(700)
	Easton Valley Pkwy	White Rock Rd	NA	4	NA	27,300	27,100	27,000	27,000	27,000	(200)	(300)	(300)	(300)
Folsom Blvd	US 50	Iron Point Rd	6	6	50,200	61,600	60,800	60,800	60,800	60,800	(800)	(800)	(800)	(800)
Iron Point Rd	Folsom Blvd	Prairie City Rd	4	6	19,300	18,900	19,100	19,100	19,100	19,000	200	200	200	100
	Prairie City Rd	Oak Av Pkwy	4	6	22,200	19,200	19,300	19,300	19,300	19,200	100	100	100	0
	Oak Av Pkwy	Broadstone Pkwy	4	4	13,300	15,700	15,500	15,500	15,500	15,500	(200)	(200)	(200)	(200)
	Broadstone Pkwy	East Bidwell St	4	6	15,700	13,800	13,800	13,800	13,800	13,800	0	0	0	0
	East Bidwell St	Empire Ranch Rd	2	4	3,300	11,600	11,900	11,900	12,000	11,900	300	300	400	300
Oak Ave Pkwy	Iron Point Rd	US 50	NA	4	NA	38,000	37,600	37,600	37,600	37,500	(400)	(400)	(400)	(500)
	US 50	Easton Valley Pkwy	NA	4	NA	26,600	28,000	27,900	27,900	27,700	1,400	1,300	1,300	1,100
	Easton Valley Pkwy	White Rock Rd	NA	4	NA	6,000	5,200	5,200	5,200	5,200	(800)	(800)	(800)	(800)
Prairie City Rd	Iron Point Rd	US 50	6	6	29,400	44,000	46,600	46,500	46,600	46,400	2,600	2,500	2,600	2,400
	US 50	Easton Valley Pkwy	2	6	5,900	41,000	43,900	44,000	43,800	43,900	2,900	3,000	2,800	2,900
	Easton Valley Pkwy	White Rock Rd	2	4	5,900	30,700	41,300	41,200	41,200	41,000	10,600	10,500	10,500	10,300
Scott Rd	US 50	Easton Valley Pkwy	2	6	4,800	52,600	56,000	56,000	55,900	55,900	3,400	3,400	3,300	3,300
	Easton Valley Pkwy	White Rock Rd	2	4	4,800	18,700	24,300	24,300	24,200	24,100	5,600	5,600	5,500	5,400
Sacramento County														
Bilby Rd	Franklin Blvd	Willard Pkwy	2	2	4,800	600	600	600	600	600	0	0	0	0
	Willard Pkwy	Bruceville Rd	2	2	3,000	4,900	4,900	4,900	4,900	4,900	0	0	0	0
Bradshaw Rd	US 50	Lincoln Village Dr	6	6	57,300	78,600	77,200	77,300	77,300	77,700	(1,400)	(1,300)	(1,300)	(900)
	Lincoln Village Dr	Old Placerville Rd	6	6	47,100	71,800	70,300	70,300	70,400	70,800	(1,500)	(1,500)	(1,400)	(1,000)
	Old Placerville Rd	Goethe Rd	6	6	42,500	71,500	70,000	70,300	70,400	70,700	(1,500)	(1,200)	(1,100)	(800)
	Goethe Rd	Kiefer Blvd	6	6	35,000	73,000	71,400	71,800	71,900	72,200	(1,600)	(1,200)	(1,100)	(800)

Revised Table 16-16. Change in Future (i.e., 2035 and beyond) Daily Traffic Volume from Future Without-Project Conditions – on Non-Project Roadways in TASA

	Segment		Travel Lanes		Average Daily Traffic Volumes						Change in 2035 Average Daily Traffic Volume from Future Without-Project Conditions			
							2035 Proposed Project							
							Deer Creek Causeway		Reduced Access Road	Sheldon High Access Roadway	Deer Creek Causeway		Reduced Access Road	Sheldon High Access Roadway
Roadway	From	To	2008	2035	2008	2035	Option 1	Option 2			Option 1	Option 2		
Bradshaw Rd	Kiefer Blvd	Jackson Rd	4	6	31,100	54,800	53,500	53,700	54,000	54,000	(1,300)	(1,100)	(800)	(800)
	Jackson Rd	Elder Creek Rd	4	6	23,700	62,800	61,800	61,700	62,200	62,200	(1,000)	(1,100)	(600)	(600)
	Elder Creek Rd	Florin Rd	4	6	20,400	51,400	50,100	50,000	50,300	50,700	(1,300)	(1,400)	(1,100)	(700)
	Florin Rd	Gerber Rd	2	4	19,400	34,400	33,500	33,300	33,800	34,100	(900)	(1,100)	(600)	(300)
	Gerber Rd	Calvine Rd	2	4	15,100	23,400	22,500	22,300	22,600	22,900	(900)	(1,100)	(800)	(500)
Bruceville Rd	Kammerer Rd	Lambert Rd	2	2	1,600	1,600	1,600	1,600	1,600	1,600	0	0	0	0
Calvine Rd	Power Inn Rd	Elk Grove Florin Rd	6	6	43,900	44,600	44,800	44,900	45,000	45,100	200	300	400	500
	Elk Grove Florin Rd	Waterman Rd	4	6	23,300	25,700	26,100	26,200	26,400	26,300	400	500	700	600
	Waterman Rd	Bradshaw Rd	4	6	15,700	13,800	14,800	14,800	15,000	15,000	1,000	1,000	1,200	1,200
	Bradshaw Rd	Vineyard Rd	4	4	13,000	13,100	12,900	12,900	13,600	14,200	(200)	(200)	500	1,100
	Vineyard Rd	Excelsior Rd	2	4	10,700	12,600	13,900	13,900	14,500	14,500	1,300	1,300	1,900	1,900
	Excelsior Rd	Grant Line Rd	2	4	3,700	6,700	8,400	8,400	9,200	9,200	1,700	1,700	2,500	2,500
Chrysanthy	Grant Line Rd	Cordova Hills	NA	4	NA	15,400	18,300	18,300	18,400	18,400	2,900	2,900	3,000	3,000
Dillard Rd	Jackson Rd	Clay Station Rd	2	2	4,600	6,500	6,800	6,800	6,900	7,000	300	300	400	500
	Clay Station Rd	Green Rd	2	2	4,500	5,100	5,000	5,000	5,200	5,200	(100)	(100)	100	100
	Green Rd	Wilton Rd	2	2	4,500	5,100	5,000	4,900	5,100	5,100	(100)	(200)	0	0
	Wilton Rd	SR-99	2	2	5,800	6,600	6,300	6,300	6,300	6,500	(300)	(300)	(300)	(100)
Eagles Nest Rd	City Limits	Douglas Rd	NA	6	NA	29,500	28,700	28,900	28,500	28,400	(800)	(600)	(1,000)	(1,100)
	Douglas Rd	Kiefer Blvd	NA	2	NA	16,000	16,100	16,000	15,800	15,800	100	0	(200)	(200)
	Kiefer Blvd	Jackson Rd	2	2	500	7,500	7,600	7,600	7,400	7,300	100	100	(100)	(200)
	Jackson Rd	Florin Rd	2	2	500	4,200	4,600	4,600	4,100	3,900	400	400	(100)	(300)
	Florin Rd	Grant Line Rd	2	2	200	2,800	3,200	3,200	2,700	2,500	400	400	(100)	(300)
Easton Valley Pkwy	Hazel Av	Glenborough Rd	NA	4	NA	30,100	29,500	29,400	29,600	29,500	(600)	(700)	(500)	(600)
	Glenborough Rd	Prairie City Rd	NA	4	NA	20,500	20,800	20,800	20,800	20,800	300	300	300	300
Elder Creek Rd	Bradshaw Rd	Excelsior Rd	2	4	2,000	29,800	29,600	29,700	29,600	29,700	(200)	(100)	(200)	(100)
Excelsior Rd	Mather Blvd	Kiefer Blvd	2	4	6,000	10,500	10,100	10,200	10,100	10,000	(400)	(300)	(400)	(500)
	Kiefer Blvd	Jackson Rd	2	4	5,300	13,900	13,500	13,500	13,400	13,300	(400)	(400)	(500)	(600)
	Jackson Rd	Elder Creek Rd	2	4	5,800	24,600	24,400	24,400	24,400	24,400	(200)	(200)	(200)	(200)
	Elder Creek Rd	Florin Rd	2	4	5,700	12,300	11,700	11,800	11,900	11,900	(600)	(500)	(400)	(400)
	Florin Rd	Gerber Rd	2	4	5,600	17,100	17,100	17,100	17,000	16,900	0	0	(100)	(200)
	Gerber Rd	Calvine Rd	2	4	5,400	7,700	7,700	7,700	7,600	7,600	0	0	(100)	(100)
Florin Rd	Bradshaw Rd	Excelsior Rd	2	4	4,000	12,800	13,100	13,000	12,800	12,900	300	200	0	100
	Excelsior Rd	Eagles Nest Rd	2	4	3,000	11,500	12,500	12,500	12,000	12,100	1,000	1,000	500	600
	Eagles Nest Rd	Sunrise Blvd	2	4	3,000	10,500	11,500	11,500	11,100	11,000	1,000	1,000	600	500
Folsom Blvd	Hazel Av	Aerojet Rd	4	4	14,000	17,200	17,000	16,900	16,900	17,000	(200)	(300)	(300)	(200)
	Aerojet Rd	US 50	4	4	14,500	23,700	23,900	23,900	23,900	23,800	200	200	200	100
Franklin Blvd	Bilby Rd	Hood Franklin Rd	2	2	4,700	3,100	3,200	3,200	3,200	3,300	100	100	100	200
	Hood Franklin Rd	Lambert Rd	2	2	1,900	2,100	2,100	2,100	2,100	2,100	0	0	0	0
	Lambert Rd	Twin Cities Rd	2	2	1,300	1,300	1,300	1,300	1,300	1,300	0	0	0	0
Gerber Rd	Bradshaw Rd	Vineyard Rd	2	4	4,000	11,800	11,800	11,800	11,600	11,600	0	0	(200)	(200)
	Vineyard Rd	Excelsior Rd	2	2	2,400	6,100	6,200	6,100	6,100	6,200	100	0	0	100

Revised Table 16-16. Change in Future (i.e., 2035 and beyond) Daily Traffic Volume from Future Without-Project Conditions – on Non-Project Roadways in TASA

	Segment		Travel Lanes		Average Daily Traffic Volumes						Change in 2035 Average Daily Traffic Volume from Future Without-Project Conditions			
							2035 Proposed Project							
							Deer Creek Causeway			Sheldon High	Deer Creek Causeway			Sheldon High
Roadway	From	To	2008	2035	2008	2035	Option 1	Option 2	Reduced Access Road	Access Roadway	Option 1	Option 2	Reduced Access Road	Access Roadway
Hazel Av	Gold Country Blvd	US 50	6	6	53,900	86,100	86,300	86,100	86,100	86,100	200	0	0	0
	US 50	Folsom Blvd	4	6	48,000	71,200	71,100	71,100	71,100	71,200	(100)	(100)	(100)	0
	Folsom Blvd	Easton Valley Pkwy	NA	6	0	25,000	24,900	25,000	24,700	24,800	(100)	0	(300)	(200)
Hood Franklin Rd	Kammerer Rd Ext	Franklin Rd	2	2	4,500	500	500	500	500	500	0	0	0	0
Jackson Rd	Bradshaw Rd	Excelsior Rd	2	6	10,800	41,400	40,700	40,800	40,800	40,700	(700)	(600)	(600)	(700)
	Excelsior Rd	Eagles Nest Rd	2	4	9,200	31,200	31,000	31,100	31,200	31,200	(200)	(100)	0	0
	Eagles Nest Rd	Sunrise Blvd	2	4	9,200	27,400	27,500	27,500	27,500	27,500	100	100	100	100
	Sunrise Blvd	Grant Line Rd	2	4	13,800	32,100	33,700	33,700	33,400	33,300	1,600	1,600	1,300	1,200
	Grant Line Rd	Dillard Rd	2	2	13,200	15,400	15,300	15,300	15,200	15,200	(100)	(100)	(200)	(200)
North Loop	Grant Line Rd	Cordova Hills	NA	4	NA	24,400	23,000	23,000	22,900	22,900	(1,400)	(1,400)	(1,500)	(1,500)
Kiefer Blvd	Bradshaw Rd	Excelsior Rd	2	4	0	30,500	30,000	30,200	30,200	30,200	(500)	(300)	(300)	(300)
	Excelsior Rd	Eagles Nest Rd	NA	4	NA	12,100	11,800	11,800	11,800	11,800	(300)	(300)	(300)	(300)
	Eagles Nest Rd	Sunrise Blvd	2	4	500	16,400	16,200	16,300	16,300	16,200	(200)	(100)	(100)	(200)
	Grant Line Rd	Jackson Rd	2	2	2,700	5,400	6,500	6,500	6,600	6,600	1,100	1,100	1,200	1,200
Scott Rd (South)	White Rock Rd	Latrobe Rd	2	2	2,200	6,100	4,800	4,800	4,800	4,800	(1,300)	(1,300)	(1,300)	(1,300)
Sunrise Blvd	Zinfandel Dr	US 50	6	8	84,100	108,800	108,800	108,800	108,900	108,900	0	0	100	100
	Jackson Rd	Florin Rd	2	4	13,300	21,700	23,000	22,900	21,900	21,100	1,300	1,200	200	(600)
	Florin Rd	Grant Line Rd	2	4	11,100	13,700	15,300	15,300	14,600	13,800	1,600	1,600	900	100
Twin Cities Rd	I-5	Franklin Rd	2	2	4,300	5,900	5,900	5,900	5,900	5,800	0	0	0	(100)
	Franklin Rd	SR 99	2	2	6,200	11,300	11,300	11,300	11,300	11,200	0	0	0	(100)
University Blvd	Grant Line Rd	Cordova Hills	NA	4	NA	22,400	24,500	24,500	24,500	24,500	2,100	2,100	2,100	2,100
White Rock Rd	Rancho Cordova Pkwy	Villagio Dr	2	6	3,400	6,400	6,800	6,800	6,800	6,800	400	400	400	400
	Villagio Dr	Grant Line Rd	2	6	3,400	14,900	14,600	14,600	14,600	14,500	(300)	(300)	(300)	(400)
Vineyard Rd	Old Placerville Rd	Kiefer Blvd	2	4	0	29,200	28,200	28,000	28,200	28,300	(1,000)	(1,200)	(1,000)	(900)
	Kiefer Blvd	Jackson Rd	NA	4	NA	21,300	20,200	20,200	20,400	20,600	(1,100)	(1,100)	(900)	(700)
	Jackson Rd	Elder Creek Rd	NA	4	NA	23,600	22,700	22,700	23,000	23,100	(900)	(900)	(600)	(500)
	Elder Creek Rd	Florin Rd	NA	4	NA	16,100	15,400	15,300	15,500	15,700	(700)	(800)	(600)	(400)
	Florin Rd	Gerber Rd	NA	4	NA	18,700	18,200	18,300	18,300	18,400	(500)	(400)	(400)	(300)
	Gerber Rd	Calvine Rd	2	4	5,400	18,200	17,600	17,600	17,700	17,800	(600)	(600)	(500)	(400)
Wilton Rd	Grant Line Rd	Dillard Rd	2	2	10,900	11,300	11,500	11,500	11,600	11,500	200	200	300	200
City of Rancho Cordova														
Americanos	International	Centennial	NA	4	NA	8,400	7,900	7,900	7,800	7,700	(500)	(500)	(600)	(700)
	Centennial	Douglas Rd	NA	4	NA	15,800	16,200	16,100	16,100	16,100	400	300	300	300
Centennial	International	Americanos	NA	2	NA	6,200	6,100	6,200	6,200	6,200	(100)	0	0	0
Chrysanthy	Sunrise Blvd	Rancho Cordova Pkwy	NA	4	NA	8,300	8,400	8,400	8,300	8,200	100	100	0	(100)
	Rancho Cordova Pkwy	Americanos	NA	4	NA	8,800	7,500	7,500	7,500	7,500	(1,300)	(1,300)	(1,300)	(1,300)
	Americanos	Grant Line Rd	NA	4	NA	18,500	13,700	13,700	13,600	13,700	(4,800)	(4,800)	(4,900)	(4,800)

Revised Table 16-16. Change in Future (i.e., 2035 and beyond) Daily Traffic Volume from Future Without-Project Conditions – on Non-Project Roadways in TASA

	Segment		Travel Lanes		Average Daily Traffic Volumes						Change in 2035 Average Daily Traffic Volume from Future Without-Project Conditions			
							2035 Proposed Project							
							Deer Creek Causeway		Reduced Access Road	Sheldon High Access Roadway	Deer Creek Causeway		Reduced Access Road	Sheldon High Access Roadway
Roadway	From	To	2008	2035	2008	2035	Option 1	Option 2			Option 1	Option 2		
Douglas Rd	Zinfandel Dr	Sunrise Blvd	2	6	6,800	27,900	27,700	27,700	27,700	27,700	(200)	(200)	(200)	(200)
	Sunrise Blvd	Rancho Cordova Pkwy	5	6	4,000	38,700	38,100	38,100	38,200	38,300	(600)	(600)	(500)	(400)
	Rancho Cordova Pkwy	Americanos	2	6	4,000	28,500	29,600	29,600	29,700	29,700	1,100	1,100	1,200	1,200
	Americanos	Grant Line Rd	2	6	4,000	26,300	35,300	35,300	35,300	35,300	9,000	9,000	9,000	9,000
Easton Valley Pkwy	Rancho Cordova Pkwy	Hazel Av	NA	6	NA	23,000	22,200	22,200	22,200	22,100	(800)	(800)	(800)	(900)
Folsom Blvd	Zinfandel Dr	Kilgore Rd	4	4	17,000	20,000	19,900	19,800	19,900	19,900	(100)	(200)	(100)	(100)
	Kilgore Rd	Sunrise Blvd	4	4	18,000	23,100	23,000	23,000	23,100	23,000	(100)	(100)	0	(100)
	Sunrise Blvd	Mercantile Dr	4	4	12,700	12,600	12,200	12,100	12,100	12,100	(400)	(500)	(500)	(500)
	Mercantile Dr	Hazel Av	4	4	12,700	14,300	14,000	13,900	13,900	13,800	(300)	(400)	(400)	(500)
Kiefer Blvd	Sunrise Blvd	Rancho Cordova Pkwy	2	4	NA	13,900	13,700	13,700	13,700	13,700	(200)	(200)	(200)	(200)
	Rancho Cordova Pkwy	Grant Line Rd	NA	4	NA	12,900	14,200	14,200	14,200	14,200	1,300	1,300	1,300	1,300
Rancho Cordova Pkwy	US 50	Easton Valley Pkwy	NA	6	NA	50,100	47,800	47,800	47,800	47,700	(2,300)	(2,300)	(2,300)	(2,400)
	Easton Valley Pkwy	White Rock Rd	NA	6	NA	46,000	42,800	42,700	42,600	42,300	(3,200)	(3,300)	(3,400)	(3,700)
	White Rock Rd	International Blvd	NA	4	NA	34,400	32,500	32,500	32,200	32,200	(1,900)	(1,900)	(2,200)	(2,200)
	International Blvd	Douglas Rd	NA	4	NA	16,000	14,700	14,800	14,600	14,500	(1,300)	(1,200)	(1,400)	(1,500)
	Douglas Rd	Chrysanthy	NA	4	NA	24,600	23,000	23,000	22,900	22,800	(1,600)	(1,600)	(1,700)	(1,800)
	Chrysanthy	Kiefer Rd	NA	4	NA	21,200	19,200	19,100	19,100	19,100	(2,000)	(2,100)	(2,100)	(2,100)
	Kiefer Rd	Grant Line Rd	NA	2	NA	8,500	10,300	10,300	10,300	10,300	1,800	1,800	1,800	1,800
Rio Del Oro Blvd	Sunrise Blvd	Rancho Cordova Pkwy	NA	6	NA	10,500	8,800	8,800	8,700	8,600	(1,700)	(1,700)	(1,800)	(1,900)
Sunrise Blvd	Folsom Blvd	Trade Center Dr	6	6	52,400	54,600	54,300	54,400	54,100	53,800	(300)	(200)	(500)	(800)
	Trade Center Dr	White Rock Rd	6	6	40,200	41,500	41,200	41,200	41,000	40,700	(300)	(300)	(500)	(800)
	White Rock Rd	International Blvd	4	6	28,200	29,300	29,200	29,300	29,300	29,000	(100)	0	0	(300)
	International Blvd	Douglas Rd	6	6	28,200	39,200	37,700	37,700	37,300	36,700	(1,500)	(1,500)	(1,900)	(2,500)
	Douglas Rd	Chrysanthy	6	6	24,500	31,700	30,800	30,800	30,100	29,600	(900)	(900)	(1,600)	(2,100)
	Chrysanthy	Kiefer Rd	5	6	24,500	34,000	33,600	33,600	32,800	32,200	(400)	(400)	(1,200)	(1,800)
	Kiefer Rd	Jackson Rd	2	6	17,500	25,400	25,500	25,400	24,700	24,000	100	0	(700)	(1,400)
White Rock Rd	International Blvd	Zinfandel Dr	2	2	11,400	12,700	12,500	12,500	12,600	12,700	(200)	(200)	(100)	0
	Zinfandel Dr	Sunrise Blvd	6	6	19,900	23,600	23,600	23,600	23,500	23,500	0	0	(100)	(100)
	Sunrise Blvd	Rancho Cordova Pkwy	2	6	13,000	43,900	44,800	44,800	44,700	44,600	900	900	800	700
Zinfandel Dr	US 50	White Rock Rd	6	6	43,300	75,000	74,700	74,900	74,900	74,400	(300)	(100)	(100)	(600)
	White Rock Rd	International Blvd	6	6	19,700	59,000	58,600	59,000	59,200	58,800	(400)	0	200	(200)
	International Blvd	City Limits	4	6	7,100	36,600	35,800	36,000	35,600	35,500	(800)	(600)	(1,000)	(1,100)
City of Elk Grove														
Bond Rd	SR 99	Elk Grove Florin Rd	4	6	49,200	59,800	60,100	60,200	60,300	60,200	300	400	500	400
	Elk Grove Florin Rd	Waterman Rd	4	4	18,800	26,500	26,700	26,800	27,000	26,900	200	300	500	400
	Waterman Rd	Bradshaw Rd	4	4	18,600	25,000	25,300	25,500	25,700	25,700	300	500	700	700
	Bradshaw Rd	Grant Line Rd	2	4	9,100	11,700	12,900	13,000	14,400	13,000	1,200	1,300	2,700	1,300

Revised Table 16-16. Change in Future (i.e., 2035 and beyond) Daily Traffic Volume from Future Without-Project Conditions – on Non-Project Roadways in TASA

	Segment		Travel Lanes		Average Daily Traffic Volumes						Change in 2035 Average Daily Traffic Volume from Future Without-Project Conditions			
							2035 Proposed Project							
							Deer Creek Causeway			Sheldon High	Deer Creek Causeway			Sheldon High
Roadway	From	To	2008	2035	2008	2035	Option 1	Option 2	Reduced Access Road	Access Roadway	Option 1	Option 2	Reduced Access Road	Access Roadway
Bradshaw Rd	Calvine Rd	Sheldon Rd	2	6	9,300	19,500	18,100	17,700	18,500	19,400	(1,400)	(1,800)	(1,000)	(100)
	Sheldon Rd	Bond Rd	2	6	8,100	18,800	17,100	16,700	17,900	18,800	(1,700)	(2,100)	(900)	0
Bradshaw Rd	Bond Rd	Elk Grove Blvd	2	6	5,100	12,000	11,100	10,100	10,600	11,900	(900)	(1,900)	(1,400)	(100)
	Elk Grove Blvd	Grant Line Rd	2	6	3,400	12,600	11,200	9,700	11,700	12,700	(1,400)	(2,900)	(900)	100
Bruceville Rd	Laguna Blvd	Elk Grove Blvd	4	6	21,700	29,800	29,600	29,600	29,700	29,700	(200)	(200)	(100)	(100)
	Elk Grove Blvd	Whitelock Pkwy	4	6	23,000	26,300	26,100	26,200	26,200	26,200	(200)	(100)	(100)	(100)
	Whitelock Pkwy	Kammerer Rd	2	6	4,500	6,100	6,100	6,100	6,100	6,100	0	0	0	0
Elk Grove Blvd	I-5	Franklin Blvd	6	6	24,100	21,300	21,000	21,000	21,100	21,000	(300)	(300)	(200)	(300)
	Franklin Rd	Bruceville Rd	6	6	29,600	26,000	25,800	25,800	26,000	25,900	(200)	(200)	0	(100)
	Bruceville Rd	Big Horn Blvd	6	6	40,700	42,600	42,500	42,500	42,600	42,500	(100)	(100)	0	(100)
	Big Horn Blvd	W Stockton Blvd	6	6	39,500	29,800	29,700	29,700	30,000	29,900	(100)	(100)	200	100
	W Stockton Blvd	SR 99	6	6	45,400	56,500	55,900	55,900	56,700	56,800	(600)	(600)	200	300
	SR 99	E Stockton Blvd	4	6	40,000	48,100	47,300	47,700	48,200	48,300	(800)	(400)	100	200
	E Stockton Blvd	Elk Grove Florin Rd	4	6	37,700	48,600	47,600	48,100	48,600	48,700	(1,000)	(500)	0	100
	Elk Grove Florin Rd	Waterman Rd	2	4	20,700	28,600	28,100	28,400	29,100	28,900	(500)	(200)	500	300
	Waterman Rd	Bradshaw Rd	2	2	13,800	17,700	16,700	17,300	18,800	18,200	(1,000)	(400)	1,100	500
	Bradshaw Rd	Grant Line Rd	2	2	6,000	12,300	10,900	11,100	14,100	13,200	(1,400)	(1,200)	1,800	900
Excelsior Rd	Calvine Rd	Sheldon Rd	2	2	4,000	8,300	8,400	8,400	8,500	8,400	100	100	200	100
Franklin Blvd	Laguna Blvd	Elk Grove Blvd	4	4	23,800	23,300	23,200	23,200	23,200	23,300	(100)	(100)	(100)	0
	Elk Grove Blvd	Whitelock Pkwy	4	6	12,700	11,700	11,800	11,800	11,800	11,800	100	100	100	100
	Whitelock Pkwy	Bilby Rd	2	2	0	3,200	3,300	3,300	3,300	3,400	100	100	100	200
Laguna Blvd	I-5	Franklin Blvd	6	6	32,100	39,000	39,000	39,000	39,000	38,900	0	0	0	(100)
	Franklin Rd	Bruceville Rd	6	6	36,500	48,200	48,200	48,300	48,200	48,200	0	100	0	0
	Bruceville Rd	Big Horn Blvd	6	6	36,500	45,800	45,700	45,700	45,700	45,700	(100)	(100)	(100)	(100)
	Big Horn Blvd	SR 99	8	8	57,800	78,000	77,900	77,800	77,900	78,000	(100)	(200)	(100)	0
Sheldon Rd	SR 99	Elk Grove Florin Rd	4	4	0	10,800	10,800	10,800	11,100	11,200	0	0	300	400
	Elk Grove Florin Rd	Waterman Rd	2	4	9,100	18,500	18,700	18,800	19,000	19,100	200	300	500	600
	Waterman Rd	Bradshaw Rd	2	4	7,100	8,300	8,200	8,100	8,700	8,900	(100)	(200)	400	600
	Bradshaw Rd	Excelsior Rd	2	2	5,000	7,200	7,000	7,000	7,300	8,000	(200)	(200)	100	800
	Excelsior Rd	Grant Line Rd	2	2	5,800	10,600	11,200	11,100	11,400	11,000	600	500	800	400
Waterman Rd	Calvine Rd	Sheldon Rd	2	4	7,600	20,000	19,700	19,800	19,600	19,900	(300)	(200)	(400)	(100)
	Sheldon Rd	Bond Rd	2	4	8,400	17,500	16,900	17,100	17,100	17,400	(600)	(400)	(400)	(100)
	Bond Rd	Elk Grove Blvd	2	4	10,400	16,900	16,200	16,900	16,600	16,900	(700)	0	(300)	0
	Elk Grove Blvd	Grant Line Rd	2	4	7,500	13,500	16,700	14,800	13,300	13,300	3,200	1,300	(200)	(200)
Whitelock Pkwy	Franklin Rd	Bruceville Rd	4	4	12,900	11,700	11,600	11,600	11,600	11,600	(100)	(100)	(100)	(100)
	Bruceville Rd	Big Horn Blvd	4	4	3,000	13,300	13,400	13,300	13,200	13,200	100	0	(100)	(100)
	Big Horn Blvd	W Stockton Blvd	4	4	3,000	6,200	6,300	6,200	6,200	6,200	100	0	0	0
	W Stockton Blvd	SR 99	NA	4	NA	34,900	35,900	35,900	35,000	34,900	1,000	1,000	100	0
Willard Pkwy	Whitelock Pkwy	Kammerer Rd	4	4	NA	5,300	5,300	5,300	5,300	5,300	0	0	0	0

Source: DKS Associates 2010.

Table 16-17. Change in Future (i.e., 2035 and beyond) Daily Traffic Volume from Future Without-Project Conditions – on Freeway System in TASA

Freeway	Segment		Total Travel Lanes		Total Average Daily Traffic Volumes						Change in 2035 Average Daily Volume Change from Future Without-Project Conditions			
							2035 Proposed							
							Deer Creek Causeway		Reduced Access Road	Sheldon High Access Roadway	Deer Creek Causeway		Reduced Access Road	Sheldon High Access Roadway
	From	To	2008	2035	2008	2035	Option 1	Option 2			Option 1	Option 2		
I-5	Twin Cities Rd	Hood-Franklin Rd	4	4	54,000	73,000	73,000	73,000	73,000	73,000	0	0	0	0
	Hood-Franklin Rd	Elk Grove Blvd	4	4	56,000	74,000	73,000	73,000	73,000	73,000	(1,000)	(1,000)	(1,000)	(1,000)
	Elk Grove Blvd	Laguna Blvd	4	4	69,000	92,000	91,000	91,000	91,000	92,000	(1,000)	(1,000)	(1,000)	0
	Laguna Blvd	Cosumnes River Blvd	6	8	92,000	120,000	119,000	119,000	119,000	120,000	(1,000)	(1,000)	(1,000)	0
	Cosumnes River Blvd	Pocket/Meadowview	6	8	103,000	132,000	131,000	131,000	131,000	131,000	(1,000)	(1,000)	(1,000)	(1,000)
	Pocket/Meadowview	Florin Rd	6	8	116,000	151,000	150,000	150,000	150,000	150,000	(1,000)	(1,000)	(1,000)	(1,000)
	Florin Rd	43rd Ave	8	10	139,000	177,000	176,000	176,000	176,000	176,000	(1,000)	(1,000)	(1,000)	(1,000)
Hwy 99	Dillard Rd	Grant Line Rd	4	4	64,000	93,000	93,000	93,000	93,000	93,000	0	0	0	0
	Grant Line Rd	Whitelock Pkwy	4	4	64,000	81,000	82,000	83,000	81,000	81,000	1,000	2,000	0	0
	Whitelock Pkwy	Elk Grove Blvd	4	4	65,000	95,000	95,000	95,000	95,000	95,000	0	0	0	0
	Elk Grove Blvd	Laguna Blvd/Bond Rd	6	6	100,000	136,000	135,000	135,000	135,000	135,000	(1,000)	(1,000)	(1,000)	(1,000)
	Laguna Blvd/Bond Rd	Sheldon Rd	6	6	120,000	153,000	152,000	152,000	153,000	153,000	(1,000)	(1,000)	0	0
	Sheldon Rd	Calvine Rd	6	6	130,000	162,000	161,000	161,000	161,000	161,000	(1,000)	(1,000)	(1,000)	(1,000)
	Calvine Rd	Stockton Blvd	8	8	151,000	172,000	171,000	171,000	171,000	172,000	(1,000)	(1,000)	(1,000)	0
	Stockton Blvd	Mack Rd	6	6	127,000	149,000	148,000	148,000	148,000	149,000	(1,000)	(1,000)	(1,000)	0
	Mack Rd	Florin Rd	6	8	159,000	192,000	192,000	191,000	192,000	192,000	0	(1,000)	0	0
	Florin Rd	47th Ave	8	8	178,000	207,000	206,000	206,000	206,000	207,000	(1,000)	(1,000)	(1,000)	0
US 50	Rte. 99 South	Stockton Blvd	11	13	215,000	272,000	271,000	271,000	271,000	272,000	(1,000)	(1,000)	(1,000)	0
	Stockton Blvd	59th St	10	12	208,000	272,000	271,000	271,000	271,000	272,000	(1,000)	(1,000)	(1,000)	0
	59th St	65th St	8	10	195,000	258,000	257,000	257,000	258,000	258,000	(1,000)	(1,000)	0	0
	65th St	Howe Ave	8	10	203,000	264,000	263,000	263,000	263,000	264,000	(1,000)	(1,000)	(1,000)	0
	Howe Ave	Watt Ave	9	11	176,000	232,000	230,000	230,000	231,000	231,000	(2,000)	(2,000)	(1,000)	(1,000)
	Watt Ave	Bradshaw Rd	8	10	177,000	230,000	228,000	228,000	229,000	229,000	(2,000)	(2,000)	(1,000)	(1,000)
	Bradshaw Rd	Mather Field Rd	8	10	170,000	218,000	215,000	214,000	215,000	216,000	(3,000)	(4,000)	(3,000)	(2,000)
	Mather Field Rd	Zinfandel Dr	8	10	150,000	208,000	204,000	204,000	205,000	206,000	(4,000)	(4,000)	(3,000)	(2,000)
	Zinfandel Dr	Sunrise Blvd	8	10	143,000	203,000	198,000	198,000	199,000	199,000	(5,000)	(5,000)	(4,000)	(4,000)
	Sunrise Blvd	Rancho Cordova Pkwy	8	10	120,000	173,000	168,000	168,000	168,000	169,000	(5,000)	(5,000)	(5,000)	(4,000)
	Rancho Cordova Pkwy	Hazel Av	8	10	120,000	185,000	178,000	178,000	178,000	178,000	(7,000)	(7,000)	(7,000)	(7,000)
	Hazel Ave	Folsom Blvd	8	8	114,000	166,000	161,000	161,000	161,000	161,000	(5,000)	(5,000)	(5,000)	(5,000)
	Folsom Blvd	Prairie City Rd	6	8	91,000	142,000	138,000	138,000	138,000	138,000	(4,000)	(4,000)	(4,000)	(4,000)
	Prairie City Rd	Oak Ave Pkwy	6	8	85,000	132,000	129,000	129,000	129,000	129,000	(3,000)	(3,000)	(3,000)	(3,000)
US 50	Oak Ave Pkwy	Scott Rd	6	8	85,000	111,000	108,000	108,000	108,000	108,000	(3,000)	(3,000)	(3,000)	(3,000)
	Scott Rd	Empire Ranch Rd	6	8	93,000	121,000	121,000	121,000	121,000	121,000	0	0	0	0
	Empire Ranch Rd	Latrobe Rd	6	8	93,000	118,000	118,000	118,000	118,000	118,000	0	0	0	0
	Latrobe Rd	Silva Valley Rd	6	8	68,000	95,000	95,000	95,000	95,000	96,000	0	0	0	1,000
	Silva Valley Rd	Bass Lake Rd	4	8	68,000	98,000	98,000	98,000	98,000	98,000	0	0	0	0

Source: DKS Associates 2010.

Table 16-18. Change in Future (i.e., 2035 and beyond) Roadway Segment Levels of Service – Along Proposed Project Alignment

Roadway	Segment		Travel Lanes			Average Daily Traffic Volumes						Volume/Capacity Ratio						Level of Service					
				2035				2035 Proposed Project						2035 Proposed Project						2035 Proposed Project			
								Deer Creek Causeway						Deer Creek Causeway						Deer Creek Causeway			
	From	To	2008	Future Without-Project	Project	2008	2035	Option 1	Option 2	Reduced Access Road	High Access Road	2008	2035	Option 1	Option 2	Reduced Access Road	High Access Road	2008	2035	Option 1	Option 2	Reduced Access Road	High Access Road
White Rock Road	US 50	Valley View Pkwy	2	6	6	9,300	20,300	20,700	20,800	20,800	20,700	0.47	0.38	0.38	0.39	0.39	0.38	D	A	A	A	A	A
	Valley View Pkwy	Latrobe Rd	2	6	6	13,70	23,800	25,000	24,900	24,900	24,800	0.76	0.44	0.46	0.46	0.46	0.46	C	A	A	A	A	A
	Latrobe Rd	Windfield Way	4	4	4	10,10	22,200	23,000	23,000	23,000	22,800	0.28	0.62	0.64	0.64	0.64	0.63	A	B	B	B	B	B
	Windfield Way	Four Seasons Dr	2	4	4	7,800	20,600	22,000	21,900	22,000	21,800	0.43	0.57	0.61	0.61	0.61	0.61	A	A	B	B	B	B
	Four Seasons Dr	Empire Ranch Rd	2	4	4	6,400	18,700	20,400	20,400	20,400	20,300	0.38	0.52	0.57	0.57	0.57	0.56	D	A	A	A	A	A
	Empire Ranch Rd	Scott Rd (North)	2	4	4E	8,500	26,300	29,500	29,500	29,500	29,400	0.50	0.73	0.41	0.41	0.41	0.41	D	C	A	A	A	A
	Scott Rd (North)	Oak Av Pkwy	2	6	4E	5,700	42,200	51,900	51,900	51,800	51,600	0.34	0.78	0.72	0.72	0.72	0.72	C	C	C	C	C	C
	Oak Av Pkwy	Prairie City Rd	2	6	4E	5,700	41,400	52,100	52,200	52,100	51,800	0.34	0.77	0.72	0.73	0.72	0.72	C	C	C	C	C	C
	Prairie City Rd	Grant Line Rd	2	6	4E+2	9,900	56,400	79,100	79,100	78,900	78,600	0.58	**1.04**	0.73	0.73	0.73	0.73	D	**F**	C	C	C	C
Grant Line Road	White Rock Rd	Douglas Rd	2	4	4E	9,600	42,400	66,900	66,900	66,800	66,400	0.56	**1.18**	0.62	0.62	0.62	0.61	D	**F**	B	B	B	B
	Douglas Rd	Chrysanthy	2	4	4E	8,800	51,000	62,100	62,100	61,900	61,600	0.44	**1.42**	0.86	0.86	0.86	0.86	D	**F**	D	D	D	D
	Chrysanthy	University Blvd	2	4	4E	7,800	38,200	61,000	61,000	60,900	60,600	0.39	**1.06**	0.85	0.85	0.85	0.84	D	**F**	D	D	D	D
	University Blvd	Kiefer Blvd	2	4	4E	7,800	35,500	56,600	56,600	56,500	56,200	0.39	**0.99**	0.79	0.79	0.78	0.78	D	**E**	C	C	C	C
	Kiefer Blvd	Rancho Cordova Pkwy	2	4	4E	7,700	32,600	45,600	45,600	45,400	45,100	0.39	**0.91**	0.63	0.63	0.63	0.63	D	**E**	B	B	B	B
	Rancho Cordova Pkwy	Jackson Rd	2	4	4E	7,700	26,800	38,100	38,100	37,900	37,600	0.39	0.74	0.53	0.53	0.53	0.52	D	C	A	A	A	A
	Jackson Rd	Sunrise Blvd	2	4	4E	5,600	21,700	31,200	31,300	31,300	31,000	0.28	0.60	0.43	0.43	0.43	0.43	C	B	A	A	A	A
	Sunrise Blvd	Eagles Nest Rd	2	4	4E	14,70	30,500	40,400	40,300	39,700	38,600	**0.74**	0.85	0.56	0.56	0.55	0.54	**E**	D	A	A	A	A
	Eagles Nest Rd	Calvine Rd	2	4	4E	14,70	33,100	43,300	43,200	42,200	40,900	**0.74**	**0.92**	0.60	0.60	0.59	0.57	**E**	**E**	B	B	A	A
	Calvine Rd	Sheldon Rd	2	4	4	11,90	25,900	15,200	15,400	31,600	31,000	**0.60**	0.72	0.42	0.43	0.88	0.86	**E**	C	A	A	D	D
	Sheldon Rd	Wilton Rd	2	4	4	16,20	34,600	24,100	24,400	40,000	38,900	**0.90**	**0.96**	0.67	0.68	**1.11**	**1.08**	**E**	**E**	B	B	**F**	**F**
	Wilton Rd	Bond Rd	2	4	4	14,70	29,700	19,400	19,500	36,400	34,000	0.82	0.83	0.54	0.54	**1.01**	**0.94**	D	D	A	A	**F**	**E**
	Bond Rd	Elk Grove Blvd	2	4	4	9,400	22,900	11,200	11,300	26,700	25,700	0.52	0.64	0.31	0.31	0.74	0.71	A	B	A	A	C	C
	Elk Grove Blvd	Bradshaw Rd	2	4	4	6,300	13,900	3,500	3,500	18,100	16,300	0.35	0.39	0.10	0.10	0.50	0.45	A	A	A	A	A	A
	Bradshaw Rd	Waterman Rd	2	6	6	9,300	32,200	36,100	37,600	35,200	34,400	0.52	0.60	0.67	0.70	0.65	0.64	A	A	B	B	B	B
	Waterman Rd	E Stockton Blvd	2	6	6	13,50	42,200	47,900	47,100	45,100	44,300	0.75	0.78	0.89	0.87	0.84	0.82	C	C	D	D	D	D
	E Stockton Blvd	SR 99	4	6	6	15,80	46,300	51,700	51,000	49,000	48,300	0.44	0.86	**0.96**	**0.94**	**0.91**	0.89	A	D	**E**	**E**	**E**	D
Deer Creek Causeway	Grant Line Rd	Grant Line Rd	NA	NA	3E	NA	NA	19,400	19,100	NA	NA	NA	NA	0.54	0.51	NA	NA	NA	NA	A	A	NA	NA
Kammerer Road	SR 99	W Stockton Blvd	2	6	6	4,000	41,900	43,700	43,500	43,100	42,800	0.20	0.78	0.73	0.73	0.72	0.71	B	C	C	C	C	C
	W Stockton Blvd	Lent Ranch Pkwy	2	6	6	2,500	41,900	43,900	43,700	43,200	42,900	0.13	0.78	0.73	0.73	0.72	0.72	B	C	C	C	C	C
	Lent Ranch Pkwy	Lotz Pkwy	2	6	6	2,500	23,800	25,600	25,400	25,000	24,700	0.13	0.44	0.43	0.42	0.42	0.41	B	A	A	A	A	A
	Lotz Pkwy	Big Horn Blvd	2	6	6	2,500	20,300	22,100	21,900	21,500	21,200	0.13	0.38	0.37	0.37	0.36	0.35	B	A	A	A	A	A
	Big Horn Blvd	Bruceville Rd	2	6	6	2,500	20,600	22,400	22,300	21,800	21,500	0.13	0.38	0.37	0.37	0.36	0.36	B	A	A	A	A	A
Kammerer Road Extension	Bruceville Rd	Willard Pkwy	NA	4	4E	NA	19,200	21,000	20,900	20,400	20,100	NA	0.53	0.53	0.52	0.51	0.50	NA	A	A	A	A	A
	Willard Pkwy	Hood-Franklin Rd	NA	4	4E	NA	22,800	24,500	24,500	24,000	23,700	NA	0.63	0.61	0.61	0.60	0.59	NA	B	B	B	B	A
	Hood-Franklin Rd	I-5	NA	4	4E	NA	25,100	27,000	26,900	26,400	26,200	NA	0.70	0.68	0.67	0.66	0.66	NA	B	B	B	B	B

Source: DKS Associates 2010.

Notes: Bold indicates segments that would not meet the LOS standard for the local jurisdiction.
Cells shaded in grey represent significant LOS impacts. Cells shaded in yellow are segments of Grant Line Road that are not a part of the Connector under the Deer Creek Causeway Option1 or Option 2.
4E = 4 lane expressway and 4E+2 = 4 lane expressway with 2 HOV lanes.

Revised Table 16-19. Change in Future (i.e., 2035 and beyond) Roadway Segment Levels of Service – on Non-Project Roadways

Roadway	Segment		Travel Lanes		Average Daily Traffic Volumes						Volume/Capacity Ratio						Level of Service					
							2035 Proposed Project						2035 Proposed Project						2035 Proposed Project			
							Deer Creek Causeway		Reduced Access Road	High Access Road			Deer Creek Causeway		Reduced Access Road	High Access Road			Deer Creek Causeway		Reduced Access Road	High Access Road
Roadway	From	To	2008	2035	2008	2035	Option 1	Option 2			2008	2035	Option 1	Option 2			2008	2035	Option 1	Option 2		
El Dorado County																						
Latrobe Rd	US 50	Town Center Blvd	6	6	40,200	72,700	73,000	73,000	73,000	73,000	0.74	1.35	1.35	1.35	1.35	1.35	C	F	F	F	F	F
	Town Center Blvd	White Rock Rd	6	6	24,700	50,500	51,000	51,000	51,000	50,900	0.46	0.94	0.94	0.94	0.94	0.94	A	E	E	E	E	E
	White Rock Rd	Golden Foothill Pkwy	4	6	19,100	40,800	40,800	40,900	40,900	41,000	0.48	0.76	0.76	0.76	0.76	0.76	D	C	C	C	C	C
Saratoga Way	Sacramento Co	Latrobe Road	2	4	2,000	21,600	21,700	21,800	21,900	21,700	0.11	0.60	0.60	0.61	0.61	0.60	A	B	B	B	B	B
Sylva Valley Pkwy	US 50	Serrano Pkwy	2	4	9,000	22,300	22,200	22,200	22,300	22,300	0.50	0.62	0.62	0.62	0.62	0.62	A	B	B	B	B	B
Valley View Pkwy	White Rock Rd	Blackstone Pkwy	2	2	3,300	12,100	12,100	12,100	12,000	12,000	0.18	0.67	0.67	0.67	0.67	0.67	A	B	B	B	B	B
West Connection to Business Park	Sacramento Co	Golden Foothill Pkwy	NA	4	NA	33,500	34,300	34,200	34,300	34,200	NA	0.93	0.95	0.95	0.95	0.95	NA	E	E	E	E	E
City of Folsom (including Sphere of Influence South of US 50)																						
East Bidwell St	Iron Point Rd	US 50	6	6	50,700	62,500	63,500	63,400	63,500	63,500	0.94	1.16	1.18	1.17	1.18	1.18	E	F	F	F	F	F
Easton Valley Pkwy	Prairie City Rd	Oak Av Pkwy	NA	4	NA	27,500	26,900	26,800	26,700	27,100	NA	0.76	0.75	0.74	0.74	0.75	NA	C	C	C	C	C
	Oak Av Pkwy	Scott Rd	NA	4	NA	32,700	32,800	32,800	32,800	32,800	NA	0.91	0.91	0.91	0.91	0.91	NA	E	E	E	E	E
	Scott Rd	Placerville Rd	NA	4	NA	21,600	22,000	21,900	22,000	22,000	NA	0.60	0.61	0.61	0.61	0.61	NA	B	B	B	B	B
Empire Ranch Rd	Iron Point Rd	US 50	NA	4	NA	27,600	27,700	27,900	27,900	27,800	NA	0.77	0.77	0.78	0.78	0.77	NA	C	C	C	C	C
	US 50	Easton Valley Pkwy	NA	4	NA	43,900	43,200	43,200	43,200	43,200	NA	1.22	1.20	1.20	1.20	1.20	NA	F	F	F	F	F
	Easton Valley Pkwy	White Rock Rd	NA	4	NA	27,300	27,100	27,000	27,000	27,000	NA	0.76	0.75	0.75	0.75	0.75	NA	C	C	C	C	C
Folsom Blvd	US 50	Iron Point Rd	6	6	50,200	61,600	60,800	60,800	60,800	60,800	0.93	1.14	1.13	1.13	1.13	1.13	E	F	F	F	F	F
Iron Point Rd	Folsom Blvd	Prairie City Rd	4	6	19,300	18,900	19,100	19,100	19,100	19,000	0.54	0.35	0.35	0.35	0.35	0.35	A	A	A	A	A	A
	Prairie City Rd	Oak Av Pkwy	4	6	22,200	19,200	19,300	19,300	19,300	19,200	0.62	0.36	0.36	0.36	0.36	0.36	B	A	A	A	A	A
	Oak Av Pkwy	Broadstone Pkwy	4	4	13,300	15,700	15,500	15,500	15,500	15,500	0.37	0.44	0.43	0.43	0.43	0.43	A	A	A	A	A	A
	Broadstone Pkwy	East Bidwell St	4	6	15,700	13,800	13,800	13,800	13,800	13,800	0.44	0.26	0.26	0.26	0.26	0.26	A	A	A	A	A	A
	East Bidwell St	Empire Ranch Rd	2	4	3,300	11,600	11,900	11,900	12,000	11,900	0.18	0.32	0.33	0.33	0.33	0.33	A	A	A	A	A	A
Oak Ave Pkwy	Iron Point Rd	US 50	NA	4	NA	38,000	37,600	37,600	37,600	37,500	NA	1.06	1.04	1.04	1.04	1.04	NA	F	F	F	F	F
	US 50	Easton Valley Pkwy	NA	4	NA	26,600	28,000	27,900	27,900	27,700	NA	0.74	0.78	0.78	0.78	0.77	NA	C	C	C	C	C
	Easton Valley Pkwy	White Rock Rd	NA	4	NA	6,000	5,200	5,200	5,200	5,200	NA	0.17	0.14	0.14	0.14	0.14	NA	A	A	A	A	A
Prairie City Rd	Iron Point Rd	US 50	6	6	29,400	44,000	46,600	46,500	46,600	46,400	0.54	0.81	0.86	0.86	0.86	0.86	A	D	D	D	D	D
	US 50	Easton Valley Pkwy	2	6	5,900	41,000	43,900	44,000	43,800	43,900	0.35	0.76	0.81	0.81	0.81	0.81	C	C	D	D	D	D
	Easton Valley Pkwy	White Rock Rd	2	4	5,900	30,700	41,300	41,200	41,200	41,000	0.35	0.85	1.15	1.14	1.14	1.14	C	D	F	F	F	F
Scott Rd	US 50	Easton Valley Pkwy	2	6	4,800	52,600	56,000	56,000	55,900	55,900	0.28	0.97	1.04	1.04	1.04	1.04	C	E	F	F	F	F
	Easton Valley Pkwy	White Rock Rd	2	4	4,800	18,700	24,300	24,300	24,200	24,100	0.28	0.52	0.68	0.68	0.67	0.67	C	A	B	B	B	B
Sacramento County																						
Bilby Rd	Franklin Blvd	Willard Pkwy	2	2	4,800	600	600	600	600	600	0.27	0.03	0.03	0.03	0.03	0.03	A	A	A	A	A	A
	Willard Pkwy	Bruceville Rd	2	2	3,000	4,900	4,900	4,900	4,900	4,900	0.17	0.25	0.25	0.25	0.25	0.25	A	C	C	C	C	C
Bradshaw Rd	US 50	Lincoln Village Dr	6	6	57,300	78,600	77,200	77,300	77,300	77,700	1.06	1.46	1.43	1.43	1.43	1.44	F	F	F	F	F	F
	Lincoln Village Dr	Old Placerville Rd	6	6	47,100	71,800	70,300	70,300	70,400	70,800	0.87	1.33	1.30	1.30	1.30	1.31	D	F	F	F	F	F
	Old Placerville Rd	Goethe Rd	6	6	42,500	71,500	70,000	70,300	70,400	70,700	0.79	1.32	1.30	1.30	1.30	1.31	C	F	F	F	F	F
	Goethe Rd	Kiefer Blvd	6	6	35,000	73,000	71,400	71,800	71,900	72,200	0.65	1.35	1.32	1.33	1.33	1.34	B	F	F	F	F	F
Bradshaw Rd	Kiefer Blvd	Jackson Rd	4	6	31,100	54,800	53,500	53,700	54,000	54,000	0.86	1.01	0.99	0.99	1.00	1.00	D	F	E	E	F	F

Revised Table 16-19. Change in Future (i.e., 2035 and beyond) Roadway Segment Levels of Service – on Non-Project Roadways

Roadway	Segment		Travel Lanes		Average Daily Traffic Volumes						Volume/Capacity Ratio						Level of Service					
							2035 Proposed Project						2035 Proposed Project						2035 Proposed Project			
							Deer Creek Causeway						Deer Creek Causeway						Deer Creek Causeway			
	From	To	2008	2035	2008	2035	Option 1	Option 2	Reduced Access Road	High Access Road	2008	2035	Option 1	Option 2	Reduced Access Road	High Access Road	2008	2035	Option 1	Option 2	Reduced Access Road	High Access Road
Bradshaw Rd	Jackson Rd	Elder Creek Rd	4	6	23,700	62,800	61,800	61,700	62,200	62,200	0.66	**1.16**	**1.14**	**1.14**	**1.15**	**1.15**	B	**F**	**F**	**F**	**F**	**F**
	Elder Creek Rd	Florin Rd	4	6	20,400	51,400	50,100	50,000	50,300	50,700	0.57	0.95	**0.93**	**0.93**	0.93	0.94	A	E	**E**	**E**	E	E
	Florin Rd	Gerber Rd	2	4	19,400	34,400	33,500	33,300	33,800	34,100	1.08	0.96	**0.93**	**0.93**	0.94	0.95	**F**	E	**E**	**E**	E	E
	Gerber Rd	Calvine Rd	2	4	15,100	23,400	22,500	22,300	22,600	22,900	0.84	0.65	0.63	0.62	0.63	0.64	D	B	B	B	B	B
Bruceville Rd	Kammerer Rd	Lambert Rd	2	2	1,600	1,600	1,600	1,600	1,600	1,600	0.08	0.08	0.08	0.08	0.08	0.08	A	A	A	A	A	A
Calvine Rd	Power inn Rd	Elk Grove Florin Rd	6	6	43,900	44,600	44,800	44,900	45,000	45,100	0.81	0.83	0.83	0.83	0.83	0.84	D	D	D	D	D	D
	Elk Grove Florin Rd	Waterman Rd	4	6	23,300	25,700	26,100	26,200	26,400	26,300	0.65	0.48	0.48	0.49	0.49	0.49	B	A	A	A	A	A
	Waterman Rd	Bradshaw Rd	4	6	15,700	13,800	14,800	14,800	15,000	15,000	0.44	0.26	0.27	0.27	0.28	0.28	A	A	A	A	A	A
	Bradshaw Rd	Vineyard Rd	4	4	13,000	13,100	12,900	12,900	13,600	14,200	0.36	0.36	0.36	0.36	0.38	0.39	A	A	A	A	A	A
	Vineyard Rd	Excelsior Rd	2	4	10,700	12,600	13,900	13,900	14,500	14,500	0.59	0.35	0.39	0.39	0.40	0.40	A	A	A	A	A	A
	Excelsior Rd	Grant Line Rd	2	4	3,700	6,700	8,400	8,400	9,200	9,200	0.21	0.19	0.23	0.23	0.26	0.26	A	A	A	A	A	A
Chrysanthy	Grant Line Rd	Cordova Hills	NA	4	NA	15,400	18,300	18,300	18,400	18,400	NA	0.43	0.51	0.51	0.51	0.51	NA	A	A	A	A	A
Dillard Rd	Jackson Rd	Clay Station Rd	2	2	4,600	6,500	6,800	6,800	6,900	7,000	0.23	0.33	0.34	0.34	0.35	0.35	C	C	C	C	C	D
	Clay Station Rd	Green Rd	2	2	4,500	5,100	5,000	5,000	5,200	5,200	0.23	0.26	0.25	0.25	0.26	0.26	C	C	C	C	C	C
	Green Rd	Wilton Rd	2	2	4,500	5,100	5,000	4,900	5,100	5,100	0.23	0.26	0.25	0.25	0.26	0.26	C	C	C	C	C	C
	Wilton Rd	SR-99	2	2	5,800	6,600	6,300	6,300	6,300	6,500	0.29	0.33	0.32	0.32	0.32	0.33	C	C	C	C	C	C
Eagles Nest Rd	City Limits	Douglas Rd	NA	6	NA	29,500	28,700	28,900	28,500	28,400	NA	0.55	0.53	0.54	0.53	0.53	NA	A	A	A	A	A
	Douglas Rd	Kiefer Blvd	NA	2	NA	16,000	16,100	16,000	15,800	15,800	NA	0.89	0.89	0.89	0.88	0.88	NA	D	D	D	D	D
	Kiefer Blvd	Jackson Rd	2	2	500	7,500	7,600	7,600	7,400	7,300	0.03	0.42	0.42	0.42	0.41	0.41	A	A	A	A	A	A
	Jackson Rd	Florin Rd	2	2	500	4,200	4,600	4,600	4,100	3,900	0.03	0.23	0.26	0.26	0.23	0.22	A	A	A	A	A	A
	Florin Rd	Grant Line Rd	2	2	200	2,800	3,200	3,200	2,700	2,500	0.01	0.16	0.18	0.18	0.15	0.14	A	A	A	A	A	A
Easton Valley Pkwy	Hazel Av	Glenborough Rd	NA	4	NA	30,100	29,500	29,400	29,600	29,500	NA	0.84	0.82	0.82	0.82	0.82	NA	D	D	D	D	D
	Glenborough Rd	Prairie City Rd	NA	4	NA	20,500	20,800	20,800	20,800	20,800	NA	0.57	0.58	0.58	0.58	0.58	NA	A	A	A	A	A
Elder Creek Rd	Bradshaw Rd	Excelsior Rd	2	4	2,000	29,800	29,600	29,700	29,600	29,700	0.10	0.83	0.82	0.83	0.82	0.83	A	D	D	D	D	D
Excelsior Rd	Mather Blvd	Kiefer Blvd	2	4	6,000	10,500	10,100	10,200	10,100	10,000	0.30	0.29	0.28	0.28	0.28	0.28	C	A	A	A	A	A
	Kiefer Blvd	Jackson Rd	2	4	5,300	13,900	13,500	13,500	13,400	13,300	0.27	0.39	0.38	0.38	0.37	0.37	C	A	A	A	A	A
	Jackson Rd	Elder Creek Rd	2	4	5,800	24,600	24,400	24,400	24,400	24,400	0.29	0.68	0.68	0.68	0.68	0.68	C	B	B	B	B	B
	Elder Creek Rd	Florin Rd	2	4	5,700	12,300	11,700	11,800	11,900	11,900	0.29	0.34	0.33	0.33	0.33	0.33	C	A	A	A	A	A
	Florin Rd	Gerber Rd	2	4	5,600	17,100	17,100	17,100	17,000	16,900	0.28	0.48	0.48	0.48	0.47	0.47	C	A	A	A	A	A
	Gerber Rd	Calvine Rd	2	4	5,400	7,700	7,700	7,700	7,600	7,600	0.27	0.21	0.21	0.21	0.21	0.21	C	A	A	A	A	A
Florin Rd	Bradshaw Rd	Excelsior Rd	2	4	4,000	12,800	13,100	13,000	12,800	12,900	0.22	0.36	0.36	0.36	0.36	0.36	A	A	A	A	A	A
	Excelsior Rd	Eagles Nest Rd	2	4	3,000	11,500	12,500	12,500	12,000	12,100	0.17	0.32	0.35	0.35	0.33	0.34	A	A	A	A	A	A
	Eagles Nest Rd	Sunrise Blvd	2	4	3,000	10,500	11,500	11,500	11,100	11,000	0.17	0.29	0.32	0.32	0.31	0.31	A	A	A	A	A	A
Folsom Blvd	Hazel Av	Aerojet Rd	4	4	14,000	17,200	17,000	16,900	16,900	17,000	0.39	0.48	0.47	0.47	0.47	0.47	A	A	A	A	A	A
	Aerojet Rd	US 50	4	4	14,500	23,700	23,900	23,900	23,900	23,800	0.40	0.66	0.66	0.66	0.66	0.66	A	B	B	B	B	B
Franklin Blvd	Bilby Rd	Hood Franklin Rd	2	2	4,700	3,100	3,200	3,200	3,200	3,300	0.24	0.16	0.16	0.16	0.16	0.17	C	B	B	B	B	B
	Hood Franklin Rd	Lambert Rd	2	2	1,900	2,100	2,100	2,100	2,100	2,100	0.10	0.11	0.11	0.11	0.11	0.11	A	A	A	A	A	A
	Lambert Rd	Twin Cities Rd	2	2	1,300	1,300	1,300	1,300	1,300	1,300	0.07	0.07	0.07	0.07	0.07	0.07	A	A	A	A	A	A
Gerber Rd	Bradshaw Rd	Vineyard Rd	2	4	4,000	11,800	11,800	11,800	11,600	11,600	0.22	0.33	0.33	0.33	0.32	0.32	A	A	A	A	A	A
	Vineyard Rd	Excelsior Rd	2	2	2,400	6,100	6,200	6,100	6,100	6,200	0.13	0.34	0.34	0.34	0.34	0.34	A	A	A	A	A	A

Revised Table 16-19. Change in Future (i.e., 2035 and beyond) Roadway Segment Levels of Service – on Non-Project Roadways

Roadway	Segment		Travel Lanes		Average Daily Traffic Volumes						Volume/Capacity Ratio						Level of Service					
							2035 Proposed Project						2035 Proposed Project						2035 Proposed Project			
							Deer Creek Causeway						Deer Creek Causeway						Deer Creek Causeway			
Roadway	From	To	2008	2035	2008	2035	Option 1	Option 2	Reduced Access Road	High Access Road	2008	2035	Option 1	Option 2	Reduced Access Road	High Access Road	2008	2035	Option 1	Option 2	Reduced Access Road	High Access Road
Hazel Av	Gold Country Blvd	US 50	6	6	53,900	86,100	86,300	86,100	86,100	86,100	**1.00**	**1.59**	**1.60**	**1.59**	**1.59**	**1.59**	**E**	**F**	**F**	**F**	**F**	**F**
	US 50	Folsom Blvd	4	6	48,000	71,200	71,100	71,100	71,100	71,200	**1.33**	**1.32**	**1.32**	**1.32**	**1.32**	**1.32**	**F**	**F**	**F**	**F**	**F**	**F**
	Folsom Blvd	Easton Valley Pkwy	NA	6	0	25,000	24,900	25,000	24,700	24,800		0.46	0.46	0.46	0.46	0.46		A	A	A	A	A
Hood Franklin Rd	Kammerer Rd Ext	Franklin Rd	2	2	4,500	500	500	500	500	500	0.25	0.03	0.03	0.03	0.03	0.03		A	A	A	A	A
Jackson Rd	Bradshaw Rd	Excelsior Rd	2	6	10,800	41,400	40,700	40,800	40,800	40,700	0.47	0.77	0.75	0.76	0.76	0.75	D	C	C	C	C	C
	Excelsior Rd	Eagles Nest Rd	2	4	9,200	31,200	31,000	31,100	31,200	31,200	0.40	0.87	0.86	0.86	0.87	0.87	D	D	D	D	D	D
	Eagles Nest Rd	Sunrise Blvd	2	4	9,200	27,400	27,500	27,500	27,500	27,500	0.40	0.76	0.76	0.76	0.76	0.76	D	C	C	C	C	C
	Sunrise Blvd	Grant Line Rd	2	4	13,800	32,100	33,700	33,700	33,400	33,300	**0.60**	0.89	**0.94**	**0.94**	0.93	0.93	**E**	D	**E**	**E**	E	E
	Grant Line Rd	Dillard Rd	2	2	13,200	15,400	15,300	15,300	15,200	15,200	0.58	**0.67**	**0.67**	**0.67**	**0.66**	**0.66**	D	**E**	**E**	**E**	**E**	**E**
Kiefer Blvd	Bradshaw Rd	Excelsior Rd	2	4	0	30,500	30,000	30,200	30,200	30,200	0.00	0.85	0.83	0.84	0.84	0.84		D	D	D	D	D
	Excelsior Rd	Eagles Nest Rd	NA	4	NA	12,100	11,800	11,800	11,800	11,800	NA	0.34	0.33	0.33	0.33	0.33	NA	A	A	A	A	A
	Eagles Nest Rd	Sunrise Blvd	2	4	500	16,400	16,200	16,300	16,300	16,200	0.03	0.46	0.45	0.45	0.45	0.45	A	A	A	A	A	A
	Grant Line Rd	Jackson Rd	2	2	2,700	5,400	6,500	6,500	6,600	6,600	0.16	0.27	0.33	0.33	0.33	0.33	B	C	C	C	C	C
North Loop	Grant Line Rd	Cordova Hills	NA	4	NA	24,400	23,000	23,000	22,900	22,900	NA	0.68	0.64	0.64	0.64	0.64	NA	B	B	B	B	B
Scott Rd (South)	White Rock Rd	Latrobe Rd	2	2	2,200	6,100	4,800	4,800	4,800	4,800	0.11	0.31	0.24	0.24	0.24	0.24	B	C	C	C	C	C
Sunrise Blvd	Zinfandel Dr	US 50	6	8	84,100	108,80	108,800	108,800	108,900	108,900	**1.56**	**1.51**	**1.51**	**1.51**	**1.51**	**1.51**	**F**	**F**	**F**	**F**	**F**	**F**
	Jackson Rd	Florin Rd	2	4	13,300	21,700	23,000	22,900	21,900	21,100	0.74	0.60	0.64	0.64	0.61	0.59	C	B	B	B	B	A
	Florin Rd	Grant Line Rd	2	4	11,100	13,700	15,300	15,300	14,600	13,800	0.62	0.38	0.43	0.43	0.41	0.38	B	A	A	A	A	A
Twin Cities Rd	I-5	Franklin Rd	2	2	4,300	5,900	5,900	5,900	5,900	5,800	0.22	0.30	0.30	0.30	0.30	0.29	C	C	C	C	C	C
	Franklin Rd	SR 99	2	2	6,200	11,300	11,300	11,300	11,300	11,200	0.31	0.57	0.57	0.57	0.57	0.56	C	D	D	D	D	D
University Blvd	Grant Line Rd	Cordova Hills	NA	4	NA	22,400	24,500	24,500	24,500	24,500	NA	0.62	0.68	0.68	0.68	0.68	NA	B	B	B	B	B
White Rock Rd	Rancho Cordova Pkwy	Villagio Dr	2	6	3,400	6,400	6,800	6,800	6,800	6,800	0.20	0.12	0.13	0.13	0.13	0.13	B	A	A	A	A	A
	Villagio Dr	Grant Line Rd	2	6	3,400	14,900	14,600	14,600	14,600	14,500	0.20	0.28	0.27	0.27	0.27	0.27	B	A	A	A	A	A
Vineyard Rd	Old Placerville Rd	Kiefer Blvd	2	4	0	29,200	28,200	28,000	28,200	28,300	0.00	0.81	0.78	0.78	0.78	0.79	A	D	C	C	C	C
	Kiefer Blvd	Jackson Rd	NA	4	NA	21,300	20,200	20,200	20,400	20,600	NA	0.59	0.56	0.56	0.57	0.57	NA	A	A	A	A	A
	Jackson Rd	Elder Creek Rd	NA	4	NA	23,600	22,700	22,700	23,000	23,100	NA	0.66	0.63	0.63	0.64	0.64	NA	B	B	B	B	B
	Elder Creek Rd	Florin Rd	NA	4	NA	16,100	15,400	15,300	15,500	15,700	NA	0.45	0.43	0.43	0.43	0.44	NA	A	A	A	A	A
	Florin Rd	Gerber Rd	NA	4	NA	18,700	18,200	18,300	18,300	18,400	NA	0.52	0.51	0.51	0.51	0.51	NA	A	A	A	A	A
	Gerber Rd	Calvine Rd	2	4	5,400	18,200	17,600	17,600	17,700	17,800	0.30	0.51	0.49	0.49	0.49	0.49	A	A	A	A	A	A
Wilton Rd	Grant Line Rd	Dillard Rd	2	2	10,900	11,300	11,500	11,500	11,600	11,500	0.55	0.57	0.58	0.58	0.58	0.58	D	D	D	D	D	D
City of Rancho Cordova																						
Americanos	International	Centennial	NA	4	NA	8,400	7,900	7,900	7,800	7,700	NA	0.23	0.22	0.22	0.22	0.21	NA	A	A	A	A	A
	Centennial	Douglas Rd	NA	4	NA	15,800	16,200	16,100	16,100	16,100	NA	0.44	0.45	0.45	0.45	0.45	NA	A	A	A	A	A
Centennial	International	Americanos	NA	2	NA	6,200	6,100	6,200	6,200	6,200	NA	0.34	0.34	0.34	0.34	0.34	NA	A	A	A	A	A
Chrysanthy	Sunrise Blvd	Rancho Cordova Pkwy	NA	4	NA	8,300	8,400	8,400	8,300	8,200	NA	0.23	0.23	0.23	0.23	0.23	NA	A	A	A	A	A
	Rancho Cordova Pkwy	Americanos	NA	4	NA	8,800	7,500	7,500	7,500	7,500	NA	0.24	0.21	0.21	0.21	0.21	NA	A	A	A	A	A
	Americanos	Grant Line Rd	NA	4	NA	18,500	13,700	13,700	13,600	13,700	NA	0.51	0.38	0.38	0.38	0.38	NA	A	A	A	A	A
Douglas Rd	Zinfandel Dr	Sunrise Blvd	2	6	6,800	27,900	27,700	27,700	27,700	27,700	0.38	0.52	0.51	0.51	0.51	0.51	A	A	A	A	A	A
Douglas Rd	Sunrise Blvd	Rancho Cordova Pkwy	5	6	4,000	38,700	38,100	38,100	38,200	38,300	0.09	0.72	0.71	0.71	0.71	0.71	A	C	C	C	C	C
	Rancho Cordova Pkwy	Americanos	2	6	4,000	28,500	29,600	29,600	29,700	29,700	0.22	0.53	0.55	0.55	0.55	0.55	A	A	A	A	A	A

Revised Table 16-19. Change in Future (i.e., 2035 and beyond) Roadway Segment Levels of Service – on Non-Project Roadways

Roadway	Segment From	Segment To	Travel Lanes 2008	Travel Lanes 2035	ADT 2008	ADT 2035	ADT 2035 Proposed Project Deer Creek Causeway Option 1	ADT 2035 Proposed Project Deer Creek Causeway Option 2	ADT 2035 Proposed Project Reduced Access Road	ADT 2035 Proposed Project High Access Road	V/C 2008	V/C 2035	V/C 2035 Proposed Project Deer Creek Causeway Option 1	V/C 2035 Proposed Project Deer Creek Causeway Option 2	V/C 2035 Proposed Project Reduced Access Road	V/C 2035 Proposed Project High Access Road	LOS 2008	LOS 2035	LOS 2035 Proposed Project Deer Creek Causeway Option 1	LOS 2035 Proposed Project Deer Creek Causeway Option 2	LOS 2035 Proposed Project Reduced Access Road	LOS 2035 Proposed Project High Access Road
Douglas Rd	Americanos	Grant Line Rd	2	6	4,000	26,300	35,300	35,300	35,300	35,300	0.22	0.49	0.65	0.65	0.65	0.65	A	A	B	B	B	B
Easton Valley Pkwy	Rancho Cordova Pkwy	Hazel Av	NA	6	NA	23,000	22,200	22,200	22,200	22,100	NA	0.43	0.41	0.41	0.41	0.41	NA	A	A	A	A	A
Folsom Blvd	Zinfandel Dr	Kilgore Rd	4	4	17,000	20,000	19,900	19,800	19,900	19,900	0.47	0.56	0.55	0.55	0.55	0.55	A	A	A	A	A	A
	Kilgore Rd	Sunrise Blvd	4	4	18,000	23,100	23,000	23,000	23,100	23,000	0.50	0.64	0.64	0.64	0.64	0.64	A	B	B	B	B	B
	Sunrise Blvd	Mercantile Dr	4	4	12,700	12,600	12,200	12,100	12,100	12,100	0.35	0.35	0.34	0.34	0.34	0.34	A	A	A	A	A	A
	Mercantile Dr	Hazel Av	4	4	12,700	14,300	14,000	13,900	13,900	13,800	0.35	0.40	0.39	0.39	0.39	0.38	A	A	A	A	A	A
Kiefer Blvd	Sunrise Blvd	Rancho Cordova Pkwy	2	4	NA	13,900	13,700	13,700	13,700	13,700	NA	0.39	0.38	0.38	0.38	0.38	NA	A	A	A	A	A
	Rancho Cordova Pkwy	Grant Line Rd	NA	4	NA	12,900	14,200	14,200	14,200	14,200	NA	0.36	0.39	0.39	0.39	0.39	NA	A	A	A	A	A
Rancho Cordova Pkwy	US 50	Easton Valley Pkwy	NA	6	NA	50,100	47,800	47,800	47,800	47,700	NA	**0.93**	0.89	0.89	0.89	0.88	NA	**E**	D	D	D	D
	Easton Valley Pkwy	White Rock Rd	NA	6	NA	46,000	42,800	42,700	42,600	42,300	NA	0.85	0.79	0.79	0.79	0.78	NA	D	C	C	C	C
	White Rock Rd	International Blvd	NA	4	NA	34,400	32,500	32,500	32,200	32,200	NA	**0.96**	**0.90**	**0.90**	0.89	0.89	NA	**E**	**E**	**E**	D	D
	International Blvd	Douglas Rd	NA	4	NA	16,000	14,700	14,800	14,600	14,500	NA	0.44	0.41	0.41	0.41	0.40	NA	A	A	A	A	A
	Douglas Rd	Chrysanthy	NA	4	NA	24,600	23,000	23,000	22,900	22,800	NA	0.68	0.64	0.64	0.64	0.63	NA	B	B	B	B	B
	Chrysanthy	Kiefer Rd	NA	4	NA	21,200	19,200	19,100	19,100	19,100	NA	0.59	0.53	0.53	0.53	0.53	NA	A	A	A	A	A
	Kiefer Rd	Grant Line Rd	NA	2	NA	8,500	10,300	10,300	10,300	10,300	NA	0.47	0.57	0.57	0.57	0.57	NA	A	A	A	A	A
Rio Del Oro Blvd	Sunrise Blvd	Rancho Cordova Pkwy	NA	6	NA	10,500	8,800	8,800	8,700	8,600	NA	0.19	0.16	0.16	0.16	0.16	NA	A	A	A	A	A
Sunrise Blvd	Folsom Blvd	Trade Center Dr	6	6	52,400	54,600	54,300	54,400	54,100	53,800	**0.97**	**1.01**	**1.01**	**1.01**	**1.00**	1.00	**E**	**F**	**F**	**F**	**F**	**E**
	Trade Center Dr	White Rock Rd	6	6	40,200	41,500	41,200	41,200	41,000	40,700	0.74	0.77	0.76	0.76	0.76	0.75	C	C	C	C	C	C
	White Rock Rd	International Blvd	4	6	28,200	29,300	29,200	29,300	29,300	29,000	0.78	0.54	0.54	0.54	0.54	0.54	C	A	A	A	A	A
	International Blvd	Douglas Rd	6	6	28,200	39,200	37,700	37,700	37,300	36,700	0.52	0.73	0.70	0.70	0.69	0.68	A	C	B	B	B	B
	Douglas Rd	Chrysanthy	6	6	24,500	31,700	30,800	30,800	30,100	29,600	0.45	0.59	0.57	0.57	0.56	0.55	A	A	A	A	A	A
	Chrysanthy	Kiefer Rd	5	6	24,500	34,000	33,600	33,600	32,800	32,200	0.54	0.63	0.62	0.62	0.61	0.60	A	B	B	B	B	A
	Kiefer Rd	Jackson Rd	2	6	17,500	25,400	25,500	25,400	24,700	24,000	**0.97**	0.47	0.47	0.47	0.46	0.44	**E**	A	A	A	A	A
White Rock Rd	International Blvd	Zinfandel Dr	2	2	11,400	12,700	12,500	12,500	12,600	12,700	0.63	0.71	0.69	0.69	0.70	0.71	B	C	B	B	C	C
	Zinfandel Dr	Sunrise Blvd	6	6	19,900	23,600	23,600	23,600	23,500	23,500	0.37	0.44	0.44	0.44	0.44	0.44	A	A	A	A	A	A
	Sunrise Blvd	Rancho Cordova Pkwy	2	6	13,000	43,900	44,800	44,800	44,700	44,600	0.72	0.81	0.83	0.83	0.83	0.83	C	D	D	D	D	D
Zinfandel Dr	US 50	White Rock Rd	6	6	43,300	75,000	74,700	74,900	74,900	74,400	0.80	**1.39**	**1.38**	**1.39**	**1.39**	1.38	D	**F**	**F**	**F**	**F**	**F**
	White Rock Rd	International Blvd	6	6	19,700	59,000	58,600	59,000	59,200	58,800	0.36	**1.09**	**1.09**	**1.09**	**1.10**	1.09	A	**F**	**F**	**F**	**F**	**F**
	International Blvd	City Limits	4	6	7,100	36,600	35,800	36,000	35,600	35,500	0.20	0.68	0.66	0.67	0.66	0.66	A	B	B	B	B	B
City of Elk Grove																						
Bond Rd	SR 99	Elk Grove Florin Rd	4	6	49,200	59,800	60,100	60,200	60,300	60,200	**1.37**	**1.11**	**1.11**	**1.11**	**1.12**	**1.11**	**F**	**F**	**F**	**F**	**F**	**F**
	Elk Grove Florin Rd	Waterman Rd	4	4	18,800	26,500	26,700	26,800	27,000	26,900	0.52	0.74	0.74	0.74	0.75	0.75	A	C	C	C	C	C
	Waterman Rd	Bradshaw Rd	4	4	18,600	25,000	25,300	25,500	25,700	25,700	0.52	0.69	0.70	0.71	0.71	0.71	A	B	C	C	C	C
	Bradshaw Rd	Grant Line Rd	2	4	9,100	11,700	12,900	13,000	14,400	13,000	0.51	0.33	0.36	0.36	0.40	0.36	A	A	A	A	A	A
Bradshaw Rd	Calvine Rd	Sheldon Rd	2	6	9,300	19,500	18,100	17,700	18,500	19,400	0.52	0.36	0.34	0.33	0.34	0.36	A	A	A	A	A	A
	Sheldon Rd	Bond Rd	2	6	8,100	18,800	17,100	16,700	17,900	18,800	0.45	0.35	0.32	0.31	0.33	0.35	A	A	A	A	A	A
	Bond Rd	Elk Grove Blvd	2	6	5,100	12,000	11,100	10,100	10,600	11,900	0.28	0.22	0.21	0.19	0.20	0.22	A	A	A	A	A	A
	Elk Grove Blvd	Grant Line Rd	2	6	3,400	12,600	11,200	9,700	11,700	12,700	0.19	0.23	0.21	0.18	0.22	0.24	A	A	A	A	A	A
Bruceville Rd	Laguna Blvd	Elk Grove Blvd	4	6	21,700	29,800	29,600	29,600	29,700	29,700	0.60	0.55	0.55	0.55	0.55	0.55	B	A	A	A	A	A
	Elk Grove Blvd	Whitelock Pkwy	4	6	23,000	26,300	26,100	26,200	26,200	26,200	0.64	0.49	0.48	0.49	0.49	0.49	B	A	A	A	A	A

Revised Table 16-19. Change in Future (i.e., 2035 and beyond) Roadway Segment Levels of Service – on Non-Project Roadways

Roadway	Segment		Travel Lanes		Average Daily Traffic Volumes						Volume/Capacity Ratio						Level of Service					
							2035 Proposed Project						2035 Proposed Project						2035 Proposed Project			
							Deer Creek Causeway		Reduced Access Road	High Access Road			Deer Creek Causeway		Reduced Access Road	High Access Road			Deer Creek Causeway		Reduced Access Road	High Access Road
Roadway	From	To	2008	2035	2008	2035	Option 1	Option 2			2008	2035	Option 1	Option 2			2008	2035	Option 1	Option 2		
Bruceville Rd	Whitelock Pkwy	Kammerer Rd	2	6	4,500	6,100	6,100	6,100	6,100	6,100	0.25	0.11	0.11	0.11	0.11	0.11	A	A	A	A	A	A
Elk Grove Blvd	I-5	Franklin Blvd	6	6	24,100	21,300	21,000	21,000	21,100	21,000	0.45	0.39	0.39	0.39	0.39	0.39	A	A	A	A	A	A
	Franklin Rd	Bruceville Rd	6	6	29,600	26,000	25,800	25,800	26,000	25,900	0.55	0.48	0.48	0.48	0.48	0.48	A	A	A	A	A	A
	Bruceville Rd	Big Horn Blvd	6	6	40,700	42,600	42,500	42,500	42,600	42,500	0.75	0.79	0.79	0.79	0.79	0.79	C	C	C	C	C	C
	Big Horn Blvd	W Stockton Blvd	6	6	39,500	29,800	29,700	29,700	30,000	29,900	0.73	0.55	0.55	0.55	0.56	0.55	C	A	A	A	A	A
	W Stockton Blvd	SR 99	6	6	45,400	56,500	55,900	55,900	56,700	56,800	0.84	**1.05**	**1.04**	**1.04**	**1.05**	**1.05**	D	**F**	**F**	**F**	**F**	**F**
	SR 99	E Stockton Blvd	4	6	40,000	48,100	47,300	47,700	48,200	48,300	**1.11**	0.89	0.88	0.88	0.89	0.89	**F**	D	D	D	D	D
	E Stockton Blvd	Elk Grove Florin Rd	4	6	37,700	48,600	47,600	48,100	48,600	48,700	**1.05**	**0.90**	0.88	0.89	**0.90**	**0.90**	**F**	**E**	D	D	**E**	**E**
	Elk Grove Florin Rd	Waterman Rd	2	4	20,700	28,600	28,100	28,400	29,100	28,900	**1.15**	0.79	0.78	0.79	0.81	0.80	**F**	C	C	C	D	D
	Waterman Rd	Bradshaw Rd	2	2	13,800	17,700	16,700	17,300	18,800	18,200	0.77	**0.98**	**0.93**	**0.96**	**1.04**	**1.01**	C	**E**	**E**	**E**	**F**	**F**
	Bradshaw Rd	Grant Line Rd	2	2	6,000	12,300	10,900	11,100	14,100	13,200	0.33	0.68	0.61	0.62	0.78	0.73	A	B	B	B	C	C
Excelsior Rd	Calvine Rd	Sheldon Rd	2	2	4,000	8,300	8,400	8,400	8,500	8,400	0.22	0.46	0.47	0.47	0.47	0.47	A	A	A	A	A	A
Franklin Blvd	Laguna Blvd	Elk Grove Blvd	4	4	23,800	23,300	23,200	23,200	23,200	23,300	0.66	0.65	0.64	0.64	0.64	0.65	B	B	B	B	B	B
	Elk Grove Blvd	Whitelock Pkwy	4	6	12,700	11,700	11,800	11,800	11,800	11,800	0.35	0.22	0.22	0.22	0.22	0.22	A	A	A	A	A	A
	Whitelock Pkwy	Bilby Rd	2	2	0	3,200	3,300	3,300	3,300	3,400	0.00	0.18	0.18	0.18	0.18	0.19	A	A	A	A	A	A
Laguna Blvd	I-5	Franklin Blvd	6	6	32,100	39,000	39,000	39,000	39,000	38,900	0.59	0.72	0.72	0.72	0.72	0.72	A	C	C	C	C	C
	Franklin Rd	Bruceville Rd	6	6	36,500	48,200	48,200	48,300	48,200	48,200	0.68	0.89	0.89	0.89	0.89	0.89	B	D	D	D	D	D
	Bruceville Rd	Big Horn Blvd	6	6	36,500	45,800	45,700	45,700	45,700	45,700	0.68	0.85	0.85	0.85	0.85	0.85	B	D	D	D	D	D
	Big Horn Blvd	SR 99	8	8	57,800	78,000	77,900	77,800	77,900	78,000	0.80	**1.08**	**1.08**	**1.08**	**1.08**	1.08	D	**F**	**F**	**F**	**F**	**F**
Sheldon Rd	SR 99	Elk Grove Florin Rd	4	4	0	10,800	10,800	10,800	11,100	11,200	0.00	0.30	0.30	0.30	0.31	0.31	A	A	A	A	A	A
	Elk Grove Florin Rd	Waterman Rd	2	4	9,100	18,500	18,700	18,800	19,000	19,100	0.51	0.51	0.52	0.52	0.53	0.53	A	A	A	A	A	A
	Waterman Rd	Bradshaw Rd	2	4	7,100	8,300	8,200	8,100	8,700	8,900	0.39	0.23	0.23	0.23	0.24	0.25	A	A	A	A	A	A
	Bradshaw Rd	Excelsior Rd	2	2	5,000	7,200	7,000	7,000	7,300	8,000	0.28	0.40	0.39	0.39	0.41	0.44	A	A	A	A	A	A
	Excelsior Rd	Grant Line Rd	2	2	5,800	10,600	11,200	11,100	11,400	11,000	0.32	0.59	0.62	0.62	0.63	0.61	A	A	B	B	B	B
Waterman Rd	Calvine Rd	Sheldon Rd	2	4	7,600	20,000	19,700	19,800	19,600	19,900	0.42	0.56	0.55	0.55	0.54	0.55	A	A	A	A	A	A
	Sheldon Rd	Bond Rd	2	4	8,400	17,500	16,900	17,100	17,100	17,400	0.47	0.49	0.47	0.48	0.48	0.48	A	A	A	A	A	A
	Bond Rd	Elk Grove Blvd	2	4	10,400	16,900	16,200	16,900	16,600	16,900	0.58	0.47	0.45	0.47	0.46	0.47	A	A	A	A	A	A
	Elk Grove Blvd	Grant Line Rd	2	4	7,500	13,500	16,700	14,800	13,300	13,300	0.42	0.38	0.46	0.41	0.37	0.37	A	A	A	A	A	A
Whitelock Pkwy	Franklin Rd	Bruceville Rd	4	4	12,900	11,700	11,600	11,600	11,600	11,600	0.36	0.33	0.32	0.32	0.32	0.32	A	A	A	A	A	A
	Bruceville Rd	Big Horn Blvd	4	4	3,000	13,300	13,400	13,300	13,200	13,200	0.08	0.37	0.37	0.37	0.37	0.37	A	A	A	A	A	A
	Big Horn Blvd	W Stockton Blvd	4	4	3,000	6,200	6,300	6,200	6,200	6,200	0.08	0.17	0.18	0.17	0.17	0.17	A	A	A	A	A	A
	W Stockton Blvd	SR 99	NA	4	NA	34,900	35,900	35,900	35,000	34,900	NA	**0.97**	**1.00**	**1.00**	**0.97**	**0.97**	NA	**E**	**E**	**E**	**E**	**E**
Willard Pkwy	Whitelock Pkwy	Kammerer Rd	4	4	NA	5,300	5,300	5,300	5,300	5,300	NA	0.15	0.15	0.15	0.15	0.15	NA	A	A	A	A	A

Source: DKS Associates 2010.

Notes: Bold indicates segments that would not meet the LOS standard for the local jurisdiction.
Cells shaded in grey represent significant LOS impacts.

Table 16-20. Change in Future (i.e., 2035 and beyond) Intersection Levels of Service – Along Proposed Project Alignment

Roadway	Cross Street	Traffic Control						Average Delay												Level of Service											
				2035 Build								2035 Proposed Project												2035 Proposed Project							
				Deer Creek Causeway								Deer Creek Causeway												Deer Creek Causeway							
		2008	2035	Option 1	Option 2	Reduced Access Road	High Access Road	2008		2035		Option 1		Option 2		Reduced Access Road		High Access Road		2008		2035		Option 1		Option 2		Reduced Access Road		High Access Road	
Roadway	Cross Street							AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
White Rock Road	US 50 EB Ramps	NA	Signal	Signal	Signal	Signal	Signal	NA	NA	9.9	7.3	13.2	7.5	13.2	7.7	13.1	10.0	9.8	10.0	NA	NA	A	A	B	A	B	A	B	B	A	A
	US 50 EB Ramps	NA	Signal	Signal	Signal	Signal	Signal	NA	NA	4.4	11.5	5.6	13.1	4.2	11.2	4.3	12.0	4.3	13.5	NA	NA	A	B	A	B	A	B	A	B	A	B
	Valley View Pkwy	4WS	Signal	Signal	Signal	Signal	Signal	16.6	23.5	25.2	26.2	29.0	31.4	31.4	37.1	29.2	30.7	30.7	32.0	B	C	C	C	C	C	C	D	C	C	C	C
	Latrobe Rd	Signal	Signal	Signal	Signal	Signal	Signal	22.7	31.8	36.1	43.0	33.0	44.2	35.1	45.0	33.2	44.2	34.2	43.9	C	C	D	D	C	D	D	D	C	D	C	D
	Windfield Way	1WS	Signal	Signal	Signal	Signal	Signal	-	-	12.2	16.9	17.9	23.7	17.7	23.7	17.6	24.9	19.9	24.9	-	-	B	B	B	C	B	C	B	C	B	C
	Stonebriar Dr	Signal	Signal	Signal	Signal	Signal	Signal	20.6	14.8	17.5	18.7	18.6	19.4	18.7	19.5	16.7	19.2	18.7	20.0	C	B	B	B	B	B	B	B	B	B	B	B
	Carson Crossing	1WS	Signal	Signal	Signal	Signal	Signal	-	-	7.3	6.4	6.7	6.7	6.8	6.7	9.2	8.3	8.4	8.3	-	-	A	A	A	A	A	A	A	A	A	A
	Empire Ranch Rd	NA	Signal	Interch	Interch	Interch	Interch	NA	NA	30.1	34.5									NA	NA	C	C								
	Placerville Rd	1WS	Signal	RT in/out	RT in/out	RT in/out	RT	-	-	0.0	3.2									-	-	A	A								
	Scott Rd (North)	3WS	Signal	Interch	Interch	Interch	Interch	17.1	23.9	33.1	16.0									C	C	C	B								
	Oak Av Pkwy	NA	Signal	Signal	Signal	Signal	Signal	NA	NA	9.4	6.0	7.1	8.8	7.1	10.5	7.2	9.5	7.2	9.5	NA	NA	A	A	A	A	A	B	A	A	A	A
	Scott Rd (South)	1WS	Signal	NA	NA	NA	NA	-	-	12.6	7.9									-	-	B	A								
	Prairie City Rd	3WS	Signal	Interch	Interch	Interch	Interch	**51.4**	**99.6**	**56.1**	38.5									**F**	**F**	**E**	D								
	OHV Park Entrance	1WS	Signal	Signal	Signal	Signal	Signal	-	-	3.2	5.7	4.2	5.2	4.5	5.1	4.2	5.2	4.2	5.1	-	-	A	A	A	A	A	A	A	A	A	A
Grant Line Road	White Rock Rd	1WS	Signal	Interch	Interch	Interch	Interch	-	-	23.9	35.1	25.6	41.7							-	-	C	D	C	D						
	Access to N. Douglas	1WS	Signal	Signal	Signal	Signal	Signal	-	-	4.7	5.4	18.2	22.9	18.1	22.7	18.5	23.3	18.5	23.2	-	-	A	A	B	C	B	C	B	C	B	C
	Douglas Rd	1WS	Signal	Interch	Interch	Interch	Interch	-	-	16.2	18.7									-	-	B	B								
	North Loop Rd	NA	Signal	Close	Close	Close	Close	NA	NA	43.5	25.0									NA	NA	D	C								
	Chrysanthy	NA	Signal	Interch	Interch	Interch	Interch	NA	NA	43.8	34.7									NA	NA	D	C								
	University	NA	Signal	Interch	Interch	Interch	Interch	NA	NA	41.5	29.7									NA	NA	D	C								
	Kiefer Blvd	4WS	Signal	Interch	Interch	Interch	Interch	11.7	14.4	23.7	25.4									B	B	C	C								
	Rancho Cordova Pkwy	NA	Signal	Signal	Signal	Signal	Signal	NA	NA	12.0	8.6	11.1	10.4	11.1	10.3	11.1	10.4	11.1	10.4	NA	NA	B	A	B	B	B	B	B	B	B	B
	Jackson Rd	Signal	Signal	Interch	Interch	Interch	Interch	**87.1**	**76.0**	31.5	24.5									**F**	**E**	C	C								
	Sunrise Blvd	Signal	Signal	Interch	Interch	Interch	Interch	31.2	33.8	31.0	18.2									C	C	C	B								
	Eagles Nest Rd	Signal	Signal	Signal	Signal	Signal	Signal	9.9	9.9	9.0	8.3	12.6	15.3	12.6	15.3	9.6	11.5	10.1	10.5	A	A	A	A	B	B	B	B	A	B	B	B
	Calvine Rd	Signal	Signal			Signal	Signal	20.3	15.2	9.2	5.6	11.1	11.0	11.2	20.2	19.1	14.3	9.3	11.2	C	B	A	A	B	B	B	C	B	B	A	B
	Sheldon Rd	1WS	Signal			Signal	Signal	-	-	17.0	32.1	18.1	25.9	18.8	26.2	17.4	22.6	24.1	34.7	-	-	B	C	B	C	B	C	B	C	C	C
	Siefker Ct	1WS	Signal			NA	Signal	-	-	5.3	5.7	4.3	4.2	4.5	4.2			5.4	5.8	-	-	A	A	A	A	A	A			A	A
	Aleilani Lane	2WS	Signal			NA	Signal	-	-	9.3	34.2	10.5	17.6	10.6	17.7			33.6	**86.7**	-	-	A	C	B	B	B	B			C	**F**
	Wilton Rd	Signal	Signal			Signal	Signal	37.9	41.9	50.8	**65.9**	28.8	26.0	28.7	25.5	22.5	29.0	**56.5**	**88.4**	D	D	D	**E**	C	C	C	C	C	C	**E**	**F**
	Sherman Oaks Ct	1WS	Signal			NA	Signal	-	-	11.7	12.5	8.4	7.8	8.5	7.8			10.3	14.5	-	-	B	B	A	A	A	A			B	B
	Bond Rd	Signal	Signal			Signal	Signal	10.2	10.2	12.3	11.8	13.3	12.6	13.3	12.6	14.3	16.6	14.5	14.3	B	B	B	B	B	B	B	B	B	B	B	B
	Elk Grove Blvd	3WS	Signal			Signal	Signal	11.5	12.0	5.0	5.6	5.8	6.9	5.8	6.0	5.8	7.5	5.7	5.9	B	B	A	A	A	A	A	A	A	A	A	A
	Bradshaw Rd	1WS	Signal	Signal		Signal	Signal	-	-	9.8	11.8	9.5	4.8	19.2	13.8	8.9	9.3	8.7	9.7	-	-	A	B	A	A	B	B	A	A	A	A
	Mosher Rd	1WS	Signal	Signal	Signal	Signal	Signal	-	-	4.3	8.9	2.8	2.8	3.9	2.3	5.4	9.9	5.2	8.7	-	-	A	A	A	A	A	A	A	A	A	A
	Waterman Rd	1WS	Signal	Signal	Signal	Signal	Signal	-	-	12.5	12.6	5.0	10.7	4.4	10.3	4.0	8.2	4.3	4.9	-	-	B	B	A	B	A	B	A	A	A	A
	E Stockton Blvd	Signal	Signal	Signal	Signal	Signal	Signal	30.0	28.0	9.8	12.6	9.2	13.7	8.8	13.1	9.1	11.4	9.9	13.0	D	D	A	B	A	B	A	B	A	B	A	B

Table 16-20. Change in Future (i.e., 2035 and beyond) Intersection Levels of Service – Along Proposed Project Alignment

Roadway	Cross Street	Traffic Control						Average Delay												Level of Service											
				2035 Build								2035 Proposed Project												2035 Proposed Project							
				Deer Creek Causeway								Deer Creek Causeway						High Access Road						Deer Creek Causeway				Reduced Access Road		High Access Road	
		2008	2035	Option 1	Option 2	Reduced Access Road	High Access Road	2008		2035		Option 1		Option 2		Reduced Access Road				2008		2035		Option 1		Option 2					
								AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Kammerer Road	SR 99 NB Ramps	Signal	Signal	Signal	Signal	Signal	Signal	5.8	5.3	7.6	8.1	8.6	7.6	8.3	7.6	9.0	10.8	8.3	7.4	A	A	A	A	A	A	A	A	A	B	A	A
	SR 99 SB Ramps	Signal	Signal	Signal	Signal	Signal	Signal	6.7	6.6	5.0	4.9	7.3	7.1	6.1	7.1	5.3	6.3	6.3	6.4	A	A	A	A	A	A	A	A	A	A	A	A
Kammerer Road	W Stockton Blvd	Signal	Signal	Signal	Signal	Signal	Signal	1.1	1.1	14.3	17.2	13.2	20.4	18.5	20.4	10.6	15.0	14.3	19.9	A	A	B	B	B	C	B	C	B	B	B	B
	Lent Ranch Pkwy	Signal	Signal	Signal	Signal	Signal	Signal	1.1	1.1	4.5	9.2	4.1	7.0	4.2	7.1	5.5	10.8	4.3	7.3	A	A	A	A	A	A	A	A	A	B	A	A
	Collector 1 (East)	NA	Signal	Signal	Signal	Signal	Signal	NA	NA	4.8	4.9	3.4	4.1	3.3	4.0	3.6	5.1	3.3	4.2	NA	NA	A	A	A	A	A	A	A	A	A	A
	Lotz Pkwy	NA	Signal	Signal	Signal	Signal	Signal	NA	NA	2.8	3.9	3.6	4.4	3.6	4.4	3.8	4.5	3.6	4.3	NA	NA	A	A	A	A	A	A	A	A	A	A
	Collector 2 (West)	NA	Signal	Signal	Signal	Signal	Signal	NA	NA	4.4	3.9	4.7	3.9	5.0	4.0	5.2	5.4	4.9	3.9	NA	NA	A	A	A	A	A	A	A	A	A	A
	Big Horn Blvd	NA	Signal	Signal	Signal	Signal	Signal	NA	NA	6.3	7.4	4.9	4.7	4.7	4.5	6.7	7.0	4.6	4.6	NA	NA	A	A	A	A	A	A	A	A	A	A
	Bruceville Rd	1WS	Signal	Signal	Signal	Signal	Signal	-	-	13.0	10.2	7.1	6.2	7.1	6.1	6.2	5.6	7.1	6.1	-	-	A	A	A	A	A	A	A	A	A	A
Kammerer Road Extension	Willard Pkwy	NA	Signal	Signal	Signal	Signal	Signal	NA	NA	7.7	6.3	7.4	7.4	7.4	7.3	5.8	6.0	7.4	7.4	NA	NA	A	A	A	A	A	A	A	A	A	A
	Franklin Rd	NA	Signal	Signal	Signal	Signal	Signal	NA	NA	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	NA	NA	A	A	A	A	A	A	A	A	A	A
	Hood-Franklin Rd	NA	Signal	Signal	Signal	Signal	Signal	NA	NA	2.8	2.2	1.3	1.0	1.3	1.0	1.4	1.1	1.3	1.0	NA	NA	A	A	A	A	A	A	A	A	A	A
	I-5 NB Ramps	1WS	Signal	Signal	Signal	Signal	1WS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	I-5 SB Ramps	1WS	Signal	Signal	Signal	Signal	Signal	9.1	10.1	8.3	17.8	9.1	13.6	9.1	13.8	9.6	13.1	9.0	13.9	A	B	A	B	A	B	A	B	A	B	A	B

Source: DKS Associates 2010.

Notes: Bold indicates segments that would not meet the LOS standard for the local jurisdiction.
Cells shaded in grey represent significant LOS impacts.
Cells shaded in yellow are segments of Grant Line Road that are not a part of the Connector under the Deer Creek Causeway Option 1 or Option 2.
Cells shaded in tan would not have signal control.

Table 16-21. Change in Future (i.e., 2035 and beyond) Intersection Levels of Service – Key Intersections on Non-Project Roadways

Roadway	Cross Street	Traffic Control						Average Delay												Level of Service											
				2035 Proposed Project								2035 Proposed Project												2035 Proposed Project							
				Deer Creek Causeway								Deer Creek Causeway												Deer Creek Causeway							
		2008	2035	Option 1	Option 2	Reduced Access Road	High Access Road	2008		2035		Option 1		Option 2		Reduced Access Road		High Access Road		2008		2035		Option 1		Option 2		Reduced Access Road		High Access Road	
Roadway	Cross Street							AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Latrobe Rd	Town Center Blvd	Signal	Signal	Signal	Signal	Signal	Signal	22.7	31.8	27.1	**96.9**	27.8	**102.2**	28.0	**102.6**	28.0	**103.1**	28.0	**102.0**	C	C	C	**F**	C	**F**	C	**F**	C	**F**	C	**F**
E Bidwell St	Iron Point Rd	Signal	Signal	Signal	Signal	Signal	Signal	31.7	45.0	**43.7**	**78.6**	**42.1**	**81.2**	**43.9**	**85.0**	**43.8**	**84.3**	**42.8**	**81.9**	C	D	**D**	**E**	**D**	**F**	**D**	**F**	**D**	**F**	**D**	**F**
Scott Rd (North)	US 50 WB Ramps	Signal	Signal	Signal	Signal	Signal	Signal	19.8	24.2	23.0	21.0	24.7	22.6	24.6	22.8	24.6	22.6	24.6	22.7	B	C	C	C	C	C	C	C	C	C	C	C
	US 50 EB Ramps	Signal	Signal	Signal	Signal	Signal	Signal	18.0	17.4	15.8	29.7	15.6	30.5	15.7	31.0	15.7	30.6	15.7	30.6	B	B	B	C	B	C	B	C	B	C	B	C
	Easton Valley Pkwy	Signal	Signal	Signal	Signal	Signal	Signal	NA	NA	29.3	**45.0**	28.8	**45.1**	28.9	**48.1**	29.0	**44.5**	29.0	**45.2**	NA	NA	C	**D**	C	**D**	C	**D**	C	**D**	C	**D**
Prairie City Rd	Iron Point Rd	Signal	Signal	Signal	Signal	Signal	Signal	29.1	33.6	28.0	28.5	28.9	28.4	29.0	28.3	28.9	28.4	28.9	28.3	C	C	C	C	C	C	C	C	C	C	C	C
	US 50 WB Ramps	Signal	Signal	Signal	Signal	Signal	Signal	20.7	12.8	20.8	11.5	21.5	10.5	21.5	10.8	21.4	10.5	21.4	10.4	C	B	C	B	C	B	C	B	C	B	C	B
	US 50 EB Ramps	Signal	Signal	Signal	Signal	Signal	Signal	17.7	17.3	34.0	18.9	**36.7**	17.6	**36.7**	17.5	**36.0**	17.6	**35.1**	18.0	B	B	C	B	**D**	B	**D**	B	**D**	B	**D**	B
	Easton Valley Pkwy	NA	Signal	Signal	Signal	Signal	Signal	NA	NA	31.6	31.3	32.7	31.5	32.8	31.4	32.6	31.9	32.5	31.3	NA	NA	C	C	C	C	C	C	C	C	C	C
White Rock Rd	Sunrise Blvd	Signal	Signal	Signal	Signal	Signal	Signal	27.7	30.8	24.6	28.0	24.9	28.5	24.7	28.5	24.9	28.2	24.5	28.1	C	C	C	C	C	C	C	C	C	C	C	C
	Rancho Cordova Pkwy	NA	Signal	Signal	Signal	Signal	Signal	NA	NA	**66.1**	**50.1**	**70.4**	**45.4**	**72.1**	**45.4**	**71.1**	**45.3**	**71.8**	**45.7**	NA	NA	**E**	**D**	**E**	**D**	**E**	**D**	**E**	**D**	**E**	**D**
Bond Rd	Elk Grove-Florin Rd	Signal	Signal	Signal	Signal	Signal	Signal	35.2	34.3	**50.4**	**60.2**	**50.0**	**58.8**	**51.7**	**59.2**	**51.0**	**61.7**	**51.5**	**60.7**	D	C	**D**	**E**	**D**	**E**	**D**	**E**	**D**	**E**	**D**	**E**
Elk Grove Blvd	Elk Grove-Florin Rd	Signal	Signal	Signal	Signal	Signal	Signal	32.4	32.4	**41.0**	**49.7**	**40.3**	**50.3**	**41.6**	**50.8**	**41.9**	**51.9**	**40.7**	**50.5**	C	C	**D**	**D**	**D**	**D**	**D**	**D**	**D**	**D**	**D**	**D**
	Waterman Rd	Signal	Signal	Signal	Signal	Signal	Signal	26.5	29.8	30.4	**36.7**	30.2	34.2	30.4	**35.3**	30.4	**36.8**	30.5	**36.8**	C	C	C	**D**	C	C	C	**D**	C	**D**	C	**D**
	Bradshaw Rd	Signal	Signal	Signal	Signal	Signal	Signal	10.0	10.7	27.0	27.5	26.3	28.0	26.7	28.0	26.9	27.2	27.2	27.5	B	B	C	C	C	C	C	C	C	C	C	C

Source: DKS Associates 2010.

Notes: Bold indicates segments that would not meet the LOS standard for the local jurisdiction.
Cells shaded in grey represent significant LOS impacts.

Table 16-22. Change in Future (i.e., 2035 and beyond) Peak Hour Freeway Mainline Levels of Service

Freeway	Segment		2008				2035				2035 Build																
											Deer Creek Causeway																
											Option 1				Option 2				Reduced Access Road				High Access Road				
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hr		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		
Freeway	From	To	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	
I-5	**Northbound I-5**																										
	South of	Kammerer Rd	0.27	A	0.45	B	0.48	B	0.63	C	0.47	B	0.63	C	0.48	B	0.63	C	0.48	B	0.63	C	0.47	B	0.63	C	
	North of	Kammerer Rd	0.36	B	0.45	B	0.54	C	0.62	C	0.53	B	0.61	C	0.53	C	0.61	C	0.54	C	0.61	C	0.53	C	0.61	C	
	Southbound I-5																										
	North of	Kammerer Rd	0.45	B	0.48	B	0.58	C	0.70	C	0.56	C	0.69	C	0.56	C	0.69	C	0.56	C	0.70	C	0.56	C	0.70	C	
	South of	Kammerer Rd	0.45	B	0.43	B	0.60	C	0.64	C	0.60	C	0.64	C	0.60	C	0.64	C	0.60	C	0.64	C	0.60	C	0.64	C	
Hwy 99	**Northbound Hwy 99**																										
	South of	Grant Line Rd	0.51	B	0.47	B	0.74	C	0.70	C	0.74	D	0.70	C	0.74	C	0.70	C	0.73	C	0.70	C	0.74	D	0.70	C	
	North of	Grant Line Rd	0.45	B	0.41	B	0.52	B	0.55	C	0.53	C	0.57	C	0.53	B	0.57	C	0.52	B	0.55	C	0.52	B	0.55	C	
	Southbound Hwy 99																										
	North of	Grant Line Rd	0.42	B	0.46	B	0.59	C	0.54	C	0.61	C	0.55	C	0.60	C	0.55	C	0.59	C	0.53	B	0.59	C	0.53	C	
	South of	Grant Line Rd	0.45	B	0.52	B	0.68	C	0.74	C	0.69	C	0.74	D	0.69	C	0.74	D	0.69	C	0.74	C	0.69	C	0.74	C	
US 50	**Eastbound US 50**																										
	Folsom Blvd	Prairie City Rd	0.67	C	**1.12**	**F**	0.96	E	**1.13**	**F**	0.93	E	**1.12**	**F**	0.93	E	**1.13**	**F**	0.92	E	**1.12**	**F**	0.93	E	**1.12**	**F**	
	Prairie City Rd	Oak Av Pkwy	0.69	C	**1.04**	**F**	**1.05**	**F**	**1.11**	**F**	**1.03**	**F**	**1.10**	**F**	**1.02**	**F**	**1.11**	**F**	**1.02**	**F**	**1.09**	**F**	**1.03**	**F**	**1.10**	**F**	
	Oak Av Pkwy	E Bidwell St/Scott Rd					0.79	D	0.95	E	0.77	D	0.94	E	0.77	D	0.95	E	0.77	D	0.94	E	0.77	D	0.94	E	
	E Bidwell St/Scott Rd	Empire Ranch Rd	0.52	B	0.80	D	0.85	D	0.89	D	0.86	D	0.90	E	0.85	D	0.90	E	0.86	D	0.90	E	0.85	D	0.90	E	
	Empire Ranch Rd	El Dorado Hills/Latrobe Rd					0.61	C	0.57	C	0.61	C	0.57	C	0.61	C	0.57	C	0.61	C	0.57	C	0.61	C	0.57	C	
	El Dorado Hills/Latrobe Rd	Silva Valley Rd	0.63	C	**1.06**	**F**	0.59	C	0.60	C	0.59	C	0.61	C	0.59	C	0.61	C	0.59	C	0.61	C	0.59	C	0.61	C	
	Silva Valley Rd	Bass Lake Rd					0.83	D	0.86	D	0.83	D	0.86	D	0.83	D	0.86	D	0.83	D	0.86	D	0.83	D	0.86	D	
	Westbound US 50																										
	Bass Lake Rd	Silva Valley Rd	0.94	E	0.49	B	0.77	D	0.61	C	0.77	D	0.61	C	0.76	D	0.61	C	0.77	D	0.62	C	0.77	D	0.62	C	
	Silva Valley Rd	El Dorado Hills/Latrobe Rd					0.61	C	0.52	B	0.62	C	0.52	B	0.61	C	0.52	B	0.61	C	0.52	B	0.61	C	0.52	B	
	El Dorado Hills/Latrobe Rd	Empire Ranch Rd	**1.04**	**F**	0.61	C	0.73	C	0.65	C	0.74	D	0.65	C	0.73	C	0.65	C	0.73	C	0.65	C	0.73	C	0.65	C	
	Empire Ranch Rd	E Bidwell St/Scott Rd					0.82	D	0.72	C	0.82	D	0.73	C	0.82	D	0.73	C	0.82	D	0.73	C	0.82	D	0.73	C	
	E Bidwell St/Scott Rd	Oak Av Pkwy	0.92	E	0.57	C	0.81	D	0.67	C	0.81	D	0.68	C	0.80	D	0.68	C	0.80	D	0.68	C	0.80	D	0.67	C	
	Oak Av Pkwy	Prairie City Rd					**1.01**	**F**	0.88	D	**1.01**	**F**	0.87	D	**1.01**	**F**	0.87	D	**1.00**	**F**	0.87	D	**1.01**	**F**	0.87	D	
	Prairie City Rd	Folsom Blvd	**1.03**	**F**	0.73	C	**1.02**	**F**	0.87	D	**1.01**	**F**	0.86	D	**1.01**	**F**	0.86	D	**1.01**	**F**	0.85	D	**1.01**	**F**	0.85	D	

Source: DKS Associates 2010.

Notes: Bold indicates segments that would not meet the LOS standard for the local jurisdiction.
Cells shaded in grey represent significant LOS impacts.

Table 16-23. Change in Future (i.e., 2035 and beyond) Peak Hour Freeway Ramp Merge/Diverge/Weave Levels of Service

										2035 Proposed Project															
										Sheldon Reduced Access Roadway Option				Deer Creek Causeway								Sheldon High Access Roadway			
	Merge, Diverge, or Weave	2008				2035								Option 1				Option 2							
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
Freeway Ramp	Maneuver	Density[a]	LOS[b]	Density	LOS	Density	LOS	Density	LOS	Density	LOS	Density	LOS	Density	LOS	Density	LOS	Density	LOS	Density	LOS	Density	LOS	Density	LOS
Eastbound US 50																									
Prairie City Road off-ramp	Diverge	29.9	D	**48.5**	**F**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Prairie City Road slip on-ramp	Weave	26.6	C	**39.1**	**F**	31.4	D	36.7	E	30.5	D	36.4	E	30.5	D	37.4	E	30.7	D	36.8	E	30.9	D	36.6	E
Prairie City Rd flyover on - Oak Avenue Pkwy off	Weave	22.1	C	**36.2**	**F**	36.1	E	38.4	E	34.8	D	37.8	E	34.7	D	38.5	E	34.7	D	37.7	E	35.3	E	37.8	E
Oak Avenue Parkway loop on-ramp	Merge					**35.6**	**F**	**40.8**	**F**	**34.6**	**F**	**40.0**	**F**	**34.7**	**F**	**40.3**	**F**	**34.6**	**F**	**40.4**	**F**	**34.7**	**F**	**40.0**	**F**
Oak Avenue Parkway direct on-ramp	Add					NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
E. Bidwell Street - Scott Road direct off-ramp	Drop	19.1	B	**32.9**	**F**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
E. Bidwell Street - Scott Road loop on-ramp	Add	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
E. Bidwell Street - Scott Road direct on-ramp	Merge	14.0	B	22.8	C	23.7	C	24.6	C	24.1	C	25.0	C	24.1	C	25.1	C	24.1	C	25.0	C	24.0	C	25.0	C
Empire Ranch Road direct off-ramp	Diverge	NA	NA	NA	NA	27.0	C	27.1	C	27.1	C	27.5	C	27.0	C	27.6	C	27.2	C	27.5	C	27.0	C	27.5	C
Empire Ranch Road loop on-ramp	Merge	NA	NA	NA	NA	21.9	C	18.3	B	21.8	C	18.3	B	21.9	C	18.4	B	21.9	C	18.2	B	21.9	C	18.3	B
Empire Ranch Road direct on-ramp	Merge	NA	NA	NA	NA	26.2	C	27.9	C	26.2	C	28.6	D	26.2	C	28.5	D	26.3	C	28.2	D	26.3	C	28.3	D
El Dorado Hills Boulevard - Latrobe Road off-ramp	Diverge	27.5	C	34.9	D	32.0	D	27.8	C	31.9	D	27.7	C	31.9	D	27.7	C	32.0	D	27.6	C	32.0	D	27.6	C
El Dorado Hills Boulevard - Latrobe Road on-ramp	Merge	28.4	D	**43.3**	**F**	23.2	C	26.3	C	23.3	C	26.3	C	23.3	C	26.5	C	23.3	C	26.4	C	23.3	C	26.3	C
Silva Valley Road direct off-ramp	Diverge	NA	NA	NA	NA	19.3	B	21.3	C	19.3	B	21.4	C	19.3	B	21.6	C	19.3	B	21.4	C	19.3	B	21.5	C
Silva Valley Road loop on-ramp	Merge	NA	NA	NA	NA	22.3	C	21.4	C	22.4	C	20.4	C	22.5	C	21.4	C	22.7	C	21.0	C	22.5	C	20.8	C
Silva Valley Road direct on-ramp	Merge	NA	NA	NA	NA	23.0	C	25.3	C	23.2	C	26.0	C	23.1	C	25.5	C	23.0	C	25.5	C	23.1	C	25.6	C
Westbound US 50																									
Silva Valley Road direct off-ramp	Drop	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silva Valley Road loop on-ramp	Merge	NA	NA	NA	NA	26.1	C	25.7	C	26.2	C	26.0	C	26.1	C	25.8	C	26.5	C	25.8	C	26.2	C	25.8	C
Silva Valley Road direct on-ramp	Add	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
El Dorado Hills Boulevard - Latrobe Road off-ramp	Diverge	**41.2**	**F**	23.7	C	12.1	B	9.0	A	12.1	B	9.2	A	12.3	B	9.1	A	12.6	B	9.0	A	12.4	B	9.0	A
El Dorado Hills Boulevard - Latrobe Road on-ramp	Merge	**41.7**	**F**	25.6	C	22.6	C	22.2	C	22.6	C	22.4	C	22.6	C	22.3	C	22.8	C	22.4	C	22.7	C	22.4	C
Empire Ranch Road direct off-ramp	Drop	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Empire Ranch Road loop on-ramp	Merge	NA	NA	NA	NA	28.9	D	28.5	D	29.0	D	28.6	D	29.0	D	28.5	D	29.4	D	28.6	D	29.1	D	28.6	D
Empire Ranch Road direct on-ramp	Add					NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
E. Bidwell Street - Scott Road direct off-ramp	Drop	**30.8**	**F**	16.7	B	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
E. Bidwell Street - Scott Road loop on-ramp	Merge	30.3	D	19.6	B	35.7	E	30.3	D	35.3	E	30.2	D	35.3	E	30.2	D	35.3	E	30.3	D	35.3	E	30.1	D
E. Bidwell Street - Scott Road direct on-ramp	Add	**30.1**	**F**	17.2	B	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Oak Avenue Parkway direct off-ramp	Drop	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Oak Avenue Parkway loop on-ramp	Merge	NA	NA	NA	NA	**34.7**	**F**	28.6	D	**34.7**	**F**	28.6	D	**34.6**	**F**	28.8	D	**34.9**	**F**	28.8	D	**34.7**	**F**	28.6	D
Oak Avenue Pkwy slip on - Prairie City Rd off	Weave	**40.4**	**F**	26.1	C	37.2	E	31.5	D	36.8	E	29.9	D	37.0	E	30.3	D	37.3	E	30.1	D	37.0	E	29.9	D
Prairie City Road loop on-ramp	Merge	37.9	E	25.9	C	**51.7**	**F**	**42.0**	**F**	**51.5**	**F**	**41.9**	**F**	**51.5**	**F**	**41.9**	**F**	**51.7**	**F**	**42.0**	**F**	**51.5**	**F**	**41.9**	**F**
Prairie City Road direct on-ramp	Add	**36.8**	**F**	25.6	C	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 16-23. Change in Future (i.e., 2035 and beyond) Peak Hour Freeway Ramp Merge/Diverge/Weave Levels of Service

Freeway Ramp	Merge, Diverge, or Weave Maneuver	2008				2035				2035 Proposed Project															
										Sheldon Reduced Access Roadway Option				Deer Creek Causeway								Sheldon High Access Roadway			
														Option 1				Option 2							
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
		Density[a]	LOS[b]	Density	LOS	Density	LOS	Density	LOS	Density	LOS	Density	LOS	Density	LOS	Density	LOS	Density	LOS	Density	LOS	Density	LOS	Density	LOS
Northbound I-5																									
Kammerer Road direct off-ramp	Diverge	6.5	A	14.0	B	6.5	A	14.0	B	14.8	B	21.3	C	14.8	B	21.3	C	15.0	B	21.3	C	14.9	B	21.3	C
Kammerer Road loop on-ramp	Merge	12.5	B	18.9	B	12.5	B	18.9	B	15.9	B	21.7	C	15.9	B	21.7	C	15.8	B	21.7	C	16.2	B	22.2	C
Kammerer Road direct on-ramp	Merge	12.5	B	16.7	B	12.5	B	16.7	B	18.9	B	22.6	C	18.9	B	22.6	C	18.9	B	22.6	C	19.2	B	23.0	C
Southbound I-5																									
Kammerer Road direct off-ramp	Diverge	14.0	B	15.0	B	14.0	B	15.0	B	18.4	B	24.1	C	18.4	B	24.0	C	18.3	B	23.9	C	19.2	B	24.0	C
Kammerer Road loop on-ramp	Merge	19.2	B	19.3	B	19.2	B	19.3	B	24.7	C	27.0	C	24.7	C	27.0	C	24.7	C	27.0	C	24.7	C	27.0	C
Kammerer Road direct on-ramp	Merge	16.2	B	16.6	B	16.2	B	16.6	B	22.0	C	24.4	C	22.0	C	24.4	C	22.0	C	24.4	C	22.0	C	24.4	C
Northbound Hwy 99																									
Grant Line Road direct off-ramp	Diverge	6.5	A	14.0	B	6.5	A	14.0	B	14.8	B	21.3	C	14.8	B	21.3	C	15.0	B	21.3	C	14.9	B	21.3	C
Grant Line Road loop on-ramp	Merge	12.5	B	18.9	B	12.5	B	18.9	B	15.9	B	21.7	C	15.9	B	21.7	C	15.8	B	21.7	C	16.2	B	22.2	C
Grant Line Road direct on-ramp	Merge	12.5	B	16.7	B	12.5	B	16.7	B	18.9	B	22.6	C	18.9	B	22.6	C	18.9	B	22.6	C	19.2	B	23.0	C
Southbound Hwy 99																									
Grant Line Road direct off-ramp	Diverge	14.0	B	15.0	B	14.0	B	15.0	B	18.4	B	24.1	C	18.4	B	24.0	C	18.3	B	23.9	C	19.2	B	24.0	C
Grant Line Road loop on-ramp	Merge	19.2	B	19.3	B	19.2	B	19.3	B	24.7	C	27.0	C	24.7	C	27.0	C	24.7	C	27.0	C	24.7	C	27.0	C
Grant Line Road direct on-ramp	Merge	16.2	B	16.6	B	16.2	B	16.6	B	22.0	C	24.4	C	22.0	C	24.4	C	22.0	C	24.4	C	22.0	C	24.4	C

Source: DKS Associates 2010.

Notes: NA = not applicable – a lane drops at off ramp or adds at on ramp.
U.S. 50 = U.S. Highway 50.
Blank = ramp does not exist under this alternative.
Bold text indicates deficiency where calculation indicates that demand exceeds capacity.

[a] Density in passenger cars per mile per lane.
[b] LOS computed using the merge/diverge/weave analysis consistent with *Highway Capacity Manual* (HCM) 2000 methodologies.

Table 16-29. Change in Daily Traffic Volume between Existing Conditions and Existing Plus Project Conditions – Along Proposed Project Alignment

Roadway	Segment		Travel Lanes		Average Daily Traffic Volumes					Change in 2008 Average Daily Traffic Volume from 2008 No Project			
						2008 Proposed Project							
						Deer Creek Causeway		Reduced Access Rd	High Access Road	Deer Creek Causeway		Reduced Access Rd	High Access Road
Roadway	From	To	2008	Proposed Project	2008 No Project	Option 1	Option 2			Option 1	Option 2		
White Rock Road	US 50	Valley View Pkwy	2	6	9,300	11,300	11,200	11,300	11,200	2,000	1,900	2,000	1,900
	Valley View Pkwy	Latrobe Rd	2	6	13,700	15,800	15,900	15,800	15,700	2,100	2,200	2,100	2,000
	Latrobe Rd	Windfield Way	4	4	10,100	16,300	16,300	16,300	16,200	6,200	6,200	6,200	6,100
	Windfield Way	Four Seasons Dr	2	4	7,800	16,800	16,900	16,900	16,700	9,000	9,100	9,100	8,900
	Four Seasons Dr	Empire Ranch Rd	2	4	6,400	15,700	15,700	15,700	15,600	9,300	9,300	9,300	9,200
	Empire Ranch Rd	Scott Rd (North)	2	4E	8,500	15,700	15,700	15,700	15,600	7,200	7,200	7,200	7,100
	Scott Rd (North)	Oak Av Pkwy	2	4E	5,700	15,200	15,200	15,200	15,100	9,500	9,500	9,500	9,400
	Oak Av Pkwy	Prairie City Rd	2	4E	5,700	15,200	15,200	15,200	15,100	9,500	9,500	9,500	9,400
	Prairie City Rd	Grant Line Rd	2	4E+2	9,900	21,200	21,200	21,100	21,000	11,300	11,300	11,200	11,100
Grant Line Road	White Rock Rd	Douglas Rd	2	4E	9,600	16,800	16,800	16,800	16,700	7,200	7,200	7,200	7,100
	Douglas Rd	Chrysanthy	2	4E	8,800	17,200	17,200	17,100	17,000	8,400	8,400	8,300	8,200
	Chrysanthy	Kiefer Blvd	2	4E	7,800	16,900	16,900	16,900	16,800	9,100	9,100	9,100	9,000
	Kiefer Blvd	Rancho Cordova Pkwy	2	4E	7,700	13,000	13,000	12,900	12,800	5,300	5,300	5,200	5,100
	Rancho Cordova Pkwy	Jackson Rd	2	4E	7,700	13,000	13,000	12,900	12,800	5,300	5,300	5,200	5,100
	Jackson Rd	Sunrise Blvd	2	4E	5,600	13,900	13,900	13,900	13,800	8,300	8,300	8,300	8,200
	Sunrise Blvd	Eagles Nest Rd	2	4E	14,700	22,100	22,200	21,800	21,200	7,400	7,500	7,100	6,500
	Eagles Nest Rd	Calvine Rd	2	4E	14,700	22,400	22,500	21,900	21,200	7,700	7,800	7,200	6,500
	Calvine Rd	Sheldon Rd	2	4	11,900	8,000	7,900	16,500	16,200	(3,900)	(4,000)	4,600	4,300
	Sheldon Rd	Wilton Rd	2	4	16,200	14,100	13,900	23,100	22,500	(2,100)	(2,300)	6,900	6,300
	Wilton Rd	Bond Rd	2	4	14,700	11,100	11,100	20,800	19,400	(3,600)	(3,600)	6,100	4,700
	Bond Rd	Elk Grove Blvd	2	4	9,400	6,700	6,600	15,800	15,200	(2,700)	(2,800)	6,400	5,800
	Elk Grove Blvd	Bradshaw Rd	2	4	6,300	1,800	1,800	9,200	8,300	(4,500)	(4,500)	2,900	2,000
	Bradshaw Rd	Waterman Rd	2	6	9,300	15,200	14,600	14,200	13,900	5,900	5,300	4,900	4,600
	Waterman Rd	E Stockton Blvd	2	6	13,500	21,800	22,200	20,900	20,500	8,300	8,700	7,400	7,000
	E Stockton Blvd	SR 99	4	6	15,800	28,900	29,300	27,800	27,400	13,100	13,500	12,000	11,600
Deer Creek Causeway	Grant Line Rd	Grant Line Rd	NA	3E	NA	10,700	10,800			10,700	10,800		
Kammerer Road	SR 99	W Stockton Blvd	2	6	4,000	9,400	9,400	9,300	9,200	5,400	5,400	5,300	5,200
	W Stockton Blvd	Lent Ranch Pkwy	2	6	2,500	9,400	9,500	9,300	9,200	6,900	7,000	6,800	6,700
	Lent Ranch Pkwy	Lotz Pkwy	2	6	2,500	8,800	8,900	8,700	8,600	6,300	6,400	6,200	6,100
	Lotz Pkwy	Big Horn	2	6	2,500	8,700	8,700	8,500	8,400	6,200	6,200	6,000	5,900
	Big Horn	Bruceville Rd	2	6	2,500	8,700	8,700	8,500	8,400	6,200	6,200	6,000	5,900
Kammerer Road Extension	Bruceville Rd	Willard Pkwy	NA	4E	NA	6,000	6,100	5,900	5,800	6,000	6,100	5,900	5,800
	Willard Pkwy	Hood-Franklin Rd	NA	4E	NA	6,000	6,000	5,900	5,800	6,000	6,000	5,900	5,800
	Hood-Franklin Rd	I-5	NA	4E	NA	6,500	6,500	6,400	6,400	6,500	6,500	6,400	6,400

Source: DKS Associates 2010.

Notes: Cells shaded in yellow are segments of Grant Line Road that are not a part of the Connector under the Deer Creek Causeway Option1 or Option 2.

4E = 4 lane expressway and 4E+2 = 4 lane expressway with 2 HOV lanes.

Table 16-30. Change in Daily Traffic Volume between Existing Conditions and Existing Plus Project Conditions – on Non-Project Roadways in TASA

Roadway	Segment		Travel Lanes 2008	Average Daily Traffic Volumes					Change in 2008 Average Daily Traffic Volume from Baseline			
					2008 Proposed Project							
					Deer Creek Causeway		Reduced Access Road	High Access Roadway	Deer Creek Causeway		Reduced Access Road	High Access Roadway
	From	To		2008 No Project	Option 1	Option 2			Option 1	Option 2		
El Dorado County												
Latrobe Rd	US 50	Town Center Blvd	6	40,200	40,700	40,700	40,700	40,700	500	500	500	500
	Town Center Blvd	White Rock Rd	6	24,700	26,400	26,400	26,400	26,300	1,700	1,700	1,700	1,600
	White Rock Rd	Golden Foothill Pkwy	4	19,100	18,400	18,400	18,400	18,400	(700)	(700)	(700)	(700)
Saratoga Way	Sacramento Co	Latrobe Road	2	2,000	2,000	2,000	2,000	2,000	0	0	0	0
Sylva Valley Pkwy	US 50	Serrano Pkwy	2	9,000	11,000	11,000	11,000	11,000	2,000	2,000	2,000	2,000
Valley View Pkwy	White Rock Rd	Blackstone Pkwy	2	3,300	3,500	3,500	3,500	3,500	200	200	200	200
West Connection to Business Park	Sacramento Co	Golden Foothill Pkwy	NA	NA								
City of Folsom (including Sphere of Influence South of US 50)												
East Bidwell St	Iron Point Rd	US 50	6	50,700	51,400	51,500	51,500	51,500	700	800	800	800
Easton Valley Pkwy	Prairie City Rd	Oak Av Pkwy	NA	NA								
	Oak Av Pkwy	Scott Rd	NA	NA								
	Scott Rd	Placerville Rd	NA	NA								
Empire Ranch Rd	Iron Point Rd	US 50	NA	NA								
	US 50	Easton Valley Pkwy	NA	NA								
	Easton Valley Pkwy	White Rock Rd	NA	NA								
Folsom Blvd	US 50	Iron Point Rd	6	50,200	49,400	49,400	49,400	49,400	(800)	(800)	(800)	(800)
Iron Point Rd	Folsom Blvd	Prairie City Rd	4	19,300	18,400	18,400	18,400	18,300	(900)	(900)	(900)	(1,000)
	Prairie City Rd	Oak Av Pkwy	4	22,200	21,600	21,600	21,600	21,500	(600)	(600)	(600)	(700)
	Oak Av Pkwy	Broadstone Pkwy	4	13,300	12,900	12,900	12,900	12,900	(400)	(400)	(400)	(400)
	Broadstone Pkwy	East Bidwell St	4	15,700	15,400	15,400	15,400	15,400	(300)	(300)	(300)	(300)
	East Bidwell St	Empire Ranch Rd	2	3,300	3,400	3,400	3,400	3,400	100	100	100	100
Oak Ave Pkwy	Iron Point Rd	US 50	NA	NA								
	US 50	Easton Valley Pkwy	NA	NA								
	Easton Valley Pkwy	White Rock Rd	NA	NA								
Prairie City Rd	Iron Point Rd	US 50	6	29,400	31,000	31,100	31,100	31,000	1,600	1,700	1,700	1,600
	US 50	Easton Valley Pkwy	2	5,900	9,000	9,000	9,000	9,000	3,100	3,100	3,100	3,100
	Easton Valley Pkwy	White Rock Rd	2	5,900	9,200	9,200	9,200	9,200	3,300	3,300	3,300	3,300
Scott Rd	US 50	Easton Valley Pkwy	2	4,800	7,500	7,500	7,500	7,500	2,700	2,700	2,700	2,700
	Easton Valley Pkwy	White Rock Rd	2	4,800	7,500	7,500	7,500	7,500	2,700	2,700	2,700	2,700
Sacramento County												
Bilby Rd	Franklin Blvd	Willard Pkwy	2	4,800	8,500	8,500	8,500	8,500	3,700	3,700	3,700	3,700
	Willard Pkwy	Bruceville Rd	2	3,000	1,800	1,800	1,800	1,800	(1,200)	(1,200)	(1,200)	(1,200)
Bradshaw Rd	US 50	Lincoln Village Dr	6	57,300	56,600	56,500	56,600	56,900	(700)	(800)	(700)	(400)
	Lincoln Village Dr	Old Placerville Rd	6	47,100	46,300	46,300	46,400	46,700	(800)	(800)	(700)	(400)
	Old Placerville Rd	Goethe Rd	6	42,500	41,800	41,700	41,900	42,100	(700)	(800)	(600)	(400)
	Goethe Rd	Kiefer Blvd	6	35,000	34,400	34,200	34,400	34,500	(600)	(800)	(600)	(500)

Table 16-30. Change in Daily Traffic Volume between Existing Conditions and Existing Plus Project Conditions – on Non-Project Roadways in TASA

Roadway	Segment		Travel Lanes 2008	Average Daily Traffic Volumes					Change in 2008 Average Daily Traffic Volume from Baseline			
				2008	2008 Proposed Project							
					Deer Creek Causeway		Reduced Access Road	High Access Roadway	Deer Creek Causeway		Reduced Access Road	High Access Roadway
	From	To		No Project	Option 1	Option 2			Option 1	Option 2		
Bradshaw Rd	Kiefer Blvd	Jackson Rd	4	31,100	30,400	30,300	30,600	30,600	(700)	(800)	(500)	(500)
	Jackson Rd	Elder Creek Rd	4	23,700	23,100	23,200	23,300	23,300	(600)	(500)	(400)	(400)
	Elder Creek Rd	Florin Rd	4	20,400	19,900	19,900	20,000	20,200	(500)	(500)	(400)	(200)
	Florin Rd	Gerber Rd	2	19,400	18,700	18,800	19,000	19,200	(700)	(600)	(400)	(200)
	Gerber Rd	Calvine Rd	2	15,100	14,600	14,700	14,800	15,000	(500)	(400)	(300)	(100)
Bruceville Rd	Kammerer Rd	Lambert Rd	2	1,600	1,500	1,500	1,500	1,500	(100)	(100)	(100)	(100)
Calvine Rd	Power Inn Rd	Elk Grove Florin Rd	6	43,900	44,000	43,900	44,100	44,200	100	0	200	300
	Elk Grove Florin Rd	Waterman Rd	4	23,300	23,400	23,300	23,600	23,500	100	0	300	200
	Waterman Rd	Bradshaw Rd	4	15,700	15,900	15,900	16,100	16,100	200	200	400	400
	Bradshaw Rd	Vineyard Rd	4	13,000	12,700	12,700	13,400	14,000	(300)	(300)	400	1,000
	Vineyard Rd	Excelsior Rd	2	10,700	11,600	11,600	12,100	12,100	900	900	1,400	1,400
	Excelsior Rd	Grant Line Rd	2	3,700	4,700	4,700	5,100	5,100	1,000	1,000	1,400	1,400
Dillard Rd	Jackson Rd	Clay Station Rd	2	4,600	4,700	4,700	4,800	4,900	100	100	200	300
	Clay Station Rd	Green Rd	2	4,500	4,200	4,200	4,400	4,400	(300)	(300)	(100)	(100)
	Green Rd	Wilton Rd	2	4,500	4,400	4,500	4,600	4,600	(100)	0	100	100
	Wilton Rd	SR-99	2	5,800	5,600	5,600	5,600	5,800	(200)	(200)	(200)	0
Eagles Nest Rd	City Limits	Douglas Rd	NA	NA								
	Douglas Rd	Kiefer Blvd	NA	NA								
	Kiefer Blvd	Jackson Rd	2	500	600	600	600	600	100	100	100	100
	Jackson Rd	Florin Rd	2	500	800	800	700	700	300	300	200	200
	Florin Rd	Grant Line Rd	2	200	200	200	200	200	0	0	0	0
Easton Valley Pkwy	Hazel Av	Glenborough Rd	NA	NA								
	Glenborough Rd	Prairie City Rd	NA	NA								
Elder Creek Rd	Bradshaw Rd	Excelsior Rd	2	2,000	2,200	2,200	2,200	2,200	200	200	200	200
Excelsior Rd	Mather Blvd	Kiefer Blvd	2	6,000	6,000	5,900	5,900	5,800	0	(100)	(100)	(200)
	Kiefer Blvd	Jackson Rd	2	5,300	5,200	5,200	5,200	5,200	(100)	(100)	(100)	(100)
	Jackson Rd	Elder Creek Rd	2	5,800	5,900	5,900	5,900	5,900	100	100	100	100
	Elder Creek Rd	Florin Rd	2	5,700	5,600	5,500	5,600	5,600	(100)	(200)	(100)	(100)
	Florin Rd	Gerber Rd	2	5,600	5,600	5,600	5,600	5,600	0	0	0	0
	Gerber Rd	Calvine Rd	2	5,400	5,500	5,500	5,400	5,400	100	100	0	0
Florin Rd	Bradshaw Rd	Excelsior Rd	2	4,000	4,400	4,400	4,300	4,300	400	400	300	300
	Excelsior Rd	Eagles Nest Rd	2	3,000	3,600	3,600	3,500	3,500	600	600	500	500
	Eagles Nest Rd	Sunrise Blvd	2	3,000	3,700	3,700	3,600	3,600	700	700	600	600
Folsom Blvd	Hazel Av	Aerojet Rd	4	14,000	13,800	13,900	13,800	13,900	(200)	(100)	(200)	(100)
	Aerojet Rd	US 50	4	14,500	14,700	14,700	14,700	14,600	200	200	200	100
Franklin Blvd	Bilby Rd	Hood Franklin Rd	2	4,700	7,800	7,800	7,800	8,000	3,100	3,100	3,100	3,300
	Hood Franklin Rd	Lambert Rd	2	1,900	2,000	2,000	2,000	2,000	100	100	100	100
	Lambert Rd	Twin Cities Rd	2	1,300	1,200	1,200	1,200	1,200	(100)	(100)	(100)	(100)
Gerber Rd	Bradshaw Rd	Vineyard Rd	2	4,000	4,100	4,100	4,000	4,000	100	100	0	0
	Vineyard Rd	Excelsior Rd	2	2,400	2,500	2,500	2,500	2,500	100	100	100	100

Table 16-30. Change in Daily Traffic Volume between Existing Conditions and Existing Plus Project Conditions – on Non-Project Roadways in TASA

Roadway	Segment From	Segment To	Travel Lanes 2008	Average Daily Traffic Volumes: 2008 No Project	2008 Proposed Project: Deer Creek Causeway Option 1	2008 Proposed Project: Deer Creek Causeway Option 2	2008 Proposed Project: Reduced Access Road	2008 Proposed Project: High Access Roadway	Change in 2008 Average Daily Traffic Volume from Baseline: Deer Creek Causeway Option 1	Change: Deer Creek Causeway Option 2	Change: Reduced Access Road	Change: High Access Roadway
Hazel Av	Gold Country Blvd	US 50	6	53,900	53,900	53,900	53,900	53,900	0	0	0	0
	US 50	Folsom Blvd	4	48,000	48,000	48,000	48,000	48,100	0	0	0	100
	Folsom Blvd	Easton Valley Pkwy	NA	NA								
Hood Franklin Rd	Kammerer Rd Ext	Franklin Rd	2	4,500	7,500	7,500	7,500	7,500	3,000	3,000	3,000	3,000
Jackson Rd	Bradshaw Rd	Excelsior Rd	2	10,800	10,600	10,600	10,600	10,600	(200)	(200)	(200)	(200)
	Excelsior Rd	Eagles Nest Rd	2	9,200	9,300	9,200	9,300	9,300	100	0	100	100
	Eagles Nest Rd	Sunrise Blvd	2	9,200	9,100	9,100	9,100	9,100	(100)	(100)	(100)	(100)
	Sunrise Blvd	Grant Line Rd	2	13,800	13,900	13,900	13,800	13,800	100	100	0	0
	Grant Line Rd	Dillard Rd	2	13,200	12,500	12,500	12,400	12,400	(700)	(700)	(800)	(800)
Kiefer Blvd	Bradshaw Rd	Excelsior Rd	NA	NA								
	Excelsior Rd	Eagles Nest Rd	NA	NA								
	Eagles Nest Rd	Sunrise Blvd	2	500	600	600	600	600	100	100	100	100
	Grant Line Rd	Jackson Rd	2	2,700	3,400	3,400	3,500	3,500	700	700	800	800
Scott Rd (South)	White Rock Rd	Latrobe Rd	2	2,200	2,600	2,600	2,600	2,600	400	400	400	400
Sunrise Blvd	Zinfandel Dr	US 50	6	84,100	84,100	84,100	84,200	84,200	0	0	100	100
	Jackson Rd	Florin Rd	2	13,300	14,700	14,800	14,100	13,600	1,400	1,500	800	300
	Florin Rd	Grant Line Rd	2	11,100	12,300	12,300	11,700	11,100	1,200	1,200	600	0
Twin Cities Rd	I-5	Franklin Rd	2	4,300	3,600	3,600	3,600	3,500	(700)	(700)	(700)	(800)
	Franklin Rd	SR 99	2	6,200	5,600	5,600	5,600	5,600	(600)	(600)	(600)	(600)
White Rock Rd	Rancho Cordova Pkwy	Villagio Dr	2	3,400	5,600	5,600	5,600	5,600	2,200	2,200	2,200	2,200
	Villagio Dr	Grant Line Rd	2	3,400	5,800	5,800	5,800	5,800	2,400	2,400	2,400	2,400
Vineyard Rd	Old Placerville Rd	Kiefer Blvd	NA	NA								
	Kiefer Blvd	Jackson Rd	NA	NA								
	Jackson Rd	Elder Creek Rd	NA	NA								
	Elder Creek Rd	Florin Rd	NA	NA								
	Florin Rd	Gerber Rd	NA	NA								
	Gerber Rd	Calvine Rd	2	5,400	5,400	5,400	5,400	5,400	0	0	0	0
Wilton Rd	Grant Line Rd	Dillard Rd	2	10,900	10,900	10,900	11,000	10,900	0	0	100	0
City of Rancho Cordova												
Americanos	International	Centennial	NA	NA								
	Centennial	Douglas Rd	NA	NA								
Centennial	International	Americanos	NA	NA								
Chrysanthy	Sunrise Blvd	Rancho Cordova Pkwy	NA	NA								
	Rancho Cordova Pkwy	Americanos	NA	NA								
	Americanos	Grant Line Rd	NA	NA								
Douglas Rd	Zinfandel Dr	Sunrise Blvd	2	6,800	6,700	6,700	6,700	6,700	(100)	(100)	(100)	(100)

Table 16-30. Change in Daily Traffic Volume between Existing Conditions and Existing Plus Project Conditions – on Non-Project Roadways in TASA

Roadway	Segment		Travel Lanes 2008	Average Daily Traffic Volumes					Change in 2008 Average Daily Traffic Volume from Baseline			
					2008 Proposed Project							
					Deer Creek Causeway		Reduced Access Road	High Access Roadway	Deer Creek Causeway		Reduced Access Road	High Access Roadway
	From	To		2008 No Project	Option 1	Option 2			Option 1	Option 2		
Douglas Rd	Sunrise Blvd	Rancho Cordova Pkwy	5	4,000	5,400	5,400	5,400	5,400	1,400	1,400	1,400	1,400
	Rancho Cordova Pkwy	Americanos	2	4,000	5,600	5,600	5,600	5,600	1,600	1,600	1,600	1,600
	Americanos	Grant Line Rd	2	4,000	5,800	5,800	5,800	5,800	1,800	1,800	1,800	1,800
Easton Valley Pkwy	Rancho Cordova Pkwy	Hazel Av	NA	NA								
Folsom Blvd	Zinfandel Dr	Kilgore Rd	4	17,000	16,700	16,800	16,800	16,800	(300)	(200)	(200)	(200)
	Kilgore Rd	Sunrise Blvd	4	18,000	17,800	17,800	17,900	17,800	(200)	(200)	(100)	(200)
	Sunrise Blvd	Mercantile Dr	4	12,700	11,900	12,000	11,900	11,900	(800)	(700)	(800)	(800)
	Mercantile Dr	Hazel Av	4	12,700	11,900	12,000	11,900	11,800	(800)	(700)	(800)	(900)
Kiefer Blvd	Sunrise Blvd	Rancho Cordova Pkwy	NA	NA								
	Rancho Cordova Pkwy	Grant Line Rd	NA	NA								
Rancho Cordova Pkwy	US 50	Easton Valley Pkwy	NA	NA								
	Easton Valley Pkwy	White Rock Rd	NA	NA								
	White Rock Rd	International Blvd	NA	NA								
	International Blvd	Douglas Rd	NA	NA								
	Douglas Rd	Chrysanthy	NA	NA								
	Chrysanthy	Kiefer Rd	NA	NA								
	Kiefer Rd	Grant Line Rd	NA	NA								
Rio Del Oro Blvd	Sunrise Blvd	Rancho Cordova Pkwy	NA	NA								
Sunrise Blvd	Folsom Blvd	Trade Center Dr	6	52,400	51,600	51,500	51,300	51,000	(800)	(900)	(1,100)	(1,400)
	Trade Center Dr	White Rock Rd	6	40,200	39,500	39,500	39,300	39,000	(700)	(700)	(900)	(1,200)
	White Rock Rd	International Blvd	4	28,200	27,000	26,900	27,000	26,700	(1,200)	(1,300)	(1,200)	(1,500)
	International Blvd	Douglas Rd	6	28,200	28,400	28,400	28,100	27,600	200	200	(100)	(600)
	Douglas Rd	Chrysanthy	6	24,500	25,100	25,100	24,500	24,100	600	600	0	(400)
	Chrysanthy	Kiefer Rd	5	24,500	25,000	25,000	24,400	24,000	500	500	(100)	(500)
	Kiefer Rd	Jackson Rd	2	17,500	17,900	17,900	17,400	16,900	400	400	(100)	(600)
White Rock Rd	International Blvd	Zinfandel Dr	2	11,400	11,300	11,300	11,400	11,500	(100)	(100)	0	100
	Zinfandel Dr	Sunrise Blvd	6	19,900	20,600	20,600	20,500	20,500	700	700	600	600
	Sunrise Blvd	Rancho Cordova Pkwy	2	13,000	15,100	15,100	15,100	15,100	2,100	2,100	2,100	2,100
Zinfandel Dr	US 50	White Rock Rd	6	43,300	43,500	43,400	43,500	43,200	200	100	200	(100)
	White Rock Rd	International Blvd	6	19,700	19,500	19,400	19,600	19,500	(200)	(300)	(100)	(200)
	International Blvd	City Limits	4	7,100	7,200	7,100	7,100	7,100	100	0	0	0
City of Elk Grove												
Bond Rd	SR 99	Elk Grove Florin Rd	4	49,200	48,700	48,600	48,800	48,700	(500)	(600)	(400)	(500)
	Elk Grove Florin Rd	Waterman Rd	4	18,800	18,900	18,800	19,000	18,900	100	0	200	100
	Waterman Rd	Bradshaw Rd	4	18,600	19,100	18,900	19,200	19,200	500	300	600	600
	Bradshaw Rd	Grant Line Rd	2	9,100	8,800	8,700	9,700	8,800	(300)	(400)	600	(300)
Bradshaw Rd	Calvine Rd	Sheldon Rd	2	9,300	8,600	8,800	9,000	9,400	(700)	(500)	(300)	100
	Sheldon Rd	Bond Rd	2	8,100	7,500	7,600	8,000	8,400	(600)	(500)	(100)	300

Table 16-30. Change in Daily Traffic Volume between Existing Conditions and Existing Plus Project Conditions – on Non-Project Roadways in TASA

Roadway	Segment: From	Segment: To	Travel Lanes 2008	Average Daily Traffic Volumes: 2008 No Project	2008 Proposed Project: Deer Creek Causeway Option 1	2008 Proposed Project: Deer Creek Causeway Option 2	2008 Proposed Project: Reduced Access Road	2008 Proposed Project: High Access Roadway	Change in 2008 Average Daily Traffic Volume from Baseline: Deer Creek Causeway Option 1	Change: Deer Creek Causeway Option 2	Change: Reduced Access Road	Change: High Access Roadway
Bradshaw Rd	Bond Rd	Elk Grove Blvd	2	5,100	4,900	5,300	5,100	5,700	(200)	200	0	600
	Elk Grove Blvd	Grant Line Rd	2	3,400	3,000	3,400	3,600	3,900	(400)	0	200	500
Bruceville Rd	Laguna Blvd	Elk Grove Blvd	4	21,700	21,100	21,100	21,200	21,200	(600)	(600)	(500)	(500)
	Elk Grove Blvd	Whitelock Pkwy	4	23,000	22,700	22,600	22,700	22,700	(300)	(400)	(300)	(300)
	Whitelock Pkwy	Kammerer Rd	2	4,500	4,800	4,800	4,800	4,800	300	300	300	300
Elk Grove Blvd	I-5	Franklin Blvd	6	24,100	22,000	22,000	22,100	22,000	(2,100)	(2,100)	(2,000)	(2,100)
	Franklin Rd	Bruceville Rd	6	29,600	28,100	28,100	28,300	28,200	(1,500)	(1,500)	(1,300)	(1,400)
	Bruceville Rd	Big Horn Blvd	6	40,700	39,600	39,600	39,700	39,600	(1,100)	(1,100)	(1,000)	(1,100)
	Big Horn Blvd	W Stockton Blvd	6	39,500	38,400	38,400	38,800	38,700	(1,100)	(1,100)	(700)	(800)
	W Stockton Blvd	SR 99	6	45,400	44,200	44,200	44,800	44,900	(1,200)	(1,200)	(600)	(500)
	SR 99	E Stockton Blvd	4	40,000	39,000	38,700	39,400	39,500	(1,000)	(1,300)	(600)	(500)
	E Stockton Blvd	Elk Grove Florin Rd	4	37,700	36,800	36,400	37,200	37,300	(900)	(1,300)	(500)	(400)
	Elk Grove Florin Rd	Waterman Rd	2	20,700	20,100	19,900	20,600	20,500	(600)	(800)	(100)	(200)
	Waterman Rd	Bradshaw Rd	2	13,800	13,400	13,000	14,600	14,100	(400)	(800)	800	300
	Bradshaw Rd	Grant Line Rd	2	6,000	5,700	5,600	7,200	6,700	(300)	(400)	1,200	700
Excelsior Rd	Calvine Rd	Sheldon Rd	2	4,000	4,300	4,300	4,400	4,300	300	300	400	300
Franklin Blvd	Laguna Blvd	Elk Grove Blvd	4	23,800	23,600	23,600	23,600	23,700	(200)	(200)	(200)	(100)
	Elk Grove Blvd	Whitelock Pkwy	4	12,700	12,900	12,900	12,900	12,900	200	200	200	200
	Whitelock Pkwy	Bilby Rd	NA	NA								
Laguna Blvd	I-5	Franklin Blvd	6	32,100	31,700	31,700	31,700	31,600	(400)	(400)	(400)	(500)
	Franklin Rd	Bruceville Rd	6	36,500	36,300	36,200	36,200	36,200	(200)	(300)	(300)	(300)
	Bruceville Rd	Big Horn Blvd	6	36,500	35,800	35,800	35,800	35,800	(700)	(700)	(700)	(700)
	Big Horn Blvd	SR 99	8	57,800	56,700	56,800	56,800	56,900	(1,100)	(1,000)	(1,000)	(900)
Sheldon Rd	SR 99	Elk Grove Florin Rd	NA	NA								
	Elk Grove Florin Rd	Waterman Rd	2	9,100	9,100	9,100	9,200	9,200	0	0	100	100
	Waterman Rd	Bradshaw Rd	2	7,100	6,700	6,800	7,200	7,400	(400)	(300)	100	300
	Bradshaw Rd	Excelsior Rd	2	5,000	4,700	4,700	4,900	5,400	(300)	(300)	(100)	400
	Excelsior Rd	Grant Line Rd	2	5,800	6,300	6,400	6,500	6,300	500	600	700	500
Waterman Rd	Calvine Rd	Sheldon Rd	2	7,600	7,700	7,600	7,600	7,700	100	0	0	100
	Sheldon Rd	Bond Rd	2	8,400	8,100	8,000	8,100	8,200	(300)	(400)	(300)	(200)
	Bond Rd	Elk Grove Blvd	2	10,400	10,500	10,100	10,300	10,500	100	(300)	(100)	100
	Elk Grove Blvd	Grant Line Rd	2	7,500	9,200	10,400	8,300	8,300	1,700	2,900	800	800
Whitelock Pkwy	Franklin Rd	Bruceville Rd	4	12,900	12,800	12,800	12,800	12,800	(100)	(100)	(100)	(100)
	Bruceville Rd	Big Horn Blvd	4	3,000	2,700	2,700	2,700	2,700	(300)	(300)	(300)	(300)
	Big Horn Blvd	W Stockton Blvd	4	3,000	2,600	2,600	2,600	2,600	(400)	(400)	(400)	(400)
	W Stockton Blvd	SR 99	NA	NA								
Willard Pkwy	Whitelock Pkwy	Kammerer Rd	NA	NA								

Source: DKS Associates 2010.

Table 16-31. Change in Roadway Segment Levels of Service between Existing Conditions and Existing Plus Project Conditions – Along Proposed Project Alignment

Roadway	Segment		Travel Lanes		Average Daily Traffic Volumes					Volume/Capacity Ratio					Level of Service				
						2008 Proposed Project					2008 Proposed Project					2008 Proposed Project			
						Deer Creek Causeway					Deer Creek Causeway					Deer Creek Causeway			
Roadway	From	To	2008 No Project	2008 Proposed Project	2008	Option 1	Option 2	Reduced Access Road	High Access Road	2008 No Project	Option 1	Option 2	Reduced Access Road	High Access Road	2008 No Project	Option 1	Option 2	Reduced Access Road	High Access Road
White Rock Road	US 50	Valley View Pkwy	2	6	9,300	11,300	11,200	11,300	11,200	0.47	0.21	0.21	0.21	0.21	D	A	A	A	A
	Valley View Pkwy	Latrobe Rd	2	6	13,700	15,800	15,900	15,800	15,700	0.76	0.29	0.29	0.29	0.29	C	A	A	A	A
	Latrobe Rd	Windfield Way	4	4	10,100	16,300	16,300	16,300	16,200	0.28	0.45	0.45	0.45	0.45	A	A	A	A	A
	Windfield Way	Four Seasons Dr	2	4	7,800	16,800	16,900	16,900	16,700	0.43	0.47	0.47	0.47	0.46	A	A	A	A	A
	Four Seasons Dr	Empire Ranch Rd	2	4	6,400	15,700	15,700	15,700	15,600	0.38	0.44	0.44	0.44	0.43	D	A	A	A	A
	Empire Ranch Rd	Scott Rd (North)	2	4E	8,500	15,700	15,700	15,700	15,600	0.50	0.22	0.22	0.22	0.22	D	A	A	A	A
	Scott Rd (North)	Oak Av Pkwy	2	4E	5,700	15,200	15,200	15,200	15,100	0.34	0.21	0.21	0.21	0.21	C	A	A	A	A
	Oak Av Pkwy	Prairie City Rd	2	4E	5,700	15,200	15,200	15,200	15,100	0.34	0.21	0.21	0.21	0.21	C	A	A	A	A
	Prairie City Rd	Grant Line Rd	2	4E	9,900	21,200	21,200	21,100	21,000	0.58	0.20	0.20	0.20	0.19	D	A	A	A	A
Grant Line Road	White Rock Rd	Douglas Rd	2	4E	9,600	16,800	16,800	16,800	16,700	0.56	0.16	0.16	0.16	0.15	D	A	A	A	A
	Douglas Rd	Chrysanthy	2	4E	8,800	17,200	17,200	17,100	17,000	0.44	0.24	0.24	0.24	0.24	D	A	A	A	A
	Chrysanthy	Kiefer Blvd	2	4E	7,800	16,900	16,900	16,900	16,800	0.39	0.23	0.23	0.23	0.23	D	A	A	A	A
	Kiefer Blvd	Rancho Cordova	2	4E	7,700	13,000	13,000	12,900	12,800	0.39	0.18	0.18	0.18	0.18	D	A	A	A	A
	Rancho Cordova	Jackson Rd	2	4E	7,700	13,000	13,000	12,900	12,800	0.39	0.18	0.18	0.18	0.18	D	A	A	A	A
	Jackson Rd	Sunrise Blvd	2	4E	5,600	13,900	13,900	13,900	13,800	0.28	0.19	0.19	0.19	0.19	C	A	A	A	A
	Sunrise Blvd	Eagles Nest Rd	2	4E	14,700	22,100	22,200	21,800	21,200	0.74	0.31	0.31	0.30	0.29	**E**	A	A	A	A
	Eagles Nest Rd	Calvine Rd	2	4E	14,700	22,400	22,500	21,900	21,200	0.74	0.31	0.31	0.30	0.29	**E**	A	A	A	A
	Calvine Rd	Sheldon Rd	2	4	11,900	8,000	7,900	16,500	16,200	0.60	0.22	0.22	0.46	0.45	**E**	A	A	A	A
	Sheldon Rd	Wilton Rd	2	4	16,200	14,100	13,900	23,100	22,500	0.90	0.39	0.39	0.64	0.63	**E**	A	A	B	B
	Wilton Rd	Bond Rd	2	4	14,700	11,100	11,100	20,800	19,400	0.82	0.31	0.31	0.58	0.54	D	A	A	A	A
	Bond Rd	Elk Grove Blvd	2	4	9,400	6,700	6,600	15,800	15,200	0.52	0.19	0.18	0.44	0.42	A	A	A	A	A
	Elk Grove Blvd	Bradshaw Rd	2	4	6,300	1,800	1,800	9,200	8,300	0.35	0.05	0.05	0.26	0.23	A	A	A	A	A
	Bradshaw Rd	Waterman Rd	2	6	9,300	15,200	14,600	14,200	13,900	0.52	0.28	0.27	0.26	0.26	A	A	A	A	A
	Waterman Rd	E Stockton Blvd	2	6	13,500	21,800	22,200	20,900	20,500	0.75	0.40	0.41	0.39	0.38	C	A	A	A	A
	E Stockton Blvd	SR 99	4	6	15,800	28,900	29,300	27,800	27,400	0.44	0.54	0.54	0.51	0.51	A	A	A	A	A
Deer Creek Causeway	Grant Line Rd	Grant Line Rd	NA	3E	NA	10,700	10,800												
Kammerer Road	SR 99	W Stockton Blvd	2	6	4,000	9,400	9,400	9,300	9,200	0.20	0.16	0.16	0.16	0.15	B	A	A	A	A
	W Stockton Blvd	Lent Ranch Pkwy	2	6	2,500	9,400	9,500	9,300	9,200	0.13	0.16	0.16	0.16	0.15	B	A	A	A	A
	Lent Ranch Pkwy	Lotz Pkwy	2	6	2,500	8,800	8,900	8,700	8,600	0.13	0.15	0.15	0.15	0.14	B	A	A	A	A
	Lotz Pkwy	Big Horn Blvd	2	6	2,500	8,700	8,700	8,500	8,400	0.13	0.15	0.15	0.14	0.14	B	A	A	A	A
	Big Horn Blvd	Bruceville Rd	2	6	2,500	8,700	8,700	8,500	8,400	0.13	0.15	0.15	0.14	0.14	B	A	A	A	A
Kammerer Road Extension	Bruceville Rd	Willard Pkwy	NA	4E	NA	6,000	6,100	5,900	5,800		0.15	0.15	0.15	0.15		A	A	A	A
	Willard Pkwy	Hood-Franklin Rd	NA	4E	NA	6,000	6,000	5,900	5,800		0.15	0.15	0.15	0.15		A	A	A	A
	Hood-Franklin Rd	I-5	NA	4E	NA	6,500	6,500	6,400	6,400		0.16	0.16	0.16	0.16		A	A	A	A

Source: DKS Associates 2010.

Notes: Bold indicates segments that would not meet the LOS standard for the local jurisdiction.
Cells shaded in grey represent significant LOS impacts.
Cells shaded in yellow are segments of Grant Line Road that are not a part of the Connector under the Deer Creek Causeway Option1 or Option 2.
4E = 4 lane expressway and 4E+2 = 4 lane expressway with 2 HOV lanes.

Table 16-32. Change in Roadway Segment Levels of Service between Existing Conditions and Existing Plus Project Conditions – on Non-Project Roadways

	Segment			Average Daily Traffic Volumes					Volume/Capacity Ratio					Level of Service				
					2008 Proposed Project					2008 Proposed Project					2008 Proposed Project			
					Deer Creek Causeway					Deer Creek Causeway					Deer Creek Causeway			
Roadway	From	To	Travel Lanes 2008	2008 No Project	Option 1	Option 2	Reduced Access Road	High Access Road	2008 No Project	Option 1	Option 2	Reduced Access Road	High Access Road	2008 No Project	Option 1	Option 2	Reduced Access Road	High Access Road
El Dorado County																		
Latrobe Rd	US 50	Town Center Blvd	6	40,200	40,700	40,700	40,700	40,700	0.74	0.75	0.75	0.75	0.75	C	C	C	C	C
	Town Center Blvd	White Rock Rd	6	24,700	26,400	26,400	26,400	26,300	0.46	0.49	0.49	0.49	0.49	A	A	A	A	A
	White Rock Rd	Golden Foothill Pkwy	4	19,100	18,400	18,400	18,400	18,400	0.48	0.46	0.46	0.46	0.46	D	D	D	D	D
Saratoga Way	Sacramento Co	Latrobe Road	2	2,000	2,000	2,000	2,000	2,000	0.11	0.11	0.11	0.11	0.11	A	A	A	A	A
Sylva Valley Pkwy	US 50	Serrano Pkwy	2	9,000	11,000	11,000	11,000	11,000	0.50	0.61	0.61	0.61	0.61	A	B	B	B	B
Valley View Pkwy	White Rock Rd	Blackstone Pkwy	2	3,300	3,500	3,500	3,500	3,500	0.18	0.19	0.19	0.19	0.19	A	A	A	A	A
West Connection to Business Park	Sacramento Co	Golden Foothill Pkwy	NA	NA														
City of Folsom (including Sphere of Influence South of US 50)																		
East Bidwell St	Iron Point Rd	US 50	6	50,700	51,400	51,500	51,500	51,500	**0.94**	**0.95**	**0.95**	**0.95**	**0.95**	**E**	**E**	**E**	**E**	**E**
Easton Valley Pkwy	Prairie City Rd	Oak Av Pkwy	NA	NA														
	Oak Av Pkwy	Scott Rd	NA	NA														
	Scott Rd	Placerville Rd	NA	NA														
Empire Ranch Rd	Iron Point Rd	US 50	NA	NA														
	US 50	Easton Valley Pkwy	NA	NA														
	Easton Valley Pkwy	White Rock Rd	NA	NA														
Folsom Blvd	US 50	Iron Point Rd	6	50,200	49,400	49,400	49,400	49,400	**0.93**	**0.91**	**0.91**	**0.91**	**0.91**	**E**	**E**	**E**	**E**	**E**
Iron Point Rd	Folsom Blvd	Prairie City Rd	4	19,300	18,400	18,400	18,400	18,300	0.54	0.51	0.51	0.51	0.51	A	A	A	A	A
	Prairie City Rd	Oak Av Pkwy	4	22,200	21,600	21,600	21,600	21,500	0.62	0.60	0.60	0.60	0.60	B	B	B	B	A
	Oak Av Pkwy	Broadstone Pkwy	4	13,300	12,900	12,900	12,900	12,900	0.37	0.36	0.36	0.36	0.36	A	A	A	A	A
	Broadstone Pkwy	East Bidwell St	4	15,700	15,400	15,400	15,400	15,400	0.44	0.43	0.43	0.43	0.43	A	A	A	A	A
	East Bidwell St	Empire Ranch Rd	2	3,300	3,400	3,400	3,400	3,400	0.18	0.19	0.19	0.19	0.19	A	A	A	A	A
Oak Ave Pkwy	Iron Point Rd	US 50	NA	NA														
	US 50	Easton Valley Pkwy	NA	NA														
	Easton Valley Pkwy	White Rock Rd	NA	NA														
Prairie City Rd	Iron Point Rd	US 50	6	29,400	31,000	31,100	31,100	31,000	0.54	0.57	0.58	0.58	0.57	A	A	A	A	A
	US 50	Easton Valley Pkwy	2	5,900	9,000	9,000	9,000	9,000	0.35	0.53	0.53	0.53	0.53	C	D	D	D	D
	Easton Valley Pkwy	White Rock Rd	2	5,900	9,200	9,200	9,200	9,200	0.35	0.54	0.54	0.54	0.54	C	D	D	D	D
Scott Rd	US 50	Easton Valley Pkwy	2	4,800	7,500	7,500	7,500	7,500	0.28	0.44	0.44	0.44	0.44	C	D	D	D	D
	Easton Valley Pkwy	White Rock Rd	2	4,800	7,500	7,500	7,500	7,500	0.28	0.44	0.44	0.44	0.44	C	D	D	D	D
Sacramento County																		
Bilby Rd	Franklin Blvd	Willard Pkwy	2	4,800	8,500	8,500	8,500	8,500	0.27	0.47	0.47	0.47	0.47	A	A	A	A	A
	Willard Pkwy	Bruceville Rd	2	3,000	1,800	1,800	1,800	1,800	0.17	0.10	0.10	0.10	0.10	A	A	A	A	A
Bradshaw Rd	US 50	Lincoln Village Dr	6	57,300	56,600	56,500	56,600	56,900	**1.06**	**1.05**	**1.05**	**1.05**	**1.05**	**F**	**F**	**F**	**F**	**F**
	Lincoln Village Dr	Old Placerville Rd	6	47,100	46,300	46,300	46,400	46,700	0.87	0.86	0.86	0.86	0.86	D	D	D	D	D
	Old Placerville Rd	Goethe Rd	6	42,500	41,800	41,700	41,900	42,100	0.79	0.77	0.77	0.78	0.78	C	C	C	C	C
	Goethe Rd	Kiefer Blvd	6	35,000	34,400	34,200	34,400	34,500	0.65	0.64	0.63	0.64	0.64	B	B	B	B	B
Bradshaw Rd	Kiefer Blvd	Jackson Rd	4	31,100	30,400	30,300	30,600	30,600	0.86	0.84	0.84	0.85	0.85	D	D	D	D	D

Table 16-32. Change in Roadway Segment Levels of Service between Existing Conditions and Existing Plus Project Conditions – on Non-Project Roadways

Roadway	Segment		Travel Lanes 2008	Average Daily Traffic Volumes					Volume/Capacity Ratio					Level of Service				
					2008 Proposed Project					2008 Proposed Project					2008 Proposed Project			
					Deer Creek Causeway		Reduced Access Road	High Access Road		Deer Creek Causeway		Reduced Access Road	High Access Road		Deer Creek Causeway		Reduced Access Road	High Access Road
Roadway	From	To	Travel Lanes 2008	2008 No Project	Option 1	Option 2			2008 No Project	Option 1	Option 2			2008 No Project	Option 1	Option 2		
Bradshaw Rd	Jackson Rd	Elder Creek Rd	4	23,700	23,100	23,200	23,300	23,300	0.66	0.64	0.64	0.65	0.65	B	B	B	B	B
	Elder Creek Rd	Florin Rd	4	20,400	19,900	19,900	20,000	20,200	0.57	0.55	0.55	0.56	0.56	A	A	A	A	A
	Florin Rd	Gerber Rd	2	19,400	18,700	18,800	19,000	19,200	**1.08**	**1.04**	**1.04**	**1.06**	**1.07**	**F**	**F**	**F**	**F**	**F**
	Gerber Rd	Calvine Rd	2	15,100	14,600	14,700	14,800	15,000	0.84	0.81	0.82	0.82	0.83	D	D	D	D	D
Bruceville Rd	Kammerer Rd	Lambert Rd	2	1,600	1,500	1,500	1,500	1,500	0.08	0.08	0.08	0.08	0.08	A	A	A	A	A
Calvine Rd	Power inn Rd	Elk Grove Florin Rd	6	43,900	44,000	43,900	44,100	44,200	0.81	0.81	0.81	0.82	0.82	D	D	D	D	D
	Elk Grove Florin Rd	Waterman Rd	4	23,300	23,400	23,300	23,600	23,500	0.65	0.65	0.65	0.66	0.65	B	B	B	B	B
	Waterman Rd	Bradshaw Rd	4	15,700	15,900	15,900	16,100	16,100	0.44	0.44	0.44	0.45	0.45	A	A	A	A	A
	Bradshaw Rd	Vineyard Rd	4	13,000	12,700	12,700	13,400	14,000	0.36	0.35	0.35	0.37	0.39	A	A	A	A	A
	Vineyard Rd	Excelsior Rd	2	10,700	11,600	11,600	12,100	12,100	0.59	0.64	0.64	0.67	0.67	A	B	B	B	B
	Excelsior Rd	Grant Line Rd	2	3,700	4,700	4,700	5,100	5,100	0.21	0.26	0.26	0.28	0.28	A	A	A	A	A
Dillard Rd	Jackson Rd	Clay Station Rd	2	4,600	4,700	4,700	4,800	4,900	0.23	0.24	0.24	0.24	0.25	C	C	C	C	C
	Clay Station Rd	Green Rd	2	4,500	4,200	4,200	4,400	4,400	0.23	0.21	0.21	0.22	0.22	C	B	B	C	C
	Green Rd	Wilton Rd	2	4,500	4,400	4,500	4,600	4,600	0.23	0.22	0.23	0.23	0.23	C	C	C	C	C
	Wilton Rd	SR-99	2	5,800	5,600	5,600	5,600	5,800	0.29	0.28	0.28	0.28	0.29	C	C	C	C	C
Eagles Nest Rd	City Limits	Douglas Rd	NA	NA														
	Douglas Rd	Kiefer Blvd	NA	NA														
	Kiefer Blvd	Jackson Rd	2	500	600	600	600	600	0.03	0.03	0.03	0.03	0.03	A	A	A	A	A
	Jackson Rd	Florin Rd	2	500	800	800	700	700	0.03	0.04	0.04	0.04	0.04	A	A	A	A	A
	Florin Rd	Grant Line Rd	2	200	200	200	200	200	0.01	0.01	0.01	0.01	0.01	A	A	A	A	A
Easton Valley Pkwy	Hazel Av	Glenborough Rd	NA	NA														
	Glenborough Rd	Prairie City Rd	NA	NA														
Elder Creek Rd	Bradshaw Rd	Excelsior Rd	2	2,000	2,200	2,200	2,200	2,200	0.10	0.11	0.11	0.11	0.11	A	B	B	B	B
Excelsior Rd	Mather Blvd	Kiefer Blvd	2	6,000	6,000	5,900	5,900	5,800	0.30	0.30	0.30	0.30	0.29	C	C	C	C	C
	Kiefer Blvd	Jackson Rd	2	5,300	5,200	5,200	5,200	5,200	0.27	0.26	0.26	0.26	0.26	C	C	C	C	C
	Jackson Rd	Elder Creek Rd	2	5,800	5,900	5,900	5,900	5,900	0.29	0.30	0.30	0.30	0.30	C	C	C	C	C
	Elder Creek Rd	Florin Rd	2	5,700	5,600	5,500	5,600	5,600	0.29	0.28	0.28	0.28	0.28	C	C	C	C	C
	Florin Rd	Gerber Rd	2	5,600	5,600	5,600	5,600	5,600	0.28	0.28	0.28	0.28	0.28	C	C	C	C	C
	Gerber Rd	Calvine Rd	2	5,400	5,500	5,500	5,400	5,400	0.27	0.28	0.28	0.27	0.27	C	C	C	C	C
Florin Rd	Bradshaw Rd	Excelsior Rd	2	4,000	4,400	4,400	4,300	4,300	0.22	0.24	0.24	0.24	0.24	A	A	A	A	A
	Excelsior Rd	Eagles Nest Rd	2	3,000	3,600	3,600	3,500	3,500	0.17	0.20	0.20	0.19	0.19	A	A	A	A	A
	Eagles Nest Rd	Sunrise Blvd	2	3,000	3,700	3,700	3,600	3,600	0.17	0.21	0.21	0.20	0.20	A	A	A	A	A
Folsom Blvd	Hazel Av	Aerojet Rd	4	14,000	13,800	13,900	13,800	13,900	0.39	0.38	0.39	0.38	0.39	A	A	A	A	A
	Aerojet Rd	US 50	4	14,500	14,700	14,700	14,700	14,600	0.40	0.41	0.41	0.41	0.41	A	A	A	A	A
Franklin Blvd	Bilby Rd	Hood Franklin Rd	2	4,700	7,800	7,800	7,800	8,000	0.24	0.39	0.39	0.39	0.40	C	D	D	D	D
	Hood Franklin Rd	Lambert Rd	2	1,900	2,000	2,000	2,000	2,000	0.10	0.10	0.10	0.10	0.10	A	A	A	A	A
	Lambert Rd	Twin Cities Rd	2	1,300	1,200	1,200	1,200	1,200	0.07	0.06	0.06	0.06	0.06	A	A	A	A	A
Gerber Rd	Bradshaw Rd	Vineyard Rd	2	4,000	4,100	4,100	4,000	4,000	0.22	0.23	0.23	0.22	0.22	A	A	A	A	A
	Vineyard Rd	Excelsior Rd	2	2,400	2,500	2,500	2,500	2,500	0.13	0.14	0.14	0.14	0.14	A	A	A	A	A

Table 16-32. Change in Roadway Segment Levels of Service between Existing Conditions and Existing Plus Project Conditions – on Non-Project Roadways

	Segment			Average Daily Traffic Volumes					Volume/Capacity Ratio					Level of Service				
					2008 Proposed Project					2008 Proposed Project					2008 Proposed Project			
					Deer Creek Causeway					Deer Creek Causeway					Deer Creek Causeway			
Roadway	From	To	Travel Lanes 2008	2008 No Project	Option 1	Option 2	Reduced Access Road	High Access Road	2008 No Project	Option 1	Option 2	Reduced Access Road	High Access Road	2008 No Project	Option 1	Option 2	Reduced Access Road	High Access Road
Hazel Av	Gold Country Blvd	US 50	6	53,900	53,900	53,900	53,900	53,900	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**E**	**E**	**E**	**E**	**E**
	US 50	Folsom Blvd	4	48,000	48,000	48,000	48,000	48,100	**1.33**	**1.33**	**1.33**	**1.33**	**1.34**	**F**	**F**	**F**	**F**	**F**
	Folsom Blvd	Easton Valley Pkwy	NA	0														
Hood Franklin Rd	Kammerer Rd Ext	Franklin Rd	2	4,500	7,500	7,500	7,500	7,500	0.25	0.42	0.42	0.42	0.42					
Jackson Rd	Bradshaw Rd	Excelsior Rd	2	10,800	10,600	10,600	10,600	10,600	0.47	0.46	0.46	0.46	0.46	D	D	D	D	D
	Excelsior Rd	Eagles Nest Rd	2	9,200	9,300	9,200	9,300	9,300	0.40	0.41	0.40	0.41	0.41	D	D	D	D	D
	Eagles Nest Rd	Sunrise Blvd	2	9,200	9,100	9,100	9,100	9,100	0.40	0.40	0.40	0.40	0.40	D	D	D	D	D
	Sunrise Blvd	Grant Line Rd	2	13,800	13,900	13,900	13,800	13,800	0.60	0.61	0.61	0.60	0.60	E	E	E	E	E
	Grant Line Rd	Dillard Rd	2	13,200	12,500	12,500	12,400	12,400	0.58	0.55	0.55	0.54	0.54	D	D	D	D	D
Kiefer Blvd	Bradshaw Rd	Excelsior Rd	2	0														
	Excelsior Rd	Eagles Nest Rd	NA	NA														
	Eagles Nest Rd	Sunrise Blvd	2	500	600	600	600	600	0.03	0.03	0.03	0.03	0.03	A	A	A	A	A
	Grant Line Rd	Jackson Rd	2	2,700	3,400	3,400	3,500	3,500	0.16	0.20	0.20	0.21	0.21	B	B	B	B	B
Scott Rd (South)	White Rock Rd	Latrobe Rd	2	2,200	2,600	2,600	2,600	2,600	0.11	0.13	0.13	0.13	0.13	B	B	B	B	B
Sunrise Blvd	Zinfandel Dr	US 50	6	84,100	84,100	84,100	84,200	84,200	**1.56**	**1.56**	**1.56**	**1.56**	**1.56**	**F**	**F**	**F**	**F**	**F**
	Jackson Rd	Florin Rd	2	13,300	14,700	14,800	14,100	13,600	0.74	0.82	0.82	0.78	0.76	C	D	D	C	C
	Florin Rd	Grant Line Rd	2	11,100	12,300	12,300	11,700	11,100	0.62	0.68	0.68	0.65	0.62	B	B	B	B	B
Twin Cities Rd	I-5	Franklin Rd	2	4,300	3,600	3,600	3,600	3,500	0.22	0.18	0.18	0.18	0.18	C	B	B	B	B
	Franklin Rd	SR 99	2	6,200	5,600	5,600	5,600	5,600	0.31	0.28	0.28	0.28	0.28	C	C	C	C	C
White Rock Rd	Rancho Cordova Pkwy	Villagio Dr	2	3,400	5,600	5,600	5,600	5,600	0.20	0.33	0.33	0.33	0.33	B	C	C	C	C
	Villagio Dr	Grant Line Rd	2	3,400	5,800	5,800	5,800	5,800	0.20	0.34	0.34	0.34	0.34	B	C	C	C	C
Vineyard Rd	Old Placerville Rd	Kiefer Blvd	2	0														
	Kiefer Blvd	Jackson Rd	NA	NA														
	Jackson Rd	Elder Creek Rd	NA	NA														
	Elder Creek Rd	Florin Rd	NA	NA														
	Florin Rd	Gerber Rd	NA	NA														
	Gerber Rd	Calvine Rd	2	5,400	5,400	5,400	5,400	5,400	0.30	0.30	0.30	0.30	0.30	A	A	A	A	A
Wilton Rd	Grant Line Rd	Dillard Rd	2	10,900	10,900	10,900	11,000	10,900	0.55	0.55	0.55	0.55	0.55	D	D	D	D	D
City of Rancho Cordova																		
Americanos	International	Centennial	NA	NA														
	Centennial	Douglas Rd	NA	NA														
Centennial	International	Americanos	NA	NA														
Chrysanthy	Sunrise Blvd	Rancho Cordova Pkwy	NA	NA														
	Rancho Cordova Pkwy	Americanos	NA	NA														
	Americanos	Grant Line Rd	NA	NA														
Douglas Rd	Zinfandel Dr	Sunrise Blvd	2	6,800	6,700	6,700	6,700	6,700	0.38	0.37	0.37	0.37	0.37	A	A	A	A	A
Douglas Rd	Sunrise Blvd	Rancho Cordova Pkwy	5	4,000	5,400	5,400	5,400	5,400	0.09	0.12	0.12	0.12	0.12	A	A	A	A	A
	Rancho Cordova Pkwy	Americanos	2	4,000	5,600	5,600	5,600	5,600	0.22	0.31	0.31	0.31	0.31	A	A	A	A	A
	Americanos	Grant Line Rd	2	4,000	5,800	5,800	5,800	5,800	0.22	0.32	0.32	0.32	0.32	A	A	A	A	A

Table 16-32. Change in Roadway Segment Levels of Service between Existing Conditions and Existing Plus Project Conditions – on Non-Project Roadways

	Segment			Average Daily Traffic Volumes					Volume/Capacity Ratio					Level of Service				
					2008 Proposed Project					2008 Proposed Project					2008 Proposed Project			
					Deer Creek Causeway					Deer Creek Causeway					Deer Creek Causeway			
Roadway	From	To	Travel Lanes 2008	2008 No Project	Option 1	Option 2	Reduced Access Road	High Access Road	2008 No Project	Option 1	Option 2	Reduced Access Road	High Access Road	2008 No Project	Option 1	Option 2	Reduced Access Road	High Access Road
Easton Valley Pkwy	Rancho Cordova Pkwy	Hazel Av	NA	NA														
Folsom Blvd	Zinfandel Dr	Kilgore Rd	4	17,000	16,700	16,800	16,800	16,800	0.47	0.46	0.47	0.47	0.47	A	A	A	A	A
	Kilgore Rd	Sunrise Blvd	4	18,000	17,800	17,800	17,900	17,800	0.50	0.49	0.49	0.50	0.49	A	A	A	A	A
	Sunrise Blvd	Mercantile Dr	4	12,700	11,900	12,000	11,900	11,900	0.35	0.33	0.33	0.33	0.33	A	A	A	A	A
	Mercantile Dr	Hazel Av	4	12,700	11,900	12,000	11,900	11,800	0.35	0.33	0.33	0.33	0.33	A	A	A	A	A
Kiefer Blvd	Sunrise Blvd	Rancho Cordova Pkwy	2	NA														
	Rancho Cordova Pkwy	Grant Line Rd	NA	NA														
Rancho Cordova Pkwy	US 50	Easton Valley Pkwy	NA	NA														
	Easton Valley Pkwy	White Rock Rd	NA	NA														
	White Rock Rd	International Blvd	NA	NA														
	International Blvd	Douglas Rd	NA	NA														
	Douglas Rd	Chrysanthy	NA	NA														
	Chrysanthy	Kiefer Rd	NA	NA														
	Kiefer Rd	Grant Line Rd	NA	NA														
Rio Del Oro Blvd	Sunrise Blvd	Rancho Cordova Pkwy	NA	NA														
Sunrise Blvd	Folsom Blvd	Trade Center Dr	6	52,400	51,600	51,500	51,300	51,000	**0.97**	**0.96**	**0.95**	**0.95**	**0.94**	**E**	**E**	**E**	**E**	**E**
	Trade Center Dr	White Rock Rd	6	40,200	39,500	39,500	39,300	39,000	0.74	0.73	0.73	0.73	0.72	C	C	C	C	C
	White Rock Rd	International Blvd	4	28,200	27,000	26,900	27,000	26,700	0.78	0.75	0.75	0.75	0.74	C	C	C	C	C
	International Blvd	Douglas Rd	6	28,200	28,400	28,400	28,100	27,600	0.52	0.53	0.53	0.52	0.51	A	A	A	A	A
	Douglas Rd	Chrysanthy	6	24,500	25,100	25,100	24,500	24,100	0.45	0.46	0.46	0.45	0.45	A	A	A	A	A
	Chrysanthy	Kiefer Rd	5	24,500	25,000	25,000	24,400	24,000	0.54	0.56	0.56	0.54	0.53	A	A	A	A	A
	Kiefer Rd	Jackson Rd	2	17,500	17,900	17,900	17,400	16,900	**0.97**	**0.99**	**0.99**	**0.97**	**0.94**	**E**	**E**	**E**	**E**	**E**
White Rock Rd	International Blvd	Zinfandel Dr	2	11,400	11,300	11,300	11,400	11,500	0.63	0.63	0.63	0.63	0.64	B	B	B	B	B
	Zinfandel Dr	Sunrise Blvd	6	19,900	20,600	20,600	20,500	20,500	0.37	0.38	0.38	0.38	0.38	A	A	A	A	A
	Sunrise Blvd	Rancho Cordova Pkwy	2	13,000	15,100	15,100	15,100	15,100	0.72	0.84	0.84	0.84	0.84	C	D	D	D	D
Zinfandel Dr	US 50	White Rock Rd	6	43,300	43,500	43,400	43,500	43,200	0.80	0.81	0.80	0.81	0.80	D	D	D	D	D
	White Rock Rd	International Blvd	6	19,700	19,500	19,400	19,600	19,500	0.36	0.36	0.36	0.36	0.36	A	A	A	A	A
	International Blvd	City Limits	4	7,100	7,200	7,100	7,100	7,100	0.20	0.20	0.20	0.20	0.20	A	A	A	A	A
City of Elk Grove																		
Bond Rd	SR 99	Elk Grove Florin Rd	4	49,200	48,700	48,600	48,800	48,700	**1.37**	**1.35**	**1.35**	**1.36**	**1.35**	**F**	**F**	**F**	**F**	**F**
	Elk Grove Florin Rd	Waterman Rd	4	18,800	18,900	18,800	19,000	18,900	0.52	0.53	0.52	0.53	0.53	A	A	A	A	A
	Waterman Rd	Bradshaw Rd	4	18,600	19,100	18,900	19,200	19,200	0.52	0.53	0.53	0.53	0.53	A	A	A	A	A
	Bradshaw Rd	Grant Line Rd	2	9,100	8,800	8,700	9,700	8,800	0.51	0.49	0.48	0.54	0.49	A	A	A	A	A
Bradshaw Rd	Calvine Rd	Sheldon Rd	2	9,300	8,600	8,800	9,000	9,400	0.52	0.48	0.49	0.50	0.52	A	A	A	A	A
	Sheldon Rd	Bond Rd	2	8,100	7,500	7,600	8,000	8,400	0.45	0.42	0.42	0.44	0.47	A	A	A	A	A
	Bond Rd	Elk Grove Blvd	2	5,100	4,900	5,300	5,100	5,700	0.28	0.27	0.29	0.28	0.32	A	A	A	A	A
	Elk Grove Blvd	Grant Line Rd	2	3,400	3,000	3,400	3,600	3,900	0.19	0.17	0.19	0.20	0.22	A	A	A	A	A
Bruceville Rd	Laguna Blvd	Elk Grove Blvd	4	21,700	21,100	21,100	21,200	21,200	0.60	0.59	0.59	0.59	0.59	B	A	A	A	A
	Elk Grove Blvd	Whitelock Pkwy	4	23,000	22,700	22,600	22,700	22,700	0.64	0.63	0.63	0.63	0.63	B	B	B	B	B
	Whitelock Pkwy	Kammerer Rd	2	4,500	4,800	4,800	4,800	4,800	0.25	0.27	0.27	0.27	0.27	A	A	A	A	A

Table 16-32. Change in Roadway Segment Levels of Service between Existing Conditions and Existing Plus Project Conditions – on Non-Project Roadways

	Segment			Average Daily Traffic Volumes					Volume/Capacity Ratio					Level of Service				
					2008 Proposed Project					2008 Proposed Project					2008 Proposed Project			
					Deer Creek Causeway		Reduced Access Road	High Access Road		Deer Creek Causeway		Reduced Access Road	High Access Road		Deer Creek Causeway		Reduced Access Road	High Access Road
Roadway	From	To	Travel Lanes 2008	2008 No Project	Option 1	Option 2			2008 No Project	Option 1	Option 2			2008 No Project	Option 1	Option 2		
Elk Grove Blvd	I-5	Franklin Blvd	6	24,100	22,000	22,000	22,100	22,000	0.45	0.41	0.41	0.41	0.41	A	A	A	A	A
	Franklin Rd	Bruceville Rd	6	29,600	28,100	28,100	28,300	28,200	0.55	0.52	0.52	0.52	0.52	A	A	A	A	A
	Bruceville Rd	Big Horn Blvd	6	40,700	39,600	39,600	39,700	39,600	0.75	0.73	0.73	0.74	0.73	C	C	C	C	C
	Big Horn Blvd	W Stockton Blvd	6	39,500	38,400	38,400	38,800	38,700	0.73	0.71	0.71	0.72	0.72	C	C	C	C	C
	W Stockton Blvd	SR 99	6	45,400	44,200	44,200	44,800	44,900	0.84	0.82	0.82	0.83	0.83	D	D	D	D	D
	SR 99	E Stockton Blvd	4	40,000	39,000	38,700	39,400	39,500	**1.11**	**1.08**	**1.08**	**1.09**	**1.10**	**F**	**F**	**F**	**F**	**F**
	E Stockton Blvd	Elk Grove Florin Rd	4	37,700	36,800	36,400	37,200	37,300	**1.05**	**1.02**	**1.01**	**1.03**	**1.04**	**F**	**F**	**F**	**F**	**F**
	Elk Grove Florin Rd	Waterman Rd	2	20,700	20,100	19,900	20,600	20,500	**1.15**	**1.12**	**1.11**	**1.14**	**1.14**	**F**	**F**	**F**	**F**	**F**
	Waterman Rd	Bradshaw Rd	2	13,800	13,400	13,000	14,600	14,100	0.77	0.74	0.72	0.81	0.78	C	C	C	D	C
	Bradshaw Rd	Grant Line Rd	2	6,000	5,700	5,600	7,200	6,700	0.33	0.32	0.31	0.40	0.37	A	A	A	A	A
Excelsior Rd	Calvine Rd	Sheldon Rd	2	4,000	4,300	4,300	4,400	4,300	0.22	0.24	0.24	0.24	0.24	A	A	A	A	A
Franklin Blvd	Laguna Blvd	Elk Grove Blvd	4	23,800	23,600	23,600	23,600	23,700	0.66	0.66	0.66	0.66	0.66	B	B	B	B	B
	Elk Grove Blvd	Whitelock Pkwy	4	12,700	12,900	12,900	12,900	12,900	0.35	0.36	0.36	0.36	0.36	A	A	A	A	A
	Whitelock Pkwy	Bilby Rd	2	0														
Laguna Blvd	I-5	Franklin Blvd	6	32,100	31,700	31,700	31,700	31,600	0.59	0.59	0.59	0.59	0.59	A	A	A	A	A
	Franklin Rd	Bruceville Rd	6	36,500	36,300	36,200	36,200	36,200	0.68	0.67	0.67	0.67	0.67	B	B	B	B	B
	Bruceville Rd	Big Horn Blvd	6	36,500	35,800	35,800	35,800	35,800	0.68	0.66	0.66	0.66	0.66	B	B	B	B	B
	Big Horn Blvd	SR 99	8	57,800	56,700	56,800	56,800	56,900	0.80	0.79	0.79	0.79	0.79	D	C	C	C	C
Sheldon Rd	SR 99	Elk Grove Florin Rd	4	0														
	Elk Grove Florin Rd	Waterman Rd	2	9,100	9,100	9,100	9,200	9,200	0.51	0.51	0.51	0.51	0.51	A	A	A	A	A
	Waterman Rd	Bradshaw Rd	2	7,100	6,700	6,800	7,200	7,400	0.39	0.37	0.38	0.40	0.41	A	A	A	A	A
	Bradshaw Rd	Excelsior Rd	2	5,000	4,700	4,700	4,900	5,400	0.28	0.26	0.26	0.27	0.30	A	A	A	A	A
	Excelsior Rd	Grant Line Rd	2	5,800	6,300	6,400	6,500	6,300	0.32	0.35	0.36	0.36	0.35	A	A	A	A	A
Waterman Rd	Calvine Rd	Sheldon Rd	2	7,600	7,700	7,600	7,600	7,700	0.42	0.43	0.42	0.42	0.43	A	A	A	A	A
	Sheldon Rd	Bond Rd	2	8,400	8,100	8,000	8,100	8,200	0.47	0.45	0.44	0.45	0.46	A	A	A	A	A
	Bond Rd	Elk Grove Blvd	2	10,400	10,500	10,100	10,300	10,500	0.58	0.58	0.56	0.57	0.58	A	A	A	A	A
	Elk Grove Blvd	Grant Line Rd	2	7,500	9,200	10,400	8,300	8,300	0.42	0.51	0.58	0.46	0.46	A	A	A	A	A
Whitelock Pkwy	Franklin Rd	Bruceville Rd	4	12,900	12,800	12,800	12,800	12,800	0.36	0.36	0.36	0.36	0.36	A	A	A	A	A
	Bruceville Rd	Big Horn Blvd	4	3,000	2,700	2,700	2,700	2,700	0.08	0.08	0.08	0.08	0.08	A	A	A	A	A
	Big Horn Blvd	W Stockton Blvd	4	3,000	2,600	2,600	2,600	2,600	0.08	0.07	0.07	0.07	0.07	A	A	A	A	A
	W Stockton Blvd	SR 99	NA	NA														
Willard Pkwy	Whitelock Pkwy	Kammerer Rd	4	NA														

Source: DKS Associates 2010.

Notes: Bold indicates segments that would not meet the LOS standard for the local jurisdiction.
Cells shaded in grey represent significant LOS impacts.

Table 16-33. Change in 2025 Daily Traffic Volume from 2025 No Project – Along Project Alignment

Roadway	Segment		Travel Lanes			Average Daily Traffic Volumes						Change in 2025 Average Daily Traffic Volume from No Project			
				2025				2025 Proposed Project							
								Deer Creek Causeway				Deer Creek Causeway			
	From	To	2008	No Project	Proposed Project	2008	2025 No Project	Option 1	Option 2	Reduced Access Road	High Access Road	Option 1	Option 2	Reduced Access Road	High Access Road
White Rock Road	US 50	Valley View Pkwy	2	6	6	9,300	18,100	18,500	18,600	18,500	18,600	400	500	400	500
	Valley View Pkwy	Latrobe Rd	2	6	6	13,700	19,700	20,200	20,300	20,200	20,400	500	600	500	700
	Latrobe Rd	Windfield Way	4	4	4	10,100	18,900	20,200	20,300	20,100	20,200	1,300	1,400	1,200	1,300
	Windfield Way	Four Seasons Dr	2	4	4	7,800	17,100	19,000	19,000	18,900	19,000	1,900	1,900	1,800	1,900
	Four Seasons Dr	Empire Ranch Rd	2	4	4	6,400	16,000	18,100	18,100	18,100	18,100	2,100	2,100	2,100	2,100
	Empire Ranch Rd	Scott Rd (North)	2	4	4E	8,500	19,100	22,800	22,800	22,800	22,800	3,700	3,700	3,700	3,700
	Scott Rd (North)	Oak Av Pkwy	2	4	4E	5,700	31,200	40,900	40,900	40,800	40,600	9,700	9,700	9,600	9,400
	Oak Av Pkwy	Prairie City Rd	2	4	4E	5,700	30,200	39,900	39,900	39,900	39,700	9,700	9,700	9,700	9,500
	Prairie City Rd	Grant Line Rd	2	4	4E	9,900	41,200	59,700	59,600	59,500	59,200	18,500	18,400	18,300	18,000
Grant Line Road	White Rock Rd	Douglas Rd	2	4	4E	9,600	33,300	51,400	51,400	51,300	50,900	18,100	18,100	18,000	17,600
	Douglas Rd	Chrysanthy	2	4	4E	8,800	39,900	48,000	48,000	47,900	47,500	8,100	8,100	8,000	7,600
	Chrysanthy	University	2	4	4E	7,800	29,500	47,100	47,100	47,100	46,700	17,600	17,600	17,600	17,200
	University	Kiefer Blvd	2	4	4E	7,800	26,800	43,200	43,200	43,100	42,800	16,400	16,400	16,300	16,000
	Kiefer Blvd	Rancho Cordova Pkwy	2	4	4E	7,700	22,100	32,200	32,200	32,100	31,700	10,100	10,100	10,000	9,600
	Rancho Cordova Pkwy	Jackson Rd	2	4	4E	7,700	22,100	32,200	32,200	32,100	31,700	10,100	10,100	10,000	9,600
	Jackson Rd	Sunrise Blvd	2	2	4E	5,600	16,800	27,000	27,000	26,900	26,500	10,200	10,200	10,100	9,700
	Sunrise Blvd	Eagles Nest Rd	2	4	4E	14,700	26,300	36,600	36,500	36,100	35,200	10,300	10,200	9,800	8,900
	Eagles Nest Rd	Calvine Rd	2	4	4E	14,700	28,700	39,500	39,400	38,900	37,800	10,800	10,700	10,200	9,100
	Calvine Rd	Sheldon Rd	2	2	4	11,900	19,500	13,600	13,700	28,600	28,100	(5,900)	(5,800)	9,100	8,600
	Sheldon Rd	Wilton Rd	2	2	4	16,200	25,100	21,500	21,500	35,900	35,300	(3,600)	(3,600)	10,800	10,200
	Wilton Rd	Bond Rd	2	2	4	14,700	20,700	16,700	16,700	32,500	30,300	(4,000)	(4,000)	11,800	9,600
	Bond Rd	Elk Grove Blvd	2	2	4	9,400	15,700	9,300	9,200	23,900	22,700	(6,400)	(6,500)	8,200	7,000
	Elk Grove Blvd	Bradshaw Rd	2	2	4	6,300	10,500	3,300	3,300	16,300	14,600	(7,200)	(7,200)	5,800	4,100
	Bradshaw Rd	Waterman Rd	2	4	4	9,300	26,400	31,100	32,400	30,100	29,300	4,700	6,000	3,700	2,900
	Waterman Rd	E Stockton Blvd	2	6	6	13,500	36,100	41,900	41,500	39,600	38,700	5,800	5,400	3,500	2,600
	E Stockton Blvd	SR 99	4	6	6	15,800	39,700	45,300	45,000	42,900	42,200	5,600	5,300	3,200	2,500
Deer Creek Causeway	Grant Line Rd	Grant Line Rd	NA	NA	3E	NA	NA	17,100	16,900	NA	NA	17,100	16,900	NA	NA
Kammerer Road	SR 99	W Stockton Blvd	2	6	6	4,000	31,600	33,900	33,700	33,200	32,800	2,300	2,100	1,600	1,200
	W Stockton Blvd	Lent Ranch Pkwy	2	6	6	2,500	31,600	33,900	33,700	33,200	32,800	2,300	2,100	1,600	1,200
	Lent Ranch Pkwy	Lotz Pkwy	2	6	6	2,500	17,700	19,900	19,600	19,100	18,700	2,200	1,900	1,400	1,000
	Lotz Pkwy	Big Horn Blvd	2	6	6	2,500	15,500	17,500	17,300	16,800	16,400	2,000	1,800	1,300	900
	Big Horn Blvd	Bruceville Rd	2	6	6	2,500	17,300	17,500	17,300	18,500	18,200	200	0	1,200	900
Kammerer Road Extension	Bruceville Rd	Willard Pkwy	NA	4	4E	NA	15,900	19,300	19,000	17,000	16,700	3,400	3,100	1,100	800
	Willard Pkwy	Hood-Franklin Rd	NA	4	4E	NA	20,000	17,800	17,600	21,100	20,800	(2,200)	(2,400)	1,100	800
	Hood-Franklin Rd	I-5	NA	4	4E	NA	22,900	21,800	21,600	24,300	24,100	(1,100)	(1,300)	1,400	1,200

Source: DKS Associates 2010.

Note: Cells shaded in yellow are segments of Grant Line Road that are not a part of the Connector under the Deer Creek Causeway Option1 or Option 2.

Table 16-34. Change in 2025 Daily Traffic Volume from 2025 No Project – on Non-Project Roadways

	Segment		Travel Lanes		Average Daily Traffic Volumes						Change in 2025 Average Daily Traffic Volume from No Project			
							2025 Proposed Project							
							Deer Creek Causeway		Reduced Access Road	High Access Road	Deer Creek Causeway		Reduced Access Road	High Access Road
Roadway	From	To	2008	2025	2008	2025 No Project	Option 1	Option 2			Option 1	Option 2		
El Dorado County														
Latrobe Rd	US 50	Town Center Blvd	6	6	40,200	55,600	56,200	55,900	56,000	55,900	600	300	400	300
	Town Center Blvd	White Rock Rd	6	6	24,700	35,200	36,100	35,900	35,900	35,800	900	700	700	600
	White Rock Rd	Golden Foothill Pkwy	4	6	19,100	29,700	29,500	29,300	29,300	29,200	(200)	(400)	(400)	(500)
Saratoga Way	Sacramento Co	Latrobe Road	2	2	2,000	16,000	15,900	15,800	15,900	15,900	(100)	(200)	(100)	(100)
Sylva Valley Pkwy	US 50	Serrano Pkwy	2	4	9,000	23,100	23,000	23,100	22,900	22,900	(100)	0	(200)	(200)
Valley View Pkwy	White Rock Rd	Blackstone Pkwy	2	2	3,300	7,400	7,400	7,500	7,500	7,500	0	100	100	100
West Connection to Business Park	Sacramento Co	Golden Foothill Pkwy	NA	4	NA	29,300	30,100	30,200	30,200	30,200	800	900	900	900
City of Folsom (including Sphere of Influence South of US 50)														
East Bidwell St	Iron Point Rd	US 50	6	6	50,700	54,800	56,300	56,300	56,300	56,200	1,500	1,500	400	1,400
Easton Valley Pkwy	Prairie City Rd	Oak Av Pkwy	NA	4	NA	20,600	19,700	20,000	20,000	20,000	(900)	(600)	700	(600)
	Oak Av Pkwy	Scott Rd	NA	4	NA	21,800	21,900	21,900	21,900	21,900	100	100	(400)	100
	Scott Rd	Placerville Rd	NA	4	NA	13,800	14,200	14,200	14,200	14,200	400	400	(100)	400
Empire Ranch Rd	Iron Point Rd	US 50	NA	4	NA	20,600	21,000	20,900	20,800	21,000	400	300	(200)	400
	US 50	Easton Valley Pkwy	NA	4	NA	39,500	38,700	38,700	38,700	38,800	(800)	(800)	100	(700)
	Easton Valley Pkwy	White Rock Rd	NA	4	NA	26,800	26,300	26,400	26,400	26,400	(500)	(400)	900	(400)
Folsom Blvd	US 50	Iron Point Rd	6	6	50,200	57,400	56,700	56,700	56,800	56,700	(700)	(700)	0	(700)
Iron Point Rd	Folsom Blvd	Prairie City Rd	4	6	19,300	17,500	17,600	17,600	17,600	17,600	100	100	0	100
	Prairie City Rd	Oak Av Pkwy	4	4	22,200	17,800	17,900	17,800	17,800	17,800	100	0	(1,100)	0
	Oak Av Pkwy	Broadstone Pkwy	4	4	13,300	13,700	13,500	13,400	13,400	13,400	(200)	(300)	(1,400)	(300)
	Broadstone Pkwy	East Bidwell St	4	6	15,700	13,100	13,100	13,100	13,100	13,100	0	0	(1,200)	0
	East Bidwell St	Empire Ranch Rd	2	2	3,300	8,300	8,400	8,200	8,500	8,500	100	(100)	(1,300)	200
Oak Ave Pkwy	Iron Point Rd	US 50	NA	4	NA	32,800	32,000	32,000	31,900	31,900	(800)	(800)	1,500	(900)
	US 50	Easton Valley Pkwy	NA	4	NA	20,300	19,300	19,200	19,200	19,100	(1,000)	(1,100)	(600)	(1,200)
	Easton Valley Pkwy	White Rock Rd	NA	4	NA	4,300	3,700	3,700	3,700	3,700	(600)	(600)	100	(600)
Prairie City Rd	Iron Point Rd	US 50	6	6	29,400	39,300	42,000	42,000	41,700	41,800	2,700	2,700	400	2,500
	US 50	Easton Valley Pkwy	2	6	5,900	33,900	39,100	39,300	39,100	39,200	5,200	5,400	200	5,300
	Easton Valley Pkwy	White Rock Rd	2	4	5,900	25,100	33,300	33,300	33,200	33,100	8,200	8,200	(800)	8,000
Scott Rd	US 50	Easton Valley Pkwy	2	6	4,800	37,700	41,600	41,500	41,400	41,300	3,900	3,800	(400)	3,600
	Easton Valley Pkwy	White Rock Rd	2	4	4,800	11,700	17,200	17,200	17,100	16,900	5,500	5,500	(600)	5,200
Sacramento County														
Bilby Rd	Franklin Blvd	Willard Pkwy	2	2	4,800	600	600	600	600	600	0	0	400	0
	Willard Pkwy	Bruceville Rd	2	2	3,000	4,000	4,000	4,000	4,000	4,000	0	0	700	0
Bradshaw Rd	US 50	Lincoln Village Dr	6	6	57,300	66,800	65,500	65,600	65,700	65,900	(1,300)	(1,200)	(400)	(900)
	Lincoln Village Dr	Old Placerville Rd	6	6	47,100	57,900	56,600	56,600	56,500	56,900	(1,300)	(1,300)	(100)	(1,000)
	Old Placerville Rd	Goethe Rd	6	6	42,500	57,800	56,500	56,700	56,600	56,900	(1,300)	(1,100)	(200)	(900)
	Goethe Rd	Kiefer Blvd	6	6	35,000	57,800	56,500	56,600	56,500	56,800	(1,300)	(1,200)	100	(1,000)

Table 16-34. Change in 2025 Daily Traffic Volume from 2025 No Project – on Non-Project Roadways

Roadway	Segment		Travel Lanes		Average Daily Traffic Volumes						Change in 2025 Average Daily Traffic Volume from No Project			
							2025 Proposed Project							
							Deer Creek Causeway		Reduced Access Road	High Access Road	Deer Creek Causeway		Reduced Access Road	High Access Road
	From	To	2008	2025	2008	2025 No Project	Option 1	Option 2			Option 1	Option 2		
Bradshaw Rd	Kiefer Blvd	Jackson Rd	4	4	31,100	56,900	55,500	55,500	55,600	56,000	(1,400)	(1,400)	(1,300)	(900)
	Jackson Rd	Elder Creek Rd	4	4	23,700	46,500	45,800	45,800	45,900	46,300	(700)	(700)	(600)	(200)
	Elder Creek Rd	Florin Rd	4	4	20,400	42,300	41,200	41,200	41,400	41,800	(1,100)	(1,100)	(900)	(500)
	Florin Rd	Gerber Rd	2	4	19,400	31,800	30,900	30,700	30,900	31,400	(900)	(1,100)	(900)	(400)
	Gerber Rd	Calvine Rd	2	4	15,100	20,800	19,700	19,500	19,900	20,300	(1,100)	(1,300)	(900)	(500)
Bruceville Rd	Kammerer Rd	Lambert Rd	2	2	1,600	1,500	1,500	1,500	1,500	1,500	0	0	0	0
Calvine Rd	Power Inn Rd	Elk Grove Florin Rd	6	6	43,900	43,200	43,300	43,400	43,600	43,600	100	200	400	400
	Elk Grove Florin Rd	Waterman Rd	4	6	23,300	25,200	25,300	25,400	25,700	25,900	100	200	500	700
	Waterman Rd	Bradshaw Rd	4	6	15,700	13,400	14,000	14,000	14,300	14,300	600	600	900	900
	Bradshaw Rd	Vineyard Rd	4	6	13,000	13,800	12,000	11,900	12,400	13,100	(1,800)	(1,900)	(1,400)	(700)
	Vineyard Rd	Excelsior Rd	2	4	10,700	14,200	14,600	14,500	14,900	14,700	400	300	700	500
	Excelsior Rd	Grant Line Rd	2	4	3,700	8,700	8,600	8,600	8,900	9,100	(100)	(100)	200	400
Chrysanthy	Grant Line Rd	Cordova Hills	NA	4	NA	10,200	11,500	11,500	11,600	11,600	1,300	1,300	1,400	1,400
Dillard Rd	Jackson Rd	Clay Station Rd	2	2	4,600	6,000	6,200	6,200	6,300	6,300	200	200	300	300
	Clay Station Rd	Green Rd	2	2	4,500	5,200	4,900	4,900	5,000	5,100	(300)	(300)	(200)	(100)
	Green Rd	Wilton Rd	2	2	4,500	4,600	4,600	4,600	4,800	4,800	0	0	200	200
	Wilton Rd	SR-99	2	2	5,800	6,600	6,200	6,200	6,200	6,400	(400)	(400)	(400)	(200)
Eagles Nest Rd	City Limits	Douglas Rd	NA	6	NA	31,000	30,800	30,900	30,600	30,200	(200)	(100)	(400)	(800)
	Douglas Rd	Kiefer Blvd	NA	2	NA	15,900	16,000	16,200	15,800	15,800	100	300	(100)	(100)
	Kiefer Blvd	Jackson Rd	2	2	500	8,300	8,400	8,400	8,200	8,200	100	100	(100)	(100)
	Jackson Rd	Florin Rd	2	2	500	4,700	5,000	5,000	4,800	4,700	300	300	100	0
	Florin Rd	Grant Line Rd	2	2	200	2,700	3,300	3,300	3,100	2,900	600	600	400	200
Easton Valley Pkwy	Hazel Av	Glenborough Rd	NA	4	NA	22,600	21,800	21,900	22,000	21,900	(800)	(700)	(600)	(700)
	Glenborough Rd	Prairie City Rd	NA	4	NA	15,600	15,800	15,800	15,800	15,700	200	200	200	100
Elder Creek Rd	Bradshaw Rd	Excelsior Rd	2	2	2,000	21,200	20,900	20,900	21,200	21,200	(300)	(300)	0	0
Excelsior Rd	Mather Blvd	Kiefer Blvd	2	4	6,000	12,300	12,000	11,700	11,800	11,800	(300)	(600)	(500)	(500)
	Kiefer Blvd	Jackson Rd	2	4	5,300	6,100	5,800	5,700	5,700	5,800	(300)	(400)	(400)	(300)
	Jackson Rd	Elder Creek Rd	2	2	5,800	17,600	17,600	17,500	17,400	17,500	0	(100)	(200)	(100)
	Elder Creek Rd	Florin Rd	2	2	5,700	10,600	10,400	10,300	10,300	10,300	(200)	(300)	(300)	(300)
	Florin Rd	Gerber Rd	2	2	5,600	15,300	15,200	15,200	15,200	15,100	(100)	(100)	(100)	(200)
	Gerber Rd	Calvine Rd	2	2	5,400	6,400	6,900	6,900	6,900	6,700	500	500	500	300
Florin Rd	Bradshaw Rd	Excelsior Rd	2	4	4,000	10,700	10,800	10,800	10,500	10,700	100	100	(200)	0
	Excelsior Rd	Eagles Nest Rd	2	2	3,000	9,900	10,200	10,200	10,000	10,100	300	300	100	200
	Eagles Nest Rd	Sunrise Blvd	2	2	3,000	8,400	8,900	8,800	8,700	8,600	500	400	300	200
Folsom Blvd	Hazel Av	Aerojet Rd	4	4	14,000	10,700	10,200	10,200	10,200	10,200	(500)	(500)	(500)	(500)
	Aerojet Rd	US 50	4	4	14,500	21,600	21,700	21,700	21,700	21,700	100	100	100	100
Franklin Blvd	Bilby Rd	Hood Franklin Rd	2	2	4,700	3,600	3,800	3,800	3,900	3,900	200	200	300	300
	Hood Franklin Rd	Lambert Rd	2	2	1,900	2,000	2,000	2,000	2,000	2,000	0	0	0	0
	Lambert Rd	Twin Cities Rd	2	2	1,300	1,300	1,300	1,300	1,300	1,300	0	0	0	0

Table 16-34. Change in 2025 Daily Traffic Volume from 2025 No Project – on Non-Project Roadways

Roadway	Segment		Travel Lanes		Average Daily Traffic Volumes						Change in 2025 Average Daily Traffic Volume from No Project			
							2025 Proposed Project							
							Deer Creek Causeway		Reduced Access Road	High Access Road	Deer Creek Causeway		Reduced Access Road	High Access Road
	From	To	2008	2025	2008	2025 No Project	Option 1	Option 2			Option 1	Option 2		
Gerber Rd	Bradshaw Rd	Vineyard Rd	2	4	4,000	11,000	11,000	11,100	11,000	11,000	0	100	0	0
	Vineyard Rd	Excelsior Rd	2	2	2,400	7,900	7,300	7,300	7,400	7,500	(600)	(600)	(500)	(400)
Hazel Av	Gold Country Blvd	US 50	6	6	53,900	76,400	76,300	76,300	76,300	76,300	(100)	(100)	(100)	(100)
	US 50	Folsom Blvd	4	6	48,000	47,400	47,300	47,200	47,300	47,300	(100)	(200)	(100)	(100)
	Folsom Blvd	Easton Valley Pkwy	NA	4	NA	15,600	15,700	15,400	15,300	15,300	100	(200)	(300)	(300)
Hood Franklin Rd	Kammerer Rd Ext	Franklin Rd	2	2	4,500	500	500	500	500	500	0	0	0	0
Jackson Rd	Bradshaw Rd	Excelsior Rd	2	6	10,800	42,700	41,700	41,700	41,600	41,600	(1,000)	(1,000)	(1,100)	(1,100)
	Excelsior Rd	Eagles Nest Rd	2	4	9,200	27,800	27,800	27,800	27,600	27,700	0	0	(200)	(100)
	Eagles Nest Rd	Sunrise Blvd	2	4	9,200	25,500	25,600	25,700	25,600	25,600	100	200	100	100
	Sunrise Blvd	Grant Line Rd	2	4	13,800	29,700	29,600	29,600	29,500	29,500	(100)	(100)	(200)	(200)
	Grant Line Rd	Dillard Rd	2	2	13,200	14,400	14,400	14,400	14,300	14,300	0	0	(100)	(100)
Kiefer Blvd	Bradshaw Rd	Excelsior Rd	2	2	0	6,600	6,500	6,400	6,500	6,400	(100)	(200)	(100)	(200)
	Excelsior Rd	Eagles Nest Rd	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Eagles Nest Rd	Sunrise Blvd	2	2	500	4,200	4,300	4,200	4,200	4,200	100	0	0	0
	Grant Line Rd	Jackson Rd	2	2	2,700	4,800	5,500	5,400	5,500	5,500	700	600	700	700
North Loop	Grant Line Rd	Cordova Hills	NA	4	NA	16,400	16,000	16,000	15,900	15,900	(400)	(400)	(500)	(500)
Scott Rd (South)	White Rock Rd	Latrobe Rd	2	2	2,200	4,600	4,000	4,000	4,000	4,000	(600)	(600)	(600)	(600)
Sunrise Blvd	Zinfandel Dr	US 50	6	8	84,100	105,200	105,000	104,900	105,000	104,700	(200)	(300)	(200)	(500)
	Jackson Rd	Florin Rd	2	4	13,300	20,700	21,300	21,200	20,800	20,100	600	500	100	(600)
	Florin Rd	Grant Line Rd	2	4	11,100	14,100	14,400	14,300	13,900	13,300	300	200	(200)	(800)
Twin Cities Rd	I-5	Franklin Rd	2	2	4,300	5,300	5,100	5,200	5,200	5,200	(200)	(100)	(100)	(100)
	Franklin Rd	SR 99	2	2	6,200	9,500	9,400	9,500	9,400	9,400	(100)	0	(100)	(100)
University Blvd	Grant Line Rd	Cordova Hills	NA	4	NA	14,800	16,100	16,100	16,100	16,100	1,300	1,300	1,300	1,300
White Rock Rd	Rancho Cordova Pkwy	Villagio Dr	2	4	3,400	5,700	7,100	7,000	7,000	7,100	1,400	1,300	1,300	1,400
	Villagio Dr	Grant Line Rd	2	4	3,400	9,900	12,400	12,300	12,300	12,300	2,500	2,400	2,400	2,400
Vineyard Rd	Old Placerville Rd	Kiefer Blvd	2	2	0	3,300	3,100	3,100	3,100	3,000	(200)	(200)	(200)	(300)
	Kiefer Blvd	Jackson Rd	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Jackson Rd	Elder Creek Rd	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Elder Creek Rd	Florin Rd	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Florin Rd	Gerber Rd	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Gerber Rd	Calvine Rd	2	4	5,400	9,800	9,300	9,300	9,400	9,400	(500)	(500)	(400)	(400)
Wilton Rd	Grant Line Rd	Dillard Rd	2	2	10,900	10,500	11,000	11,000	11,000	11,000	500	500	500	500
City of Rancho Cordova														
Americanos	International	Centennial	NA	2	NA	2,500	2,400	2,400	2,500	2,500	(100)	(100)	0	0
	Centennial	Douglas Rd	NA	4	NA	10,600	10,800	10,800	10,800	10,800	200	200	200	200
Centennial	International	Americanos	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysanthy	Sunrise Blvd	Rancho Cordova Pkwy	NA	4	NA	5,700	5,600	5,600	5,600	5,600	(100)	(100)	(100)	(100)
	Rancho Cordova Pkwy	Americanos	NA	4	NA	5,800	5,100	5,100	5,100	5,100	(700)	(700)	(700)	(700)
	Americanos	Grant Line Rd	NA	4	NA	10,900	9,300	9,300	9,300	9,300	(1,600)	(1,600)	(1,600)	(1,600)
Douglas Rd	Zinfandel Dr	Sunrise Blvd	2	6	6,800	23,600	24,000	24,000	24,000	23,800	400	400	400	200

Table 16-34. Change in 2025 Daily Traffic Volume from 2025 No Project – on Non-Project Roadways

Roadway	Segment		Travel Lanes		Average Daily Traffic Volumes						Change in 2025 Average Daily Traffic Volume from No Project			
							2025 Proposed Project							
							Deer Creek Causeway		Reduced Access Road	High Access Road	Deer Creek Causeway		Reduced Access Road	High Access Road
Roadway	From	To	2008	2025	2008	2025 No Project	Option 1	Option 2			Option 1	Option 2		
Douglas Rd	Sunrise Blvd	Rancho Cordova Pkwy	5	6	4,000	32,900	32,300	32,500	32,300	32,500	(600)	(400)	(600)	(400)
	Rancho Cordova Pkwy	Americanos	2	6	4,000	28,000	27,300	27,300	27,300	27,300	(700)	(700)	(700)	(700)
	Americanos	Grant Line Rd	2	6	4,000	20,600	24,300	24,300	24,300	24,400	3,700	3,700	3,700	3,800
Easton Valley Pkwy	Rancho Cordova Pkwy	Hazel Av	NA	6	NA	16,500	15,900	15,900	16,000	15,900	(600)	(600)	(500)	(600)
Folsom Blvd	Zinfandel Dr	Kilgore Rd	4	4	17,000	19,100	19,100	18,900	18,700	18,800	0	(200)	(400)	(300)
	Kilgore Rd	Sunrise Blvd	4	4	18,000	21,300	21,400	21,100	21,000	21,100	100	(200)	(300)	(200)
	Sunrise Blvd	Mercantile Dr	4	4	12,700	9,700	9,400	9,300	9,300	9,300	(300)	(400)	(400)	(400)
	Mercantile Dr	Hazel Av	4	4	12,700	8,500	8,100	8,000	8,000	8,100	(400)	(500)	(500)	(400)
Kiefer Blvd	Sunrise Blvd	Rancho Cordova Pkwy	2	4	0	5,800	5,100	5,100	5,200	5,200	(700)	(700)	(600)	(600)
	Rancho Cordova Pkwy	Grant Line Rd	NA	4	NA	10,300	12,800	12,800	12,800	12,800	2,500	2,500	2,500	2,500
Rancho Cordova Pkwy	US 50	Easton Valley Pkwy	NA	6	NA	40,000	37,700	37,600	37,400	37,400	(2,300)	(2,400)	(2,600)	(2,600)
	Easton Valley Pkwy	White Rock Rd	NA	6	NA	35,600	32,600	32,500	32,400	32,300	(3,000)	(3,100)	(3,200)	(3,300)
	White Rock Rd	International Blvd	NA	4	NA	23,100	20,800	20,700	20,600	20,500	(2,300)	(2,400)	(2,500)	(2,600)
	International Blvd	Douglas Rd	NA	4	NA	15,600	14,000	13,700	13,900	13,800	(1,600)	(1,900)	(1,700)	(1,800)
	Douglas Rd	Chrysanthy	NA	4	NA	20,100	18,900	18,900	18,800	18,800	(1,200)	(1,200)	(1,300)	(1,300)
	Chrysanthy	Kiefer Rd	NA	4	NA	16,800	15,400	15,400	15,300	15,300	(1,400)	(1,400)	(1,500)	(1,500)
	Kiefer Rd	Grant Line Rd	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Rio Del Oro Blvd	Sunrise Blvd	Rancho Cordova	NA	6	NA	7,600	7,400	7,400	7,300	7,100	(200)	(200)	(300)	(500)
Sunrise Blvd	Folsom Blvd	Trade Center Dr	6	6	52,400	51,500	51,500	51,200	50,900	50,700	0	(300)	(600)	(800)
	Trade Center Dr	White Rock Rd	6	6	40,200	49,600	49,900	49,500	49,200	49,000	300	(100)	(400)	(600)
	White Rock Rd	International Blvd	4	6	28,200	32,500	32,800	32,500	32,300	32,100	300	0	(200)	(400)
	International Blvd	Douglas Rd	6	6	28,200	36,400	35,800	35,800	35,400	35,200	(600)	(600)	(1,000)	(1,200)
	Douglas Rd	Chrysanthy	6	6	24,500	29,000	28,900	28,800	28,600	28,000	(100)	(200)	(400)	(1,000)
	Chrysanthy	Kiefer Rd	5	6	24,500	30,600	30,600	30,500	30,300	29,600	0	(100)	(300)	(1,000)
	Kiefer Rd	Jackson Rd	2	6	17,500	23,400	23,900	23,800	23,300	22,800	500	400	(100)	(600)
White Rock Rd	International Blvd	Zinfandel Dr	2	2	11,400	10,900	11,100	11,000	10,900	11,000	200	100	0	100
	Zinfandel Dr	Sunrise Blvd	6	6	19,900	22,700	22,800	22,700	22,700	22,700	100	0	0	0
	Sunrise Blvd	Rancho Cordova Pkwy	2	4	13,000	31,200	31,800	31,800	31,800	31,800	600	600	600	600
Zinfandel Dr	US 50	White Rock Rd	6	6	43,300	71,100	70,700	71,000	71,000	70,600	(400)	(100)	(100)	(500)
	White Rock Rd	International Blvd	6	6	19,700	56,500	55,900	56,300	56,000	55,800	(600)	(200)	(500)	(700)
	International Blvd	City Limits	4	6	7,100	38,100	37,900	38,000	37,700	37,300	(200)	(100)	(400)	(800)
City of Elk Grove														
Bond Rd	SR 99	Elk Grove Florin Rd	4	4	49,200	50,500	50,600	50,700	51,200	51,000	100	200	700	500
	Elk Grove Florin Rd	Waterman Rd	4	4	18,800	23,400	24,000	23,800	24,000	24,100	600	400	600	700
	Waterman Rd	Bradshaw Rd	4	4	18,600	21,900	23,100	23,300	23,000	23,300	1,200	1,400	1,100	1,400
	Bradshaw Rd	Grant Line Rd	2	4	9,100	9,800	12,100	12,200	13,300	12,300	2,300	2,400	3,500	2,500

Table 16-34. Change in 2025 Daily Traffic Volume from 2025 No Project – on Non-Project Roadways

Roadway	Segment		Travel Lanes		Average Daily Traffic Volumes						Change in 2025 Average Daily Traffic Volume from No Project			
							2025 Proposed Project							
							Deer Creek Causeway		Reduced Access Road	High Access Road	Deer Creek Causeway		Reduced Access Road	High Access Road
Roadway	From	To	2008	2025	2008	2025 No Project	Option 1	Option 2			Option 1	Option 2		
Bradshaw Rd	Calvine Rd	Sheldon Rd	2	4	9,300	16,400	13,400	13,200	13,600	14,500	(3,000)	(3,200)	(2,800)	(1,900)
	Sheldon Rd	Bond Rd	2	4	8,100	16,900	13,300	12,900	13,600	14,300	(3,600)	(4,000)	(3,300)	(2,600)
Bradshaw Rd	Bond Rd	Elk Grove Blvd	2	6	5,100	10,200	8,100	7,300	8,200	9,100	(2,100)	(2,900)	(2,000)	(1,100)
	Elk Grove Blvd	Grant Line Rd	2	6	3,400	10,200	8,400	7,200	8,600	9,400	(1,800)	(3,000)	(1,600)	(800)
Bruceville Rd	Laguna Blvd	Elk Grove Blvd	4	6	21,700	25,900	25,600	25,700	25,500	25,600	(300)	(200)	(400)	(300)
	Elk Grove Blvd	Whitelock Pkwy	4	6	23,000	24,900	25,100	25,200	24,800	24,800	200	300	(100)	(100)
	Whitelock Pkwy	Kammerer Rd	2	6	4,500	5,200	5,200	5,200	5,200	5,200	0	0	0	0
Elk Grove Blvd	I-5	Franklin Blvd	6	6	24,100	18,500	18,300	18,300	18,300	18,300	(200)	(200)	(200)	(200)
	Franklin Rd	Bruceville Rd	6	6	29,600	23,000	23,100	23,100	23,200	23,100	100	100	200	100
	Bruceville Rd	Big Horn Blvd	6	6	40,700	38,800	39,000	39,000	39,200	39,100	200	200	400	300
	Big Horn Blvd	W Stockton Blvd	6	6	39,500	27,400	27,700	27,600	27,700	27,700	300	200	300	300
	W Stockton Blvd	SR 99	6	6	45,400	48,100	48,300	48,100	48,400	48,500	200	0	300	400
	SR 99	E Stockton Blvd	4	4	40,000	39,200	38,900	38,900	39,500	39,600	(300)	(300)	300	400
	E Stockton Blvd	Elk Grove Florin Rd	4	4	37,700	37,100	36,800	36,800	37,200	37,300	(300)	(300)	100	200
	Elk Grove Florin Rd	Waterman Rd	2	2	20,700	20,200	20,000	20,100	20,900	20,700	(200)	(100)	700	500
	Waterman Rd	Bradshaw Rd	2	2	13,800	14,000	13,400	13,800	16,300	15,300	(600)	(200)	2,300	1,300
	Bradshaw Rd	Grant Line Rd	2	2	6,000	8,300	8,200	8,100	11,300	10,200	(100)	(200)	3,000	1,900
Excelsior Rd	Calvine Rd	Sheldon Rd	2	2	4,000	6,200	6,900	6,900	6,900	6,700	700	700	700	500
Franklin Blvd	Laguna Blvd	Elk Grove Blvd	4	4	23,800	23,000	22,900	22,900	23,000	23,000	(100)	(100)	0	0
	Elk Grove Blvd	Whitelock Pkwy	4	6	12,700	11,900	12,000	12,100	12,000	12,100	100	200	100	200
	Whitelock Pkwy	Bilby Rd	2	2	0	3,700	3,900	3,900	4,000	4,000	200	200	300	300
Laguna Blvd	I-5	Franklin Blvd	6	6	32,100	36,400	36,100	36,100	36,200	36,100	(300)	(300)	(200)	(300)
	Franklin Rd	Bruceville Rd	6	6	36,500	45,600	45,600	45,500	45,600	45,600	0	(100)	0	0
	Bruceville Rd	Big Horn Blvd	6	6	36,500	41,800	41,900	41,700	41,700	41,700	100	(100)	(100)	(100)
	Big Horn Blvd	SR 99	8	8	57,800	69,700	69,700	69,500	69,600	69,700	0	(200)	(100)	0
Sheldon Rd	SR 99	Elk Grove Florin Rd	4	4	0	14,400	14,400	14,500	14,500	14,600	0	100	100	200
	Elk Grove Florin Rd	Waterman Rd	2	4	9,100	18,800	18,600	18,900	19,000	18,900	(200)	100	200	100
	Waterman Rd	Bradshaw Rd	2	4	7,100	8,600	8,100	7,900	8,100	8,400	(500)	(700)	(500)	(200)
	Bradshaw Rd	Excelsior Rd	2	2	5,000	7,100	6,500	6,500	6,400	6,700	(600)	(600)	(700)	(400)
	Excelsior Rd	Grant Line Rd	2	2	5,800	8,400	9,800	9,800	9,900	9,400	1,400	1,400	1,500	1,000
Waterman Rd	Calvine Rd	Sheldon Rd	2	4	7,600	17,400	17,000	17,000	17,000	16,900	(400)	(400)	(400)	(500)
	Sheldon Rd	Bond Rd	2	4	8,400	16,600	15,600	15,600	15,400	15,900	(1,000)	(1,000)	(1,200)	(700)
	Bond Rd	Elk Grove Blvd	2	4	10,400	15,300	14,700	15,400	14,600	15,300	(600)	100	(700)	0
	Elk Grove Blvd	Grant Line Rd	2	4	7,500	13,000	15,600	13,700	12,700	12,800	2,600	700	(300)	(200)
Whitelock Pkwy	Franklin Rd	Bruceville Rd	4	4	12,900	11,700	11,700	11,700	11,700	11,700	0	0	0	0
	Bruceville Rd	Big Horn Blvd	4	4	3,000	15,300	15,700	15,700	15,300	15,200	400	400	0	(100)
	Big Horn Blvd	W Stockton Blvd	4	4	3,000	6,500	7,000	7,000	6,600	6,600	500	500	100	100
	W Stockton Blvd	SR 99	NA	4	NA	27,000	27,900	27,900	27,200	27,100	900	900	200	100
Willard Pkwy	Whitelock Pkwy	Kammerer Rd	4	4	0	5,000	5,100	5,100	5,100	5,100	100	100	100	100

Source: DKS Associates 2010.

Table 16-35. Change in 2025 Roadway Segment Levels of Service – Along Proposed Project Alignment

Roadway	Segment		Travel Lanes			Average Daily Traffic Volumes						Volume/Capacity Ratio						Level of Service					
				2025				2025 Proposed Project						2025 Proposed Project						2025 Proposed Project			
								Deer Creek Causeway						Deer Creek Causeway						Deer Creek Causeway			
	From	To	2008	No Project	Project	2008	2025 No Project	Option 1	Option 2	Reduced Access Road	High Access Road	2008	2025 No Project	Option 1	Option 2	Reduced Access Road	High Access Road	2008	2025 No Project	Option 1	Option 2	Reduced Access Road	High Access Road
White Rock Road	US 50	Valley View Pkwy	2	6	6	9,300	18,100	18,500	18,600	18,500	18,600	0.47	0.34	0.34	0.34	0.34	0.34	D	A	A	A	A	A
	Valley View Pkwy	Latrobe Rd	2	6	6	13,700	19,700	20,200	20,300	20,200	20,400	0.76	0.36	0.37	0.38	0.37	0.38	C	A	A	A	A	A
	Latrobe Rd	Windfield Way	4	4	4	10,100	18,900	20,200	20,300	20,100	20,200	0.28	0.53	0.56	0.56	0.56	0.56	A	A	A	A	A	A
	Windfield Way	Four Seasons Dr	2	4	4	7,800	17,100	19,000	19,000	18,900	19,000	0.43	0.48	0.53	0.53	0.53	0.53	A	A	A	A	A	A
	Four Seasons Dr	Empire Ranch Rd	2	4	4	6,400	16,000	18,100	18,100	18,100	18,100	0.38	0.44	0.50	0.50	0.50	0.50	D	A	A	A	A	A
	Empire Ranch Rd	Scott Rd (North)	2	4	4E	8,500	19,100	22,800	22,800	22,800	22,800	0.50	0.53	0.32	0.32	0.32	0.32	D	A	A	A	A	A
	Scott Rd (North)	Oak Av Pkwy	2	4	4E	5,700	31,200	40,900	40,900	40,800	40,600	0.34	0.87	0.57	0.57	0.57	0.56	C	D	A	A	A	A
	Oak Av Pkwy	Prairie City Rd	2	4	4E	5,700	30,200	39,900	39,900	39,900	39,700	0.34	0.84	0.55	0.55	0.55	0.55	C	D	A	A	A	A
	Prairie City Rd	Grant Line Rd	2	4	4E	9,900	41,200	59,700	59,600	59,500	59,200	0.58	**1.14**	0.83	0.83	0.83	0.82	D	**F**	D	D	D	D
Grant Line Road	White Rock Rd	Douglas Rd	2	4	4E	9,600	33,300	51,400	51,400	51,300	50,900	0.56	**0.93**	0.71	0.71	0.71	0.71	D	**E**	C	C	C	C
	Douglas Rd	Chrysanthy	2	4	4E	8,800	39,900	48,000	48,000	47,900	47,500	0.44	**1.11**	0.67	0.67	0.67	0.66	D	**F**	B	B	B	B
	Chrysanthy	University	2	4	4E	7,800	29,500	47,100	47,100	47,100	46,700	0.39	0.82	0.65	0.65	0.65	0.65	D	D	B	B	B	B
	University	Kiefer Blvd	2	4	4E	7,800	26,800	43,200	43,200	43,100	42,800	0.39	0.74	0.60	0.60	0.60	0.59	D	C	B	B	A	A
	Kiefer Blvd	Rancho Cordova Pkwy	2	4	4E	7,700	22,100	32,200	32,200	32,100	31,700	0.39	0.61	0.45	0.45	0.45	0.44	D	B	A	A	A	A
	Rancho Cordova Pkwy	Jackson Rd	2	4	4E	7,700	22,100	32,200	32,200	32,100	31,700	0.39	0.61	0.45	0.45	0.45	0.44	D	B	A	A	A	A
	Jackson Rd	Sunrise Blvd	2	2	4E	5,600	16,800	27,000	27,000	26,900	26,500	0.28	**0.93**	0.38	0.38	0.37	0.37	C	**E**	A	A	A	A
	Sunrise Blvd	Eagles Nest Rd	2	4	4E	14,700	26,300	36,600	36,500	36,100	35,200	**0.74**	0.73	0.51	0.51	0.50	0.49	**E**	C	A	A	A	A
	Eagles Nest Rd	Calvine Rd	2	4	4E	14,700	28,700	39,500	39,400	38,900	37,800	**0.74**	0.80	0.55	0.55	0.54	0.53	**E**	C	A	A	A	A
	Calvine Rd	Sheldon Rd	2	2	4	11,900	19,500	13,600	13,700	28,600	28,100	**0.60**	**1.08**	0.38	0.38	0.79	0.78	**E**	**F**	A	A	C	C
	Sheldon Rd	Wilton Rd	2	2	4	16,200	25,100	21,500	21,500	35,900	35,300	**0.90**	**1.39**	0.60	0.60	**1.00**	**0.98**	**E**	**F**	A	A	**E**	**E**
	Wilton Rd	Bond Rd	2	2	4	14,700	20,700	16,700	16,700	32,500	30,300	0.82	**1.15**	0.46	0.46	**0.90**	0.84	D	**F**	A	A	**E**	D
	Bond Rd	Elk Grove Blvd	2	2	4	9,400	15,700	9,300	9,200	23,900	22,700	0.52	0.87	0.26	0.26	0.66	0.63	A	D	A	A	B	B
	Elk Grove Blvd	Bradshaw Rd	2	2	4	6,300	10,500	3,300	3,300	16,300	14,600	0.35	0.58	0.09	0.09	0.45	0.41	A	A	A	A	A	A
	Bradshaw Rd	Waterman Rd	2	4	4	9,300	26,400	31,100	32,400	30,100	29,300	0.52	0.73	0.86	**0.90**	0.84	0.81	A	C	D	**E**	D	D
	Waterman Rd	E Stockton Blvd	2	6	6	13,500	36,100	41,900	41,500	39,600	38,700	0.75	0.67	0.78	0.77	0.73	0.72	C	B	C	C	C	C
	E Stockton Blvd	SR 99	4	6	6	15,800	39,700	45,300	45,000	42,900	42,200	0.44	0.74	0.84	0.83	0.79	0.78	A	C	D	D	C	C
Deer Creek Causeway	Grant Line Rd	Grant Line Rd	NA	NA	3E	NA	NA	17,100	16,900	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Kammerer Road	SR 99	W Stockton Blvd	2	6	6	4,000	31,600	33,900	33,700	33,200	32,800	0.20	0.59	0.57	0.56	0.55	0.55	B	A	A	A	A	A
	W Stockton Blvd	Lent Ranch Pkwy	2	6	6	2,500	31,600	33,900	33,700	33,200	32,800	0.13	0.59	0.57	0.56	0.55	0.55	B	A	A	A	A	A
	Lent Ranch Pkwy	Lotz Pkwy	2	6	6	2,500	17,700	19,900	19,600	19,100	18,700	0.13	0.33	0.33	0.33	0.32	0.31	B	A	A	A	A	A
	Lotz Pkwy	Big Horn Blvd	2	6	6	2,500	15,500	17,500	17,300	16,800	16,400	0.13	0.29	0.29	0.29	0.28	0.27	B	A	A	A	A	A
	Big Horn Blvd	Bruceville Rd	2	6	6	2,500	17,300	17,500	17,300	18,500	18,200	0.13	0.32	0.29	0.29	0.31	0.30	B	A	A	A	A	A
Kammerer Road Extension	Bruceville Rd	Willard Pkwy	NA	4	4E	NA	15,900	19,300	19,000	17,000	16,700	NA	0.44	0.32	0.32	0.43	0.42	NA	A	A	A	A	A
	Willard Pkwy	Hood-Franklin Rd	NA	4	4E	NA	20,000	17,800	17,600	21,100	20,800	NA	0.56	0.45	0.44	0.53	0.52	NA	A	A	A	A	A
	Hood-Franklin Rd	I-5	NA	4	4E	NA	22,900	21,800	21,600	24,300	24,100	NA	0.64	0.55	0.54	0.61	0.60	NA	B	A	A	B	B

Source: DKS Associates 2010.

Notes: Bold indicates segments that would not meet the LOS standard for the local jurisdiction.
Cells shaded in grey represent significant LOS impacts. Cells shaded in yellow are segments of Grant Line Road that are not a part of the Connector under the Deer Creek Causeway Option1 or Option 2.
4E = 4 lane expressway and 4E+2 = 4 lane expressway with 2 HOV lanes.

Table 16-36. Change in 2025 Roadway Segment Levels of Service – on Non-Project Roadways

Roadway	Segment		Travel Lanes		Average Daily Traffic Volumes						Volume/Capacity Ratio						Level of Service					
							2025 Proposed Project						2025 Proposed Project						2025 Proposed Project			
							Deer Creek Causeway						Deer Creek Causeway						Deer Creek Causeway			
Roadway	From	To	2008	2025	2008	2025 No Project	Option 1	Option 2	Reduced Access Road	High Access Road	2008	2025 No Project	Option 1	Option 2	Reduced Access Road	High Access Road	2008	2025 No Project	Option 1	Option 2	Reduced Access Road	High Access Road
El Dorado County																						
Latrobe Rd	US 50	Town Center Blvd	6	6	40,200	55,600	56,200	55,900	56,000	55,900	0.74	**1.03**	**1.04**	**1.04**	**1.04**	**1.04**	C	**F**	**F**	**F**	**F**	**F**
	Town Center Blvd	White Rock Rd	6	6	24,700	35,200	36,100	35,900	35,900	35,800	0.46	0.65	0.67	0.66	0.66	0.66	A	B	B	B	B	B
	White Rock Rd	Golden Foothill Pkwy	4	6	19,100	29,700	29,500	29,300	29,300	29,200	0.48	0.55	0.55	0.54	0.54	0.54	D	A	A	A	A	A
Saratoga Way	Sacramento Co	Latrobe Road	2	2	2,000	16,000	15,900	15,800	15,900	15,900	0.11	0.89	0.88	0.88	0.88	0.88	A	D	D	D	D	D
Sylva Valley Pkwy	US 50	Serrano Pkwy	2	4	9,000	23,100	23,000	23,100	22,900	22,900	0.50	0.64	0.64	0.64	0.64	0.64	A	B	B	B	B	B
Valley View Pkwy	White Rock Rd	Blackstone Pkwy	2	2	3,300	7,400	7,400	7,500	7,500	7,500	0.18	0.41	0.41	0.42	0.42	0.42	A	A	A	A	A	A
West Connection to Business Park	Sacramento Co	Golden Foothill Pkwy	NA	4	NA	29,300	30,100	30,200	30,200	30,200	NA	0.81	0.84	0.84	0.84	0.84	NA	D	D	D	D	D
City of Folsom (including Sphere of Influence South of US 50)																						
East Bidwell St	Iron Point Rd	US 50	6	6	50,700	54,800	56,300	56,300	56,300	56,200	**0.94**	**1.01**	**1.04**	**1.04**	**1.04**	**1.04**	**E**	**F**	**F**	**F**	**F**	**F**
Easton Valley Pkwy	Prairie City Rd	Oak Av Pkwy	NA	4	NA	20,600	19,700	20,000	20,000	20,000	NA	0.57	0.55	0.56	0.56	0.56	NA	A	A	A	A	A
	Oak Av Pkwy	Scott Rd	NA	4	NA	21,800	21,900	21,900	21,900	21,900	NA	0.61	0.61	0.61	0.61	0.61	NA	B	B	B	B	B
	Scott Rd	Placerville Rd	NA	4	NA	13,800	14,200	14,200	14,200	14,200	NA	0.38	0.39	0.39	0.39	0.39	NA	A	A	A	A	A
Empire Ranch Rd	Iron Point Rd	US 50	NA	4	NA	20,600	21,000	20,900	20,800	21,000	NA	0.57	0.58	0.58	0.58	0.58	NA	A	A	A	A	A
	US 50	Easton Valley Pkwy	NA	4	NA	39,500	38,700	38,700	38,700	38,800	NA	**1.10**	**1.08**	**1.08**	**1.08**	**1.08**	NA	**F**	**F**	**F**	**F**	**F**
	Easton Valley Pkwy	White Rock Rd	NA	4	NA	26,800	26,300	26,400	26,400	26,400	NA	0.74	0.73	0.73	0.73	0.73	NA	C	C	C	C	C
Folsom Blvd	US 50	Iron Point Rd	6	6	50,200	57,400	56,700	56,700	56,800	56,700	**0.93**	**1.06**	**1.05**	**1.05**	**1.05**	**1.05**	**E**	**F**	**F**	**F**	**F**	**F**
Iron Point Rd	Folsom Blvd	Prairie City Rd	4	6	19,300	17,500	17,600	17,600	17,600	17,600	0.54	0.32	0.33	0.33	0.33	0.33	A	A	A	A	A	A
	Prairie City Rd	Oak Av Pkwy	4	4	22,200	17,800	17,900	17,800	17,800	17,800	0.62	0.49	0.50	0.49	0.49	0.49	B	A	A	A	A	A
	Oak Av Pkwy	Broadstone Pkwy	4	4	13,300	13,700	13,500	13,400	13,400	13,400	0.37	0.38	0.38	0.37	0.37	0.37	A	A	A	A	A	A
	Broadstone Pkwy	East Bidwell St	4	6	15,700	13,100	13,100	13,100	13,100	13,100	0.44	0.24	0.24	0.24	0.24	0.24	A	A	A	A	A	A
	East Bidwell St	Empire Ranch Rd	2	2	3,300	8,300	8,400	8,200	8,500	8,500	0.18	0.46	0.47	0.46	0.47	0.47	A	A	A	A	A	A
Oak Ave Pkwy	Iron Point Rd	US 50	NA	4	NA	32,800	32,000	32,000	31,900	31,900	NA	0.91	0.89	0.89	0.89	0.89	NA	**E**	D	D	D	D
	US 50	Easton Valley Pkwy	NA	4	NA	20,300	19,300	19,200	19,200	19,100	NA	0.56	0.54	0.53	0.53	0.53	NA	A	A	A	A	A
	Easton Valley Pkwy	White Rock Rd	NA	4	NA	4,300	3,700	3,700	3,700	3,700	NA	0.12	0.10	0.10	0.10	0.10	NA	A	A	A	A	A
Prairie City Rd	Iron Point Rd	US 50	6	6	29,400	39,300	42,000	42,000	41,700	41,800	0.54	0.73	0.78	0.78	0.77	0.77	A	C	C	C	C	C
	US 50	Easton Valley Pkwy	2	6	5,900	33,900	39,100	39,300	39,100	39,200	0.35	0.63	0.72	0.73	0.72	0.73	C	B	C	C	C	C
	Easton Valley Pkwy	White Rock Rd	2	4	5,900	25,100	33,300	33,300	33,200	33,100	0.35	0.70	**0.93**	**0.93**	**0.92**	**0.92**	C	B	**E**	**E**	**E**	**E**
Scott Rd	US 50	Easton Valley Pkwy	2	6	4,800	37,700	41,600	41,500	41,400	41,300	0.28	0.70	0.77	0.77	**0.77**	0.76	C	B	C	C	C	C
	Easton Valley Pkwy	White Rock Rd	2	4	4,800	11,700	17,200	17,200	17,100	16,900	0.28	0.33	0.48	0.48	**0.48**	0.47	C	A	A	A	A	A
Sacramento County																						
Bilby Rd	Franklin Blvd	Willard Pkwy	2	2	4,800	600	600	600	600	600	0.27	0.03	0.03	0.03	0.03	0.03	A	A	A	A	A	A
	Willard Pkwy	Bruceville Rd	2	2	3,000	4,000	4,000	4,000	4,000	4,000	0.17	0.20	0.20	0.20	0.20	0.20	A	B	B	B	B	B
Bradshaw Rd	US 50	Lincoln Village Dr	6	6	57,300	66,800	65,500	65,600	65,700	65,900	**1.06**	**1.24**	**1.21**	**1.21**	**1.22**	**1.22**	**F**	**F**	**F**	**F**	**F**	**F**
	Lincoln Village Dr	Old Placerville Rd	6	6	47,100	57,900	56,600	56,600	56,500	56,900	0.87	**1.07**	**1.05**	**1.05**	**1.05**	**1.05**	D	**F**	**F**	**F**	**F**	**F**
	Old Placerville Rd	Goethe Rd	6	6	42,500	57,800	56,500	56,700	56,600	56,900	0.79	**1.07**	**1.05**	**1.05**	**1.05**	**1.05**	C	**F**	**F**	**F**	**F**	**F**
	Goethe Rd	Kiefer Blvd	6	6	35,000	57,800	56,500	56,600	56,500	56,800	0.65	**1.07**	**1.05**	**1.05**	**1.05**	**1.05**	B	**F**	**F**	**F**	**F**	**F**
Bradshaw Rd	Kiefer Blvd	Jackson Rd	4	4	31,100	56,900	55,500	55,500	55,600	56,000	0.86	**1.58**	**1.54**	**1.54**	**1.54**	**1.56**	D	**F**	**F**	**F**	**F**	**F**
	Jackson Rd	Elder Creek Rd	4	4	23,700	46,500	45,800	45,800	45,900	46,300	0.66	**1.29**	**1.27**	**1.27**	**1.28**	**1.29**	B	**F**	**F**	**F**	**F**	**F**
	Elder Creek Rd	Florin Rd	4	4	20,400	42,300	41,200	41,200	41,400	41,800	0.57	**1.18**	**1.14**	**1.14**	**1.15**	**1.16**	A	**F**	**F**	**F**	**F**	**F**
	Florin Rd	Gerber Rd	2	4	19,400	31,800	30,900	30,700	30,900	31,400	**1.08**	0.88	0.86	0.85	0.86	0.87	**F**	D	D	D	D	D
	Gerber Rd	Calvine Rd	2	4	15,100	20,800	19,700	19,500	19,900	20,300	0.84	0.58	0.55	0.54	0.55	0.56	D	A	A	A	A	A
Bruceville Rd	Kammerer Rd	Lambert Rd	2	2	1,600	1,500	1,500	1,500	1,500	1,500	0.08	0.08	0.08	0.08	0.08	0.08	A	A	A	A	A	A

Table 16-36. Change in 2025 Roadway Segment Levels of Service – on Non-Project Roadways

Roadway	Segment		Travel Lanes		Average Daily Traffic Volumes						Volume/Capacity Ratio						Level of Service					
							2025 Proposed Project						2025 Proposed Project						2025 Proposed Project			
							Deer Creek Causeway						Deer Creek Causeway						Deer Creek Causeway			
Roadway	From	To	2008	2025	2008	2025 No Project	Option 1	Option 2	Reduced Access Road	High Access Road	2008	2025 No Project	Option 1	Option 2	Reduced Access Road	High Access Road	2008	2025 No Project	Option 1	Option 2	Reduced Access Road	High Access Road
Calvine Rd	Power inn Rd	Elk Grove Florin Rd	6	6	43,900	43,200	43,300	43,400	43,600	43,600	0.81	0.80	0.80	0.80	0.81	0.81	D	D	D	D	D	D
	Elk Grove Florin Rd	Waterman Rd	4	6	23,300	25,200	25,300	25,400	25,700	25,900	0.65	0.47	0.47	0.47	0.48	0.48	B	A	A	A	A	A
	Waterman Rd	Bradshaw Rd	4	6	15,700	13,400	14,000	14,000	14,300	14,300	0.44	0.25	0.26	0.26	0.26	0.26	A	A	A	A	A	A
	Bradshaw Rd	Vineyard Rd	4	6	13,000	13,800	12,000	11,900	12,400	13,100	0.36	0.26	0.22	0.22	0.23	0.24	A	A	A	A	A	A
	Vineyard Rd	Excelsior Rd	2	4	10,700	14,200	14,600	14,500	14,900	14,700	0.59	0.39	0.41	0.40	0.41	0.41	A	A	A	A	A	A
	Excelsior Rd	Grant Line Rd	2	4	3,700	8,700	8,600	8,600	8,900	9,100	0.21	0.24	0.24	0.24	0.25	0.25	A	A	A	A	A	A
Chrysanthy	Grant Line Rd	Cordova Hills	NA	4	NA	10,200	11,500	11,500	11,600	11,600	NA	0.28	0.32	0.32	0.32	0.32	NA	A	A	A	A	A
Dillard Rd	Jackson Rd	Clay Station Rd	2	2	4,600	6,000	6,200	6,200	6,300	6,300	0.23	0.30	0.31	0.31	0.32	0.32	C	C	C	C	C	C
	Clay Station Rd	Green Rd	2	2	4,500	5,200	4,900	4,900	5,000	5,100	0.23	0.26	0.25	0.25	0.25	0.26	C	C	C	C	C	C
	Green Rd	Wilton Rd	2	2	4,500	4,600	4,600	4,600	4,800	4,800	0.23	0.23	0.23	0.23	0.24	0.24	C	C	C	C	C	C
	Wilton Rd	SR-99	2	2	5,800	6,600	6,200	6,200	6,200	6,400	0.29	0.33	0.31	0.31	0.31	0.32	C	C	C	C	C	C
Eagles Nest Rd	City Limits	Douglas Rd	NA	6	NA	31,000	30,800	30,900	30,600	30,200	NA	0.57	0.57	0.57	0.57	0.56	NA	A	A	A	A	A
	Douglas Rd	Kiefer Blvd	NA	2	NA	15,900	16,000	16,200	15,800	15,800	NA	0.88	0.89	**0.90**	0.88	0.88	NA	D	D	**E**	D	D
	Kiefer Blvd	Jackson Rd	2	2	500	8,300	8,400	8,400	8,200	8,200	0.03	0.46	0.47	0.47	0.46	0.46	A	A	A	A	A	A
	Jackson Rd	Florin Rd	2	2	500	4,700	5,000	5,000	4,800	4,700	0.03	0.26	0.28	0.28	0.27	0.26	A	A	A	A	A	A
	Florin Rd	Grant Line Rd	2	2	200	2,700	3,300	3,300	3,100	2,900	0.01	0.15	0.18	0.18	0.17	0.16	A	A	A	A	A	A
Easton Valley Pkwy	Hazel Av	Glenborough Rd	NA	4	NA	22,600	21,800	21,900	22,000	21,900	NA	0.63	0.61	0.61	0.61	0.61	NA	B	B	B	B	B
	Glenborough Rd	Prairie City Rd	NA	4	NA	15,600	15,800	15,800	15,800	15,700	NA	0.43	0.44	0.44	0.44	0.44	NA	A	A	A	A	A
Elder Creek Rd	Bradshaw Rd	Excelsior Rd	2	2	2,000	21,200	20,900	20,900	21,200	21,200	0.10	**1.18**	**1.16**	**1.16**	**1.18**	**1.18**	A	**F**	**F**	**F**	**F**	**F**
Excelsior Rd	Mather Blvd	Kiefer Blvd	2	4	6,000	12,300	12,000	11,700	11,800	11,800	0.30	0.34	0.33	0.33	0.33	0.33	C	A	A	A	A	A
	Kiefer Blvd	Jackson Rd	2	4	5,300	6,100	5,800	5,700	5,700	5,800	0.27	0.17	0.16	0.16	0.16	0.16	C	A	A	A	A	A
	Jackson Rd	Elder Creek Rd	2	2	5,800	17,600	17,600	17,500	17,400	17,500	0.29	**0.98**	**0.98**	**0.97**	**0.97**	**0.97**	C	**E**	**E**	**E**	**E**	**E**
	Elder Creek Rd	Florin Rd	2	2	5,700	10,600	10,400	10,300	10,300	10,300	0.29	0.59	0.58	0.57	0.57	0.57	C	A	A	A	A	A
	Florin Rd	Gerber Rd	2	2	5,600	15,300	15,200	15,200	15,200	15,100	0.28	0.85	0.84	0.84	0.84	0.84	C	D	D	D	D	D
	Gerber Rd	Calvine Rd	2	2	5,400	6,400	6,900	6,900	6,900	6,700	0.27	0.36	0.38	0.38	0.38	0.37	C	A	A	A	A	A
Florin Rd	Bradshaw Rd	Excelsior Rd	2	4	4,000	10,700	10,800	10,800	10,500	10,700	0.22	0.30	0.30	0.30	0.29	0.30	A	A	A	A	A	A
	Excelsior Rd	Eagles Nest Rd	2	2	3,000	9,900	10,200	10,200	10,000	10,100	0.17	0.55	0.57	0.57	0.56	0.56	A	A	A	A	A	A
	Eagles Nest Rd	Sunrise Blvd	2	2	3,000	8,400	8,900	8,800	8,700	8,600	0.17	0.47	0.49	0.49	0.48	0.48	A	A	A	A	A	A
Folsom Blvd	Sunrise Blvd	Mercantile Dr	4	4	14,000	500	0	0	0	0	0.39	0.01	0.00	0.00	0.00	0.00	A	A	A	A	A	A
	Mercantile Dr	Hazel Av	4	4	14,500	21,600	21,700	21,700	21,700	21,700	0.40	0.60	0.60	0.60	0.60	0.60	A	B	B	B	B	B
Franklin Blvd	Bilby Rd	Hood Franklin Rd	2	2	4,700	3,600	3,800	3,800	3,900	3,900	0.24	0.18	0.19	0.19	0.20	0.20	C	B	B	B	B	B
	Hood Franklin Rd	Lambert Rd	2	2	1,900	2,000	2,000	2,000	2,000	2,000	0.10	0.10	0.10	0.10	0.10	0.10	A	A	A	A	A	A
	Lambert Rd	Twin Cities Rd	2	2	1,300	1,300	1,300	1,300	1,300	1,300	0.07	0.07	0.07	0.07	0.07	0.07	A	A	A	A	A	A
Gerber Rd	Bradshaw Rd	Vineyard Rd	2	4	4,000	11,000	11,000	11,100	11,000	11,000	0.22	0.31	0.31	0.31	0.31	0.31	A	A	A	A	A	A
	Vineyard Rd	Excelsior Rd	2	2	2,400	7,900	7,300	7,300	7,400	7,500	0.13	0.44	0.41	0.41	0.41	0.42	A	A	A	A	A	A
Hazel Av	Gold Country Blvd	US 50	6	6	53,900	76,400	76,300	76,300	76,300	76,300	**1.00**	**1.41**	**1.41**	**1.41**	**1.41**	**1.41**	**E**	**F**	**F**	**F**	**F**	**F**
	US 50	Folsom Blvd	4	6	48,000	47,400	47,300	47,200	47,300	47,300	**1.33**	0.88	0.88	0.87	0.88	0.88	**F**	D	D	D	D	D
	Folsom Blvd	Easton Valley Pkwy	NA	4	NA	15,600	15,700	15,400	15,300	15,300	NA	0.43	0.44	0.43	0.43	0.43	NA	A	A	A	A	A
Hood Franklin Rd	Kammerer Rd Ext	Franklin Rd	2	2	4,500	500	500	500	500	500	0.25	0.03	0.03	0.03	0.03	0.03	A	A	A	A	A	A

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							2025 Proposed Project						2025 Proposed Project						2025 Proposed Project			
							Deer Creek Causeway						Deer Creek Causeway						Deer Creek Causeway			
Roadway	From	To	2008	2025	2008	2025 No Project	Option 1	Option 2	Reduced Access Road	High Access Road	2008	2025 No Project	Option 1	Option 2	Reduced Access Road	High Access Road	2008	2025 No Project	Option 1	Option 2	Reduced Access Road	High Access Road
Jackson Rd	Bradshaw Rd	Excelsior Rd	2	6	10,800	42,700	41,700	41,700	41,600	41,600	0.47	0.79	0.77	0.77	0.77	0.77	D	C	C	C	C	C
	Excelsior Rd	Eagles Nest Rd	2	4	9,200	27,800	27,800	27,800	27,600	27,700	0.40	0.77	0.77	0.77	0.77	0.77	D	C	C	C	C	C
	Eagles Nest Rd	Sunrise Blvd	2	4	9,200	25,500	25,600	25,700	25,600	25,600	0.40	0.71	0.71	0.71	0.71	0.71	D	C	C	C	C	C
	Sunrise Blvd	Grant Line Rd	2	4	13,800	29,700	29,600	29,600	29,500	29,500	**0.60**	0.83	0.82	0.82	0.82	0.82	**E**	D	D	D	D	D
	Grant Line Rd	Dillard Rd	2	2	13,200	14,400	14,400	14,400	14,300	14,300	0.58	**0.63**	**0.63**	**0.63**	**0.62**	**0.62**	D	**E**	**E**	**E**	**E**	**E**
Kiefer Blvd	Bradshaw Rd	Excelsior Rd	2	2	0	6,600	6,500	6,400	6,500	6,400	0.00	0.37	0.36	0.36	0.36	0.36		A	A	A	A	A
	Excelsior Rd	Eagles Nest Rd	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Eagles Nest Rd	Sunrise Blvd	2	2	500	4,200	4,300	4,200	4,200	4,200	0.03	0.23	0.24	0.23	0.23	0.23	A	A	A	A	A	A
	Grant Line Rd	Jackson Rd	2	2	2,700	4,800	5,500	5,400	5,500	5,500	0.16	0.24	0.28	0.27	0.28	0.28	B	C	C	C	C	C
North Loop	Grant Line Rd	Cordova Hills	NA	4	NA	16,400	16,000	16,000	15,900	15,900	NA	0.46	0.44	0.44	0.44	0.44	NA	A	A	A	A	A
Scott Rd (South)	White Rock Rd	Latrobe Rd	2	2	2,200	4,600	4,000	4,000	4,000	4,000	0.11	0.23	0.20	0.20	0.20	0.20	B	C	B	B	B	B
Sunrise Blvd	Zinfandel Dr	US 50	6	8	84,100	105,200	105,000	104,900	105,000	104,700	**1.56**	**1.46**	**1.46**	**1.46**	**1.46**	**1.45**	**F**	**F**	**F**	**F**	**F**	**F**
	Jackson Rd	Florin Rd	2	4	13,300	20,700	21,300	21,200	20,800	20,100	0.74	0.58	0.59	0.59	0.58	0.56	C	A	A	A	A	A
	Florin Rd	Grant Line Rd	2	4	11,100	14,100	14,400	14,300	13,900	13,300	0.62	0.39	0.40	0.40	0.39	0.37	B	A	A	A	A	A
Twin Cities Rd	I-5	Franklin Rd	2	2	4,300	5,300	5,100	5,200	5,200	5,200	0.22	0.27	0.26	0.26	0.26	0.26	C	C	C	C	C	C
	Franklin Rd	SR 99	2	2	6,200	9,500	9,400	9,500	9,400	9,400	0.31	0.48	0.47	0.48	0.47	0.47	C	D	D	D	D	D
University Blvd	Grant Line Rd	Cordova Hills	NA	4	NA	14,800	16,100	16,100	16,100	16,100	NA	0.41	0.45	0.45	0.45	0.45	NA	A	A	A	A	A
White Rock Rd	Rancho Cordova Pkwy	Villagio Dr	2	4	3,400	5,700	7,100	7,000	7,000	7,100	0.20	0.16	0.20	0.19	0.19	0.20	B	A	A	A	A	A
	Villagio Dr	Grant Line Rd	2	4	3,400	9,900	12,400	12,300	12,300	12,300	0.20	0.28	0.34	0.34	**0.34**	0.34	B	A	A	A	A	A
Vineyard Rd	Old Placerville Rd	Kiefer Blvd	2	2	0	3,300	3,100	3,100	3,100	3,000	0.00	0.18	0.17	0.17	0.17	0.17	A	A	A	A	A	A
	Kiefer Blvd	Jackson Rd	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Jackson Rd	Elder Creek Rd	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Elder Creek Rd	Florin Rd	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Florin Rd	Gerber Rd	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Gerber Rd	Calvine Rd	2	4	5,400	9,800	9,300	9,300	9,400	9,400	0.30	0.27	0.26	0.26	0.26	0.26	A	A	A	A	A	A
Wilton Rd	Grant Line Rd	Dillard Rd	2	2	10,900	10,500	11,000	11,000	11,000	11,000	0.55	0.53	0.55	0.55	0.55	0.55	D	D	D	D	D	D
City of Rancho Cordova																						
Americanos	International	Centennial	NA	2	NA	2,500	2,400	2,400	2,500	2,500	NA	0.14	0.13	0.13	0.14	0.14	NA	A	A	A	A	A
	Centennial	Douglas Rd	NA	4	NA	10,600	10,800	10,800	10,800	10,800	NA	0.29	0.30	0.30	0.30	0.30	NA	A	A	A	A	A
Centennial	International	Americanos	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysanthy	Sunrise Blvd	Rancho Cordova Pkwy	NA	4	NA	5,700	5,600	5,600	5,600	5,600	NA	0.16	0.16	0.16	0.16	0.16	NA	A	A	A	A	A
	Rancho Cordova Pkwy	Americanos	NA	4	NA	5,800	5,100	5,100	5,100	5,100	NA	0.16	0.14	0.14	0.14	0.14	NA	A	A	A	A	A
	Americanos	Grant Line Rd	NA	4	NA	10,900	9,300	9,300	9,300	9,300	NA	0.30	0.26	0.26	0.26	0.26	NA	A	A	A	A	A
Douglas Rd	Zinfandel Dr	Sunrise Blvd	2	6	6,800	23,600	24,000	24,000	24,000	23,800	0.38	0.44	0.44	0.44	0.44	0.44	A	A	A	A	A	A
	Sunrise Blvd	Rancho Cordova Pkwy	5	6	4,000	32,900	32,300	32,500	32,300	32,500	0.09	0.61	0.60	0.60	0.60	0.60	A	B	A	B	A	B
	Rancho Cordova Pkwy	Americanos	2	6	4,000	28,000	27,300	27,300	27,300	27,300	0.22	0.52	0.51	0.51	0.51	0.51	A	A	A	A	A	A
	Americanos	Grant Line Rd	2	6	4,000	20,600	24,300	24,300	24,300	24,400	0.22	0.38	0.45	0.45	0.45	0.45	A	A	A	A	A	A
Easton Valley Pkwy	Rancho Cordova Pkwy	Hazel Av	NA	6	NA	16,500	15,900	15,900	16,000	15,900	NA	0.31	0.29	0.29	0.30	0.29	NA	A	A	A	A	A
Folsom Blvd	Zinfandel Dr	Kilgore Rd	4	4	17,000	19,100	19,100	18,900	18,700	18,800	0.47	0.53	0.53	0.53	0.52	0.52	A	A	A	A	A	A
	Kilgore Rd	Sunrise Blvd	4	4	18,000	21,300	21,400	21,100	21,000	21,100	0.50	0.59	0.59	0.59	0.58	0.59	A	A	A	A	A	A
	Sunrise Blvd	Mercantile Dr	4	4	12,700	9,700	9,400	9,300	9,300	9,300	0.35	0.27	0.26	0.26	0.26	0.26	A	A	A	A	A	A
	Mercantile Dr	Hazel Av	4	4	12,700	8,500	8,100	8,000	8,000	8,100	0.35	0.24	0.23	0.22	0.22	0.23	A	A	A	A	A	A

Table 16-36. Change in 2025 Roadway Segment Levels of Service – on Non-Project Roadways

Roadway	Segment From	Segment To	Travel Lanes 2008	Travel Lanes 2025	ADT 2008	ADT 2025 No Project	ADT 2025 Proposed Project Deer Creek Causeway Option 1	ADT Deer Creek Causeway Option 2	ADT Reduced Access Road	ADT High Access Road	V/C 2008	V/C 2025 No Project	V/C 2025 Proposed Project Deer Creek Causeway Option 1	V/C Deer Creek Causeway Option 2	V/C Reduced Access Road	V/C High Access Road	LOS 2008	LOS 2025 No Project	LOS 2025 Proposed Project Deer Creek Causeway Option 1	LOS Deer Creek Causeway Option 2	LOS Reduced Access Road	LOS High Access Road
Kiefer Blvd	Sunrise Blvd	Rancho Cordova Pkwy	2	4	0	5,800	5,100	5,100	5,200	5,200	0.00	0.16	0.14	0.14	0.14	0.14	A	A	A	A	A	A
	Rancho Cordova Pkwy	Grant Line Rd	NA	4	NA	10,300	12,800	12,800	12,800	12,800	NA	0.29	0.36	0.36	0.36	0.36	NA	A	A	A	A	A
Rancho Cordova Pkwy	US 50	Easton Valley Pkwy	NA	6	NA	40,000	37,700	37,600	37,400	37,400	NA	0.74	0.70	0.70	0.69	0.69	NA	C	B	B	B	B
	Easton Valley Pkwy	White Rock Rd	NA	6	NA	35,600	32,600	32,500	32,400	32,300	NA	0.66	0.60	0.60	0.60	0.60	NA	B	B	B	B	A
	White Rock Rd	International Blvd	NA	4	NA	23,100	20,800	20,700	20,600	20,500	NA	0.64	0.58	0.58	0.57	0.57	NA	B	A	A	A	A
	International Blvd	Douglas Rd	NA	4	NA	15,600	14,000	13,700	13,900	13,800	NA	0.43	0.39	0.38	0.39	0.38	NA	A	A	A	A	A
	Douglas Rd	Chrysanthy	NA	4	NA	20,100	18,900	18,900	18,800	18,800	NA	0.56	0.53	0.53	0.52	0.52	NA	A	A	A	A	A
	Chrysanthy	Kiefer Rd	NA	4	NA	16,800	15,400	15,400	15,300	15,300	NA	0.47	0.43	0.43	0.43	0.43	NA	A	A	A	A	A
	Kiefer Rd	Grant Line Rd	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Rio Del Oro Blvd	Sunrise Blvd	Rancho Cordova Pkwy	NA	6	NA	7,600	7,400	7,400	7,300	7,100	NA	0.14	0.14	0.14	0.14	0.13	NA	A	A	A	A	A
Sunrise Blvd	Folsom Blvd	Trade Center Dr	6	6	52,400	51,500	51,500	51,200	50,900	50,700	**0.97**	**0.95**	**0.95**	**0.95**	**0.94**	**0.94**	**E**	**E**	**E**	**E**	**E**	**E**
	Trade Center Dr	White Rock Rd	6	6	40,200	49,600	49,900	49,500	49,200	49,000	0.74	**0.92**	**0.92**	**0.92**	**0.91**	**0.91**	C	**E**	**E**	**E**	**E**	**E**
	White Rock Rd	International Blvd	4	6	28,200	32,500	32,800	32,500	32,300	32,100	0.78	0.60	0.61	0.60	0.60	0.59	C	B	B	B	A	A
	International Blvd	Douglas Rd	6	6	28,200	36,400	35,800	35,800	35,400	35,200	0.52	0.67	0.66	0.66	0.66	0.65	A	B	B	B	B	B
	Douglas Rd	Chrysanthy	6	6	24,500	29,000	28,900	28,800	28,600	28,000	0.45	0.54	0.54	0.53	0.53	0.52	A	A	A	A	A	A
	Chrysanthy	Kiefer Rd	5	6	24,500	30,600	30,600	30,500	30,300	29,600	0.54	0.57	0.57	0.56	0.56	0.55	A	A	A	A	A	A
	Kiefer Rd	Jackson Rd	2	6	17,500	23,400	23,900	23,800	23,300	22,800	**0.97**	0.43	0.44	0.44	0.43	0.42	**E**	A	A	A	A	A
White Rock Rd	International Blvd	Zinfandel Dr	2	2	11,400	10,900	11,100	11,000	10,900	11,000	0.63	0.61	0.62	0.61	0.61	0.61	B	B	B	B	B	B
	Zinfandel Dr	Sunrise Blvd	6	6	19,900	22,700	22,800	22,700	22,700	22,700	0.37	0.42	0.42	0.42	0.42	0.42	A	A	A	A	A	A
	Sunrise Blvd	Rancho Cordova Pkwy	2	4	13,000	31,200	31,800	31,800	31,800	31,800	0.72	0.87	0.88	0.88	0.88	0.88	C	D	D	D	D	D
Zinfandel Dr	US 50	White Rock Rd	6	6	43,300	71,100	70,700	71,000	71,000	70,600	0.80	**1.32**	**1.31**	**1.31**	**1.31**	**1.31**	D	**F**	**F**	**F**	**F**	**F**
	White Rock Rd	International Blvd	6	6	19,700	56,500	55,900	56,300	56,000	55,800	0.36	**1.05**	**1.04**	**1.04**	**1.04**	**1.03**	A	**F**	**F**	**F**	**F**	**F**
	International Blvd	City Limits	4	6	7,100	38,100	37,900	38,000	37,700	37,300	0.20	0.71	0.70	0.70	0.70	0.69	A	C	C	C	B	B
City of Elk Grove																						
Bond Rd	SR 99	Elk Grove Florin Rd	4	4	49,200	50,500	50,600	50,700	51,200	51,000	**1.37**	**1.40**	**1.41**	**1.41**	**1.42**	**1.42**	**F**	**F**	**F**	**F**	**F**	**F**
	Elk Grove Florin Rd	Waterman Rd	4	4	18,800	23,400	24,000	23,800	24,000	24,100	0.52	0.65	0.67	0.66	0.67	0.67	A	B	B	B	B	B
	Waterman Rd	Bradshaw Rd	4	4	18,600	21,900	23,100	23,300	23,000	23,300	0.52	0.61	0.64	0.65	0.64	0.65	A	B	B	B	B	B
	Bradshaw Rd	Grant Line Rd	2	4	9,100	9,800	12,100	12,200	13,300	12,300	0.51	0.27	0.34	0.34	0.37	0.34	A	A	A	A	A	A
Bradshaw Rd	Calvine Rd	Sheldon Rd	2	4	9,300	16,400	13,400	13,200	13,600	14,500	0.52	0.46	0.37	0.37	0.38	0.40	A	A	A	A	A	A
	Sheldon Rd	Bond Rd	2	4	8,100	16,900	13,300	12,900	13,600	14,300	0.45	0.47	0.37	0.36	0.38	0.40	A	A	A	A	A	A
Bradshaw Rd	Bond Rd	Elk Grove Blvd	2	6	5,100	10,200	8,100	7,300	8,200	9,100	0.28	0.19	0.15	0.14	0.15	0.17	A	A	A	A	A	A
	Elk Grove Blvd	Grant Line Rd	2	6	3,400	10,200	8,400	7,200	8,600	9,400	0.19	0.19	0.16	0.13	0.16	0.17	A	A	A	A	A	A
Bruceville Rd	Laguna Blvd	Elk Grove Blvd	4	6	21,700	25,900	25,600	25,700	25,500	25,600	0.60	0.48	0.47	0.48	0.47	0.47	B	A	A	A	A	A
	Elk Grove Blvd	Whitelock Pkwy	4	6	23,000	24,900	25,100	25,200	24,800	24,800	0.64	0.46	0.46	0.47	0.46	0.46	B	A	A	A	A	A
	Whitelock Pkwy	Kammerer Rd	2	6	4,500	5,200	5,200	5,200	5,200	5,200	0.25	0.10	0.10	0.10	0.10	0.10	A	A	A	A	A	A
Elk Grove Blvd	I-5	Franklin Blvd	6	6	24,100	18,500	18,300	18,300	18,300	18,300	0.45	0.34	0.34	0.34	0.34	0.34	A	A	A	A	A	A
	Franklin Rd	Bruceville Rd	6	6	29,600	23,000	23,100	23,100	23,200	23,100	0.55	0.43	0.43	0.43	0.43	0.43	A	A	A	A	A	A
	Bruceville Rd	Big Horn Blvd	6	6	40,700	38,800	39,000	39,000	39,200	39,100	0.75	0.72	0.72	0.72	0.73	0.72	C	C	C	C	C	C
	Big Horn Blvd	W Stockton Blvd	6	6	39,500	27,400	27,700	27,600	27,700	27,700	0.73	0.51	0.51	0.51	0.51	0.51	C	A	A	A	A	A
	W Stockton Blvd	SR 99	6	6	45,400	48,100	48,300	48,100	48,400	48,500	0.84	0.89	0.89	0.89	0.90	0.90	D	D	D	D	D	D
	SR 99	E Stockton Blvd	4	4	40,000	39,200	38,900	38,900	39,500	39,600	**1.11**	**1.09**	**1.08**	**1.08**	**1.10**	**1.10**	**F**	**F**	**F**	**F**	**F**	**F**
	E Stockton Blvd	Elk Grove Florin Rd	4	4	37,700	37,100	36,800	36,800	37,200	37,300	**1.05**	**1.03**	**1.02**	**1.02**	**1.03**	**1.04**	**F**	**F**	**F**	**F**	**F**	**F**
	Elk Grove Florin Rd	Waterman Rd	2	2	20,700	20,200	20,000	20,100	20,900	20,700	**1.15**	**1.12**	**1.11**	**1.12**	**1.16**	**1.15**	**F**	**F**	**F**	**F**	**F**	**F**
	Waterman Rd	Bradshaw Rd	2	2	13,800	14,000	13,400	13,800	16,300	15,300	0.77	0.78	0.74	0.77	**0.91**	0.85	C	C	C	C	**E**	D
	Bradshaw Rd	Grant Line Rd	2	2	6,000	8,300	8,200	8,100	11,300	10,200	0.33	0.46	0.46	0.45	0.63	0.57	A	A	A	A	B	A

Table 16-36. Change in 2025 Roadway Segment Levels of Service – on Non-Project Roadways

Roadway	Segment		Travel Lanes		Average Daily Traffic Volumes						Volume/Capacity Ratio						Level of Service					
							2025 Proposed Project						2025 Proposed Project						2025 Proposed Project			
							Deer Creek Causeway						Deer Creek Causeway						Deer Creek Causeway			
Roadway	From	To	2008	2025	2008	2025 No Project	Option 1	Option 2	Reduced Access Road	High Access Road	2008	2025 No Project	Option 1	Option 2	Reduced Access Road	High Access Road	2008	2025 No Project	Option 1	Option 2	Reduced Access Road	High Access Road
Excelsior Rd	Calvine Rd	Sheldon Rd	2	2	4,000	6,200	6,900	6,900	6,900	6,700	0.22	0.34	0.38	0.38	0.38	0.37	A	A	A	A	A	A
Franklin Blvd	Laguna Blvd	Elk Grove Blvd	4	4	23,800	23,000	22,900	22,900	23,000	23,000	0.66	0.64	0.64	0.64	0.64	0.64	B	B	B	B	B	B
	Elk Grove Blvd	Whitelock Pkwy	4	6	12,700	11,900	12,000	12,100	12,000	12,100	0.35	0.22	0.22	0.22	0.22	0.22	A	A	A	A	A	A
	Whitelock Pkwy	Bilby Rd	2	2	0	3,700	3,900	3,900	4,000	4,000	0.00	0.21	0.22	0.22	0.22	0.22	A	A	A	A	A	A
Laguna Blvd	I-5	Franklin Blvd	6	6	32,100	36,400	36,100	36,100	36,200	36,100	0.59	0.67	0.67	0.67	0.67	0.67	A	B	B	B	B	B
	Franklin Rd	Bruceville Rd	6	6	36,500	45,600	45,600	45,500	45,600	45,600	0.68	0.84	0.84	0.84	0.84	0.84	B	D	D	D	D	D
	Bruceville Rd	Big Horn Blvd	6	6	36,500	41,800	41,900	41,700	41,700	41,700	0.68	0.77	0.78	0.77	0.77	0.77	B	C	C	C	C	C
	Big Horn Blvd	SR 99	8	8	57,800	69,700	69,700	69,500	69,600	69,700	0.80	**0.97**	**0.97**	**0.97**	**0.97**	**0.97**	D	**E**	**E**	**E**	**E**	**E**
Sheldon Rd	SR 99	Elk Grove Florin Rd	4	4	0	14,400	14,400	14,500	14,500	14,600	0.00	0.40	0.40	0.40	0.40	0.41	A	A	A	A	A	A
	Elk Grove Florin Rd	Waterman Rd	2	4	9,100	18,800	18,600	18,900	19,000	18,900	0.51	0.52	0.52	0.53	0.53	0.53	A	A	A	A	A	A
	Waterman Rd	Bradshaw Rd	2	4	7,100	8,600	8,100	7,900	8,100	8,400	0.39	0.24	0.23	0.22	0.23	0.23	A	A	A	A	A	A
	Bradshaw Rd	Excelsior Rd	2	2	5,000	7,100	6,500	6,500	6,400	6,700	0.28	0.39	0.36	0.36	0.36	0.37	A	A	A	A	A	A
	Excelsior Rd	Grant Line Rd	2	2	5,800	8,400	9,800	9,800	9,900	9,400	0.32	0.47	0.54	0.54	0.55	0.52	A	A	A	A	A	A
Waterman Rd	Calvine Rd	Sheldon Rd	2	4	7,600	17,400	17,000	17,000	17,000	16,900	0.42	0.48	0.47	0.47	0.47	0.47	A	A	A	A	A	A
	Sheldon Rd	Bond Rd	2	4	8,400	16,600	15,600	15,600	15,400	15,900	0.47	0.46	0.43	0.43	0.43	0.44	A	A	A	A	A	A
	Bond Rd	Elk Grove Blvd	2	4	10,400	15,300	14,700	15,400	14,600	15,300	0.58	0.43	0.41	0.43	0.41	0.43	A	A	A	A	A	A
	Elk Grove Blvd	Grant Line Rd	2	4	7,500	13,000	15,600	13,700	12,700	12,800	0.42	0.36	0.43	0.38	0.35	0.36	A	A	A	A	A	A
Whitelock Pkwy	Franklin Rd	Bruceville Rd	4	4	12,900	11,700	11,700	11,700	11,700	11,700	0.36	0.33	0.33	0.33	0.33	0.33	A	A	A	A	A	A
	Bruceville Rd	Big Horn Blvd	4	4	3,000	15,300	15,700	15,700	15,300	15,200	0.08	0.43	0.44	0.44	0.43	0.42	A	A	A	A	A	A
	Big Horn Blvd	W Stockton Blvd	4	4	3,000	6,500	7,000	7,000	6,600	6,600	0.08	0.18	0.19	0.19	0.18	0.18	A	A	A	A	A	A
	W Stockton Blvd	SR 99	NA	4	NA	27,000	27,900	27,900	27,200	27,100	NA	0.75	0.78	0.78	0.76	0.75	NA	C	C	C	C	C
Willard Pkwy	Whitelock Pkwy	Kammerer Rd	4	4	0	5,000	5,100	5,100	5,100	5,100	0.00	0.14	0.14	0.14	0.14	0.14	A	A	A	A	A	A

Source: DKS Associates 2010.

Chapter 17
Alternatives and Other CEQA Considerations

17.1 Alternatives Overview

CEQA requires that an EIR contain a reasonable range of feasible alternatives that meet most or all project objectives while reducing or avoiding one or more significant impacts of the project. According to State CEQA Guidelines Section 15126.6(f), the range of alternatives required in an EIR is governed by a "rule of reason" that requires an EIR to set forth only those alternatives necessary to permit a reasoned choice.

The range of alternatives may include alternatives to the project or its location. Where a potential alternative was examined but not chosen as one of the range of alternatives, the State CEQA Guidelines require that the EIR briefly discuss the reasons the alternative was dismissed. In addition to a range of alternatives, the EIR must discuss the "No-Project Alternative," which describes the reasonably foreseeable probable future conditions if the project is not approved (State CEQA Guidelines, Section 15126.6).

The lead agency must consider the alternatives discussed in an EIR before acting on a project. The agency is not required to adopt an alternative that may have environmental advantages over the project if specific economic, social, or other conditions make the alternative infeasible (Public Resources Code, section 21002).

This chapter describes the alternatives to the proposed project and compares the anticipated environmental impacts of the alternatives to those of the proposed project, analyzed in Chapters 3 though 16. See Appendix H for a discussion of the potential alternatives initially screened for analysis in the EIR, and the selection of Alternatives 1 and 4.

Section 15126.6(b) of the State CEQA Guidelines indicates that a discussion of alternatives should "focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project." Alternatives to the proposed project are described below, and their impacts are compared to the proposed project.

17.2 Evaluation of Alternatives

The following analysis evaluates the potential environmental impacts associated with implementation of the No-Project Alternative, the Sunrise Boulevard Alignment Alternative, and the Bradshaw Road Alignment Alternative, compared to the proposed project. The impact conclusions (i.e., "similar," "greater," "lesser") describe the level of impact compared to the impacts of the proposed project, which are discussed in Chapters 3 through 16 of this Draft Program EIR. The thresholds and methodologies used to evaluate the proposed project and the alternatives are also described in those chapters.

Figure 2-2b identifies the location of the proposed project and alternatives.

17.2.1 Environmental Effects of the No-Project Alternative

CEQA requires that a "no project" alternative be evaluated as part of the EIR process (State CEQA Guidelines Section 15126.6[e]). The project's No-Project Alternative represents existing conditions and what would reasonably be expected to occur in the foreseeable future if the project were not approved, based on current adopted local and regional plans.

The roadway network under the No-Project Alternative represents, for the most part, the transportation system in SACOG's adopted 2035 MTP, with widening of the existing roadways in the general project area to four or six lanes, with exceptions, as noted below. Access along the roadways within the general project area under the No-Project Alternative would have only minor limitations on new driveways and no reductions in the substantial number of existing driveways. The No-Project Alternative would have numerous at-grade intersections with their locations based on adopted and proposed general plans and specific plans. These future roadway improvements would be intended to serve the planned growth in the general project area.

The assumptions on planned growth in the general project area were based on community-level geographic area data used by SACOG for planning purposes, with some refinements in the projected growth made by the JPA local jurisdictions for Folsom, Rancho Cordova, and Elk Grove. The refinements generally reflect more conservative growth assumptions in the project area. The planned growth assumptions are discussed in Chapter 12, "Population and Housing," and in Chapter 16, "Traffic and Transportation," and are depicted on Figure 16-2 in Chapter 16.

The No-Project Alternative assumes that planned improvements to the roadway network identified in the 2035 MTP would be implemented, with certain revisions. These include the following:

- White Rock Road would be widened to: (1) six lanes from US 50 west to Latrobe Road; (2) four lanes from Manchester Drive west to the Sacramento County line; and (3) six lanes from the El Dorado County line west to Grant Line Road.
- Grant Line Road would be widened to: (1) four lanes from White Rock Road south to Bradshaw Road; and (2) six lanes from Bradshaw Road to SR 99.
- Kammerer Road would be: (1) widened to six lanes from SR 99 to Bruceville Road; and (2) extended as a four lane road from Bruceville Road to I-5.

The following revisions to the 2035 MTP were assumed:

- The number of lanes on White Rock Road from the El Dorado County line to Scott Road (E) was reduced from six to four to be consistent with the maximum number of lanes allowed on that segment in the adopted Sacramento County General Plan.
- An extension of Hazel Avenue from the future Easton Valley Parkway south to White Rock Road was not assumed since the PDT felt that this extension would not occur by 2035.
- The number of lanes on Scott Road (E) between White Rock Road and future Road B was reduced from six (in the MTP) to four, and the number of lanes on Prairie City Road from US 50 to the future Easton Valley Parkway was increased from four (in the MTP) to six to be consistent with the proposed roadway improvements in the City of Folsom's plans for the Sphere of Influence (SOI) south of US 50.
- The proposed Cordova Hills project along Grant Line Road would have connections to Grant Line Road.

The primary difference between the No-Project Alternative and the proposed project is the amount and type of access along the project alignment. The proposed project would reduce the amount of access, especially on segments designated to have an expressway standard (Grant Line Road from north of Calvine Road to White Rock Road, and White Rock Road from Grant Line Road to the El Dorado County line). Refer to Table 16-12 of Chapter 16, "Traffic and Transportation," for the list of cross-streets along the project alignment and the future no-project traffic control (i.e., signal, interchanges, etc.).

The No-Project Alternative is not the baseline for the impact analyses in the preceding chapters.

17.2.1.1 Aesthetics

Under the No-Project Alternative, the areas adjacent to the project corridor would be developed with mixed residential and commercial development. Road improvements would include the construction of the US 50/Silva Valley Parkway Interchange, extension of Kammerer Road, and the widening of the portion of Grant Line Road that runs through the Sheldon area. Overall, roadway improvements would be less extensive than what is proposed under the project, which could result in slightly less visual change within the study area. The adverse visual impacts associated with construction of the Deer Creek Causeway would be avoided under the No-Project Alternative.

17.2.1.2 Air Quality

Implementation of the No-Project Alternative will not result in any Connector project-related construction-related emissions or air quality impacts. However, construction of roadways along the corridor would proceed as planned in the adopted plans of the counties and cities, causing significant construction-related impacts, similar to those described for the proposed project. Comparisons of operational-related criteria pollutant and GHG emissions of the project and alternatives, relative to the No-Project Alternative (i.e., baseline 2008 no-project condition) are provided in Tables 4-14 and 4-15 in Chapter 4, "Air Quality." Within the SMAQMD, implementation of the No-Project Alternative would result in fewer VMT and emissions relative to the build alternatives. Similarly, within the EDCAPCD, VMT and emissions are expected to decrease under the No Project Alternative compared to the proposed project. However, these impacts would likely be significant.

17.2.1.3 Biological Resources

Under the No-Project Alternative, the existing roadways in the study area and project vicinity will eventually be widened to four or six lanes. Impacts related to biological resources would be similar to the proposed project. These would be significant impacts.

17.2.1.4 Cultural Resources

Under the No-Project Alternative, existing roadways along the Connector alignments will eventually be widened to four or six lanes, potentially disturbing previously undiscovered archaeological or historical sites, as well as architectural sites. Impacts related to cultural resources would be similar to the proposed project. These would be significant impacts.

17.2.1.5 Energy

Under the No-Project Alternative, existing roadways along the Connector alignments will eventually be widened to four or six lanes, but the improvements to traffic flow that would result from the grade-separated interchanges and access limitations imposed by the proposed project would not occur, with a net result of similar air quality impacts compared to the proposed project. However, it is not anticipated that this energy consumption would result in wasteful or excessive use of direct energy.

17.2.1.6 Geology, Soils, and Paleontological Resources

The No-Project Alternative would eventually result in road widening and involve short-term soil disturbing activities, including cut and fill, grading, trenching, boring, and vegetation removal. Impacts related to geology, soils, and paleontological resources would be similar to the proposed project. These would be significant impacts.

17.2.1.7 Hazards and Hazardous Materials

The No-Project Alternative would eventually result in construction that would present similar potential for impacts related to release or exposure to hazards or hazardous materials. Impacts related to hazards and hazardous materials would be similar to the proposed project. These would be significant impacts.

17.2.1.8 Hydrology and Water Quality

The No-Project Alternative would eventually result in construction that could result in short-term (construction) and long-term (post-construction) hydrological and water quality impacts. The No-Project Alternative could potentially impact more than more than 32 creek/stream crossings compared to 21 creek/stream crossings that would potentially be affected by the proposed project (Appendix H). The No-Project Alternative could affect more water bodies. These would be significant impacts.

17.2.1.9 Land Use

The No-Project Alternative would avoid some of the land use impacts expected to occur under the proposed project. Substantial loss or disruption of existing access is not anticipated to occur. No division of an established community would occur under the No-Project Alternative. Land uses in the surrounding area would be changed via the adopted general plans and planned improvements, which would result in conversion of land from agricultural uses to transportation-related uses. Impacts related to loss of access would be considerably less than those anticipated to occur under the proposed project. Overall, these would be significant impacts.

17.2.1.10 Noise

Under the No-Project Alternative improvements to existing roadways and construction of new roadways such as the Kammerer Road extension to SR 99 would eventually occur. Construction of these projects would result in construction noise impacts similar to the impacts identified for the proposed project. These improvements would increase capacity and allow high speeds, both of which would increase traffic noise. These traffic noise increases would be significant if noise increases are 1.5 dB or more where pre-project noise is greater than 65 dB, 3 dB where pre-project noise is 60–65 dB, and 5 dB where pre-project noise is less than 60 dB.

17.2.1.11 Public Services and Utilities

The No-Project Alternative would eventually result in improvements to existing roadways and construction of new roadways such as the Kammerer Road extension to SR 99. The impact on water facilities would be similar and could require construction of new stormwater drainage facilities or expansion of existing facilities. Overall, these would be significant impacts.

17.2.1.12 Population and Housing

The No-Project Alternative would eventually result in improvements to existing roadways and construction of new roadways such as the Kammerer Road extension, and the impacts on population and housing, including acquisition and relocation, would be similar to the proposed project. Overall, these would be significant and unavoidable impacts.

17.2.1.13 Recreation

The No-Project Alternative would eventually result in improvements to existing roadways and construction of new roadways which would require the conversion of small amounts of park and conservation areas and result in temporary construction impacts on recreational facilities. These impacts would be similar to the proposed project. Overall, these would be significant impacts.

17.2.1.14 Traffic and Transportation

The primary difference between the No-Project Alternative and the proposed project is the amount and type of access along the project alignment. Under the No-Project Alternative, there would be no reductions in the amount of access, including on segments where access with the proposed project would be limited (Grant Line Road from north of Calvine Road to White Rock Road, and White Rock Road from Grant Line Road to the El Dorado County line). Table 16-11 in Chapter 16, "Traffic and Transportation," compares the access between the No-Project Alternative and the proposed project with project options included in the traffic analysis. In brief, the No-Project Alternative would not improve traffic operations compared to the proposed project and would have a significant effect.

17.2.2 Environmental Effects of the Project Build Alternatives

17.2.2.1 Sunrise Boulevard Alignment Alternative

This alternative is the same as the proposed project, except that it would utilize existing Sunrise Boulevard for a portion of the alignment (Figure 2-2b). At the Grant Line Road/Sunrise Boulevard intersection, this alternative would follow Sunrise Boulevard north as an expressway to just north of SR 16 (Jackson Highway) and then as a thoroughfare north of SR 16 to Douglas Road. North of Douglas Road, the alignment would be east of and parallel to Sunrise Boulevard, requiring an undefined new thoroughfare segment to provide a connection to White Rock Road. The alignment would continue east as a thoroughfare on White Rock Road through Rancho Cordova. East of Grant Line Road, the alignment is the same as the proposed project.

The mitigation measures identified for the project would apply also to this alternative, as pertinent.

Aesthetics

The Sunrise Boulevard Alignment Alternative would result in the same visual effects as the proposed project from I-5 to the intersection of Grant Line Road and Sunrise Boulevard; and from the intersection of White Rock Road/Grant Line Road to U.S 50. The visual character of the land uses adjacent to Sunrise Boulevard and White Rock Road are similar to the western landscape unit, and include flat agricultural fields, row crops, and scattered residential development. The northernmost areas of along this alternative corridor include dense urban development including commercial, industrial, and retail complexes. Along White Rock Road, the natural landscape has been significantly altered by aggregate mining operations. As a result, the visual character of the landscape along this alternative corridor is less intact and has a lower visual quality than the project corridor.

Implementation of the Sunrise Boulevard Alignment Alternative would alter the visual character of Sunrise Boulevard and White Rock Road by increasing the dominance of the transportation facility (widening from two lanes to four/six lanes). This alternative may also result in displacement of residential and commercial uses along Sunrise Boulevard. These visual changes may result in improved intactness and unity by creating a consistent roadway cross section. However, the overall visual quality along Sunrise Boulevard would not change significantly.

Between the Sunrise Boulevard/Kiefer Road and Sunrise Boulevard/White Rock Road intersections, the roadway already consists of a five-lane thoroughfare. This alternative would not alter the visual character of this segment of Sunrise Boulevard, as significant changes would not occur to the existing thoroughfare.

Widening of White Rock Road under this alternative would result in increased dominance of the roadway within the landscape. However, the surrounding landscape has been highly altered by aggregate mining, creating low visual quality. As a result, widening White Rock Road under the Sunrise Boulevard Alignment Alternative would not result in a significant change in visual quality.

Air Quality

For the analysis of the Sunrise Boulevard Alignment Alternative, construction emissions were estimated using the Sacramento Metropolitan Air Quality Management District's Road Construction Emissions Model. The alternative was assumed to be 36 miles in length and require a construction area of 1,433 acres. Based on consultation with the project applicant, it was assumed construction would begin in 2015 and last approximately 10 years. Construction activity would require water trucks and import and export 500 cubic yards of soil daily.

Operational emissions were based on information provided by the traffic engineers. The data for the Sunrise Boulevard Alignment Alternative included volumes within the Traffic Analysis Study Area (TASA), as defined in Chapter 16. Emissions were evaluated using the CT-EMFAC emissions model and Sacramento County regional vehicle fleet profiles (please refer to Chapter 4, "Air Quality," for additional discussion of the analysis methodologies).

Construction emissions consist of temporary emissions from grubbing/land clearing, grading/excavation, drainage/utilities/subgrade construction, paving activities, and construction worker commutes involved with project construction. Table 17-1 summarizes mitigated construction emissions for the Sunrise Boulevard Alignment Alternative within the SMAQMD and EDCAPCD; Tables 17-2 and 17-3 summarize construction emissions for the proposed project within the SMAQMD and EDCAPCD, respectively. As indicated in Tables 17-1, construction activities associated with the Sunrise Boulevard Alignment Alternative are anticipated to be less than the proposed project, but exceed the SMAQMD thresholds. Implementation of Mitigation Measures AQ-1 through AQ-4 will reduce emissions to less than significant (see Table 17-2).

Similar to the proposed project, operational emissions would increase because of increases in VMT. Impacts on air quality for this alternative would be similar to the impacts of the proposed project and would be significant and unavoidable.

Revised Table 17-1. Summary of Unmitigated Construction Emissions for the Sunrise Boulevard Alignment Alternative (pounds per day)

				PM10			PM2.5		
Alternative	ROG	NO_X	CO	Total	Exhaust	Dust	Total	Exhaust	Dust
Sunrise Boulevard Alignment Alternative	24.19	189.50	139.80	724.71	7.91	716.80	156.14	7.05	149.09
SMAQMD Threshold	–	*85*	–	–	–	–		–	–
EDCAPCD Threshold	*82*	*82*	–	–	–	–		–	–

Revised Table 17-2. Summary of Mitigated Construction Emissions for the Sunrise Boulevard Alignment Alternative (pounds per day)

				PM10			PM2.5		
Alternative	ROG	NO_X	CO	Total	Exhaust	Dust	Total	Exhaust	Dust
Sunrise Boulevard Alignment Alternative (SMAQMD)	10.40	62.71	78.10	153.45	3.45	150.00	34.14	2.94	31.20
SMAQMD Threshold	–	*85*	–	–	–	–		–	–
EDCAPCD Threshold	*82*	*82*	–	–	–	–		–	–

Table 17-3. Summary of Land Use and Biological Resources within the Sunrise Boulevard Alignment Alternative Corridor

Land Cover and Biological Communities	Acreage of Resource in the 400-foot Corridor (Areas of Potential Direct Impacts)	Acreage of Resource between the 400- and 800-foot Corridor (Area of Potential Indirect Impacts)
Uplands		
Annual grassland	1,498.1	1,489.9
Blue oak woodland	4.7	14.1
Riparian woodland	135.8	134.8
Uplands Subtotal	**1,638.6**	**1,638.8**
Wetlands		
Seasonal wetland	0.6	0.6
Swale	8.3	12.8
Vernal pool	20.5	20.3
Freshwater marsh	10.1	8.0
Stream	10.4	13.8
Seasonal pond	9.3	6.9
Open water	2.1	4.6
Wetlands and Waters Subtotal	**61.2**	**66.9**
Agricultural		
Irrigated pasture	186.0	152.6
Cropland	387.0	376.4
Vineyard	74.0	53.0
Orchard	0	0
Agricultural Subtotal	**646.9**	**582.0**
Developed		
Major roads	152.5	19.0
Landscaped	0	3.0
Low density development	386.2	275.4
High density development	245.8	283.9
Dredge tailings	331.2	342.5
Disturbed	9.8	22.6
Aqueduct	31.7	20.9
Developed Subtotal	**1,157.4**	**967.1**
Total Acreage	**3,504.1**	**3,254.9**

Biological Resources

Construction of the Sunrise Boulevard Alignment Alternative has the potential to result in direct and indirect impacts on sensitive biological resources. Although this alternative has more overall acreage of land relative to the proposed project, it has less sensitive upland and wetland habitats that could be directly and indirectly affected compared to that of the proposed project. Table 17-3 below summarizes the biological resources that could be affected by the Sunrise Boulevard Alignment Alternative.

No critical habitat was identified along the Sunrise Boulevard Alignment Alternative.

The Sunrise Boulevard Alignment Alternative has slightly less conservation area lands occurring within the assessment corridors than the proposed project: 114.7 acres within the 400-foot corridor and 101.0 between the 400- and 800-foot corridors, which are roughly 9 and 11 acres less than that of the proposed project, respectively.

Cultural Resources

The records search identified areas previously surveyed for cultural resources, as well as previously recorded cultural resources sites. Approximately 31% of the Sunrise Boulevard Alignment Alternative has been previously surveyed for cultural resources. Previously recorded cultural resources within this alternative corridor and the 0.25-mile buffer study area include 45 historic sites and 6 prehistoric sites. These numbers do not differ substantially from the proposed project (Table 17-4). Therefore, the Sunrise Boulevard Alignment Alternative would result in similar, less than significant impacts on cultural resources.

Table 17-4. Percentage of Study Coverage

Alternative	Survey Coverage (%)	Previously Recorded	
		Historic Sites	Prehistoric Sites
Proposed Project Corridor	58	43	6
Sunrise Boulevard Alignment	31	45	6

Energy

Under the Sunrise Boulevard Alignment Alternative, traffic flow and levels of service would improve, similar to the proposed project. One-time expenditures of energy for project construction would also be similar to the proposed project. However, it is not anticipated that this energy consumption would result in wasteful or excessive use of direct energy.

Geology, Soils, and Paleontological Resources

Construction of the Sunrise Boulevard Alignment Alternative would result in short-term soil-disturbing activities, including cut and fill, grading, trenching, boring, and vegetation removal. This alternative corridor is relatively flat with little potential for slope failure and surficial erosion during or after construction, and the geological, soil, and paleontological resources/conditions are similar to those of the project corridor. Impacts on geology, soils, and paleontological resources would be similar to the proposed project; and therefore, less than significant.

Hazards and Hazardous Materials

Construction of the Sunrise Boulevard Alignment Alternative would result in similar impacts as those for the proposed project (as discussed in Chapter 9, "Hazards and Hazardous Materials"). According to the EDR database search, there are four potential hazardous waste/materials sites within the proposed project study area: Super Pallet Recycling, Mather AFB, and the two White Rock Road Disposal sites (North and South). These sites are the same as for the proposed project.

Table 17-5 lists the EDR-identified sites that may have the potential to affect the Connector. The list of sites includes the site name, address, the database where the site was listed, where within the Connector the site is located, and rank.

Table 17-5. EDR Database–Identified Hazardous Waste/Material Sites

Site Name	Address	NPL/ Superfund	Response	SWF/ LF	Location	Rank
Super Pallet Recycling	10401 Grant Line Road, Elk Grove, CA			X	Proposed project, Bradshaw Road Alignment and Sunrise Boulevard Alignment Alternatives, Deer Creek Causeway Options	High
Lopez Agricultural Services, Inc.	11499 Florin Road, Sacramento, CA			X	Off-Corridor Multi-Use Path	Low
Aerojet Investments, LTD	11505 Douglas Road, Rancho Cordova, CA		X		Bradshaw Road Alignment Alternative	High
Aerojet LRC Landfill	Aerojet Road off US 50, Rancho Cordova, CA			X	Off-Corridor Multi-Use Path	Low
Mather Air Force Base	Mather Air Force Base, Rancho Cordova, CA	X		X	Bradshaw Road and Sunrise Boulevard Alignment Alternatives & Off-Corridor Multi-Use Path	High
Elk Grove Disposal Site	Waterman Road/ Bond Road, Elk Grove, CA			X	Off-Corridor Multi-Use Path	Low
White Rock Road Disposal – North	White Rock Road/Grant Line Road, Rancho Cordova, CA			X	Proposed Project, Bradshaw Road and Sunrise Boulevard Alignment Alternative	Medium
White Rock Road Disposal – South	White Rock Road/Grant Line Road, Rancho Cordova, CA			X	Proposed Project, Bradshaw Road and Sunrise Boulevard Alignment Alternative	Medium

Source: Environmental Data Resources, Inc. July 2010.

This alternative has a similar potential for impacts related to hazards and hazardous materials as the proposed project. Therefore, the Sunrise Boulevard Alignment Alternative would result in similar, less than significant impacts related to hazards and hazardous materials.

Hydrology and Water Quality

The Sunrise Boulevard Alignment Alternative would have more extensive impacts on the hydrology and water quality conditions of the Folsom South Canal, Morrison Creek (upstream from Mather Lake), Rebel Hill Ditch, and surrounding tributaries (see Figure 10-1 in Chapter 10, “Water Quality and Hydrology”). As shown in Table 5-2 in Chapter 5, “Biology,” regarding the area of wetlands and water resources within the 800-foot corridor, this alternative would potentially impact up to 128.1

acres of water bodies, which includes up to 20 creek/stream crossings, compared to potential direct impacts on 158.4 acres of water bodies for the proposed project.

Other than the location and extent of the impacts, the Sunrise Boulevard Alignment Alternative would result in similar impacts on existing hydrology and water quality conditions as the proposed project. Therefore, the Sunrise Boulevard Alignment Alternative would result in similar, less than significant impacts related to hydrology and water quality.

Land Use

Under the Sunrise Boulevard Alignment Alternative, land use impacts would be similar to those anticipated to occur under the proposed project. Similar disruptions to access and division of an established community could occur during construction. Agriculturally designated lands could be acquired under this alternative as under the proposed project. Similar to the proposed project, this could result in a potentially significant land use impact. Additionally, as with the proposed project, this alternative would be consistent with applicable land use plans and policies and is identified in the SACOG MTP.

Noise

Construction noise and vibration impacts associated with implementation of the Bradshaw Boulevard Alternative would be similar to those described for the Proposed Project. Because of the potential for noise to exceed applicable local noise standards and the potential for construction vibration to result in perceptible and potentially damaging vibration, construction noise impacts associated with this alternative would be significant.

A detailed analysis of changes in traffic volumes associated implementation of the Sunrise Boulevard Alternative has not been conducted. However, conclusions related to potential traffic noise impacts can be drawn from information developed for the Proposed Project. Current average daily traffic volumes along Sunrise Boulevard between Grant Line Road and Douglas Road are about 11,100 (Sacramento County 2010c). These volumes correspond to a traffic noise level of about 61 L_{dn} at 100 feet. The traffic analysis prepared for the Proposed Project indicates that average daily traffic volumes would increase by about 10,000 along Grant Line Road. Assuming that volumes along Sunrise Boulevard would increase by a similar amount under the Sunrise Boulevard Alternative, it is expected that traffic noise would increase by about 3 dB along Sunrise Boulevard. This indicates that significant traffic noise impacts could occur in areas along Sunrise Boulevard where baseline noise levels could be in excess of 65 L_{dn}. This is likely to occur along this segment of Sunrise Boulevard.

The new roadway segment associated with this alternative northeast of Sunrise Boulevard will likely result in traffic noise that exceeds 60 L_{dn} at 100 feet. However, there are no developed uses along this new road so no significant traffic noise impacts are expected along this segment.

Mitigation Measures NOI-1 and NOI-2 would reduce significant construction and traffic noise impacts associated with the Sunrise Boulevard Alternative. However, for the same reasons identified for the Proposed Project, these impacts would be significant and unavoidable under the Sunrise Boulevard Alternative.

Population and Housing

Under the Sunrise Boulevard Alignment Alternative, an additional segment of new road would be constructed between Sunrise Boulevard's intersections with Douglas and White Rock Roads. As under the proposed project, there would be similar impacts related to property acquisition and relocation. Implementation of Mitigation Measures POP-1 and POP-2 would reduce significant impacts associated with the Sunrise Boulevard Alignment Alternative. Therefore, impacts to Population and Housing would be less than significant under the alternative.

Public Services and Utilities

Under the Sunrise Boulevard Alignment Alternative, there would be an additional segment of new road construction between Sunrise Boulevard's intersections with Douglas Road and White Rock Road. The alternative would have similar impacts to the proposed project on water facilities, including the potential for construction of new storm water drainage facilities or expansion of existing facilities. However, because of the increased area of new road construction, impacts could be slightly greater with this alternative. However, implementation of Mitigation Measures PS-1, PS-2, and PS-3 would reduce significant impacts associated with the Sunrise Boulevard Alignment Alternative. Therefore, these impacts would be less than significant under the alternative.

Recreation

As shown in Table 17-6, below, the Sunrise Boulevard Alignment Alternative is expected to result in the conversion of a total of 102.62 acres of park land (Mather Regional Park and Prairie City OHV Park) in Sacramento County and is expected to result in the conversion of approximately 37.43 acres of park land in El Dorado County. In addition, as shown in Table 17-7, below, this alternative is estimated to result in the conversion of approximately 215.75 acres of conservation land. Compared to the proposed project, this alternative would result in the conversion of an additional 64.02 acres of park land (Table 15-1 in Chapter 15, "Recreation"). With implementation of Mitigation Measure REC-1 in Chapter 15, "Recreation," these impacts would be less than significant.

Table 17-6. Park Land Potentially Affected by the Sunrise Boulevard Alignment Alternative

Alternative	Park Name	Affected Acreage	Total Affected Acreage
Sacramento County			
Sunrise Boulevard Alignment	Mather Regional Park	64.02	
	Prairie City SVRA	38.60	102.62
El Dorado County			
Sunrise Boulevard Alignment	Creekside Greens Park	3.69	
	Unidentified Regional Park	33.74	37.43

Source: See Figure 15-1 in Chapter 15, *Recreation,* for data sources.
Note: – = not applicable/no information.

Table 17-7. Conservation Lands Potentially Affected by the Sunrise Boulevard Alignment Alternative

Alternative	Conservation Land Name	Affected Acreage	Total Affected Acreage
Sunrise Boulevard Alignment	Habitat Management Easement	0.07	
	Bryte Ranch Mitigation Bank	129.93	
	Policy/Statute Lands	2.41	
	Sunridge Easement	81.56	
	Triangle Rock Easement	1.78	215.75
Bradshaw Road Alignment	Habitat Management Easement	5.67	
	Policy/Statute Lands	53.56	
	Teichert Easement	11.50	70.73

Source: See Figure 15-1 in Chapter 15, *Recreation,* for data sources.
Note: – = not applicable/no information.

Traffic and Transportation

The Sunrise Boulevard Alignment Alternative would involve the same roadway access and improvements as the proposed project on their common alignment segments, which are southwest of the Grant Line Road/Sunrise Boulevard intersection and northeast of the Grant Line Road/Whiter Rock intersection. Between those intersections, this alternative would follow Sunrise Boulevard and the proposed Rancho Cordova Parkway to reach White Rock Road.

Along Sunrise Boulevard, between Grant Line Road and Jackson Road, access to the Sunrise Boulevard Alignment Alternative would be limited to grade-separated interchanges at Grant Line Road, Florin Road, and Jackson Road. Between Jackson Road and Douglas Road, this alternative would have widely spaced signalized intersections. Between Douglas Boulevard and White Rock Road, the alignment passes through the proposed Rio del Oro project, which is planned as a dense mixed-use development. A substantial number of access points with less than ½ mile spacing are planned in that development along the Sunrise Boulevard Alignment Alternative alignment and this level of access was assumed for this segment with and without this alternative.

Tables 17-8 and 17-9 indicate the following about the general performance of the Sunrise Boulevard Alignment Alternative:

- The Sunrise Boulevard Alignment Alternative would cause increases in traffic volumes on 1) all of the segments along its alignment and 2) most major roadways that provide access to the Sunrise Boulevard Alignment Alternative near where they intersect it.
- The Sunrise Boulevard Alignment Alternative would decrease total vehicle-hours of delay in the traffic analysis study area by about 9% since it would decrease traffic on a number of arterial/collector roadway segments in the traffic analysis study area, as well as decrease traffic volumes on portions of US 50, SR 99 and I-5. However, this alternative would not decrease total vehicle-hours of delay as much as the proposed project alignment (Alternative 2/3).
- The Sunrise Boulevard Alignment Alternative would have the highest number of signalized intersections of all the alignment alternatives
- The travel time along the Sunrise Boulevard Alignment Alternative (measured at common points for the alternative alignments) between Grant Line Road at Sunrise Boulevard and Grant

Line Road at White Rock Road would take 5 minutes longer than the time to use Grant Line Road for this entire trip, even with no further improvements to Grant Line Road than the High Access Alternative for that segment. Thus through traffic would not use the Sunrise Boulevard Alignment Alternative alignment as a preferred route.

Based on the general analysis of cumulative (2045) conditions, the impacts of the Sunrise Boulevard Alignment Alternative can be described as follows:

- The Sunrise Boulevard Alignment Alternative would cause traffic increases on all of the roadway segments along the alignment.
- Southwest of the Grant Line Road/Sunrise Boulevard intersection, and east of the Grant Line Road/White Rock Road intersection the LOS impacts of this alternative would be the similar to the impact of Grant Line Road in the Sheldon area may not operate at acceptable LOS conditions if access is not restricted.
- Significant LOS impacts are anticipated along this alternative alignment, including Sunrise Boulevard near Douglas Road as well as on Rancho Cordova Parkway near White Rock Road.
- The measures required to mitigate the LOS impacts along the portion of the Sunrise Boulevard Alignment Alternative alignment through the city of Rancho Cordova would involve roadway widening or grade separations beyond those planned by the City and may not meet the City's policies concerns about adverse impacts to bicyclists and pedestrians. Since the Capital SouthEast Connector JPA cannot ensure their implementation, this impact is considered ***significant and unavoidable***.
- The Sunrise Boulevard Alignment Alternative would decrease traffic on many non-project roadway segments in the traffic analysis study area. However, this alternative would cause traffic increases on most of its cross streets near where they intersect the Connector, which would likely result in significant LOS impacts on some non-project roadways.
- The measures required to mitigate the LOS impacts on non-project roadway segments would involve improvements beyond those planned by local jurisdictions, including some improvements which may not meet the policies of local jurisdictions due concerns about adverse impacts to bicyclists and pedestrians. Improvements on non-project roadways would need to be implemented by local jurisdictions. Since local jurisdictions may choose not to implement them and the Capital SouthEast Connector JPA cannot ensure their implementation, this impact is considered ***significant and unavoidable***.
- The Sunrise Boulevard Alignment Alternative would decrease traffic on most of the freeway segments in the traffic analysis study area and would likely not cause any LOS impacts on the freeway mainline or at any ramps junctions. This alternative would thus provide a benefit to freeway traffic operations compared to existing conditions. This impact is considered ***less than significant***.
- The Sunrise Boulevard Alignment Alternative would not adversely affect any existing or planned bicycle or pedestrian facilities. This alternative would add off-street (Class I) bike trails along the expressway segments and thereby provide two types of bikeways in those segments, which would provide a benefit compared to existing conditions. This impact is considered ***less than significant***.
- The transit policies adopted by the Connector JPA Board as part of the project would provide capital funding, beyond what would be available under existing conditions and thereby facilitate

Table 17-8. Change in Cumulative (2045) Daily Traffic Volumes from No Project Alternative – Along Alternative Alignments

Roadway	Segment		Travel Lanes					Average Daily Traffic Volumes					Change in Average Daily Traffic Volume from 2045 No Project		
				2045 No Project	2045				2045 No Project	2045					
Roadway	From	To	2008		Alternative 1	Alternative 2/3	Alternative 4	2008		Alternative 1	Alternative 2/3	Alternative 4	Alternative 1	Alternative 2/3	Alternative 4
White Rock Road	US 50	Valley View	2	6	6	6	6	9,300	15,800	21,000	21,800	21,500	5,200	6,000	5,700
	Valley View	Latrobe Rd	2	6	6	6	6	13,700	21,000	26,200	26,900	26,700	5,200	5,900	5,700
	Latrobe Rd	Windfield Way	4	4	4	4	4	10,100	29,200	38,400	39,800	38,800	9,200	10,600	9,600
	Windfield Way	Four Seasons Dr	2	4	4	4	4	7,800	24,200	36,400	38,300	37,200	12,200	14,100	13,000
	Four Seasons Dr	Empire Ranch Rd	2	4	4	4	4	6,400	18,900	28,700	30,100	29,700	9,800	11,200	10,800
	Empire Ranch Rd	Scott Rd (North)	2	4	4E	4E	4E	8,500	33,200	51,300	54,700	53,400	18,100	21,500	20,200
	Scott Rd (North)	Oak Av Pkwy	2	6	4E	4E	4E	5,700	48,700	70,900	78,000	75,400	22,200	29,300	26,700
	Oak Av Pkwy	Prairie City Rd	2	6	4E	4E	4E	5,700	48,300	74,300	83,300	79,600	26,000	35,000	31,300
	Prairie City Rd	Grant Line Rd	2	6	4E+ 2 HOV	4E+ 2 HOV	4E+ 2 HOV	9,900	79,000	106,300	122,600	116,400	27,300	43,600	37,400
	Grant Line Rd	Villagio Dr	2	6	6			3,400	36,600	54,900			18,300		
	Villagio Dr	International Dr	2	6	6			3,400	34,600	39,200			4,600		
	International Dr	R Cordova Pkwy	2	6	6			3,400	21,300	22,900			1,600		
Grant Line Road	White Rock Rd	Centennial Dr	2	6		4E+ 2 HOV	4E+ 2 HOV	9,600	70,100		102,500	94,200		32,400	24,100
	Centennial Dr	Douglas Rd	2	6		4E	4E	9,600	42,100		74,000	66,500		31,900	24,400
	Douglas Rd	Chrysanthy	2	6		4E		8,800	44,400		77,800			33,400	
	Chrysanthy	Kiefer Blvd	2	6		4E		7,800	46,000		76,900			30,900	
	Kiefer Blvd	Rancho Cordova	2	6		4E		7,700	42,900		69,100			26,200	
	Rancho Cordova	Jackson Rd	2	6		4E		7,700	36,200		60,100			23,900	
	Jackson Rd	Sunrise Blvd	2	6		4E		5,600	26,200		46,100			19,900	
	Sunrise Blvd	Eagles Nest Rd	2	6	4E	4E		14,700	43,500	59,900	63,700		16,400	20,200	
	Eagles Nest Rd	Calvine Rd	2	6	4E	4E		14,700	46,000	61,000	67,100		15,000	21,100	
	Calvine Rd	Sheldon Rd	2	6	6	6		11,900	32,000	45,300	48,100		13,300	16,100	
	Sheldon Rd	Wilton Rd	2	6	6	6		16,200	22,600	35,800	37,800		13,200	15,200	
	Wilton Rd	Bond Rd	2	6	6	6		14,700	38,200	50,500	52,600		12,300	14,400	
	Bond Rd	Elk Grove Blvd	2	6	6	6		9,400	32,800	42,600	44,200		9,800	11,400	
	Elk Grove Blvd	Bradshaw Rd	2	6	6	6		6,300	27,300	35,100	36,400		7,800	9,100	
	Bradshaw Rd	Waterman Rd	2	6	6	6	6	9,300	32,100	43,200	44,600	38,900	11,100	12,500	6,800
	Waterman Rd	E Stockton Blvd	2	6	6	6	6	13,500	53,000	61,900	63,200	58,400	8,900	10,200	5,400
	E Stockton Blvd	SR 99	4	6	6	6	6	15,800	57,300	65,800	67,000	62,400	7,500	9,700	4,900
Rancho Cordova Parkway	White Rock Rd	International Dr	NA	6	6			NA	41,400	40,100			-1,300		
	International Dr	Douglas Rd	NA	6	6			NA	30,100	30,800			700		
Rio del Oro Parkway	Rancho Cordova	Sunrise Blvd	NA	6	6			NA	42,400	45,700			3,300		
Sunrise Blvd	Douglas Rd	Chrysanthy	5	6	6			24,500	48,500	54,400			5,900		
	Chrysanthy	Keifer Blvd	5	6	6			24,500	33,000	42,100			9,100		
	Keifer Blvd	Jackson Rd	2	6	6			17,500	27,400	43,100			15,700		
	Jackson Rd	Florin Rd	2	6	4E			13,300	28,000	47,800			19,800		
	Florin Rd	Grant Line Rd	2	6	4E			11,100	19,300	37,800			18,500		

Table 17-8. Change in Cumulative (2045) Daily Traffic Volumes from No Project Alternative – Along Alternative Alignments

Roadway	Segment		Travel Lanes					Average Daily Traffic Volumes					Change in Average Daily Traffic Volume from 2045 No Project		
				2045 No Project	2045					2045					
Roadway	From	To	2008		Alternative 1	Alternative 2/3	Alternative 4	2008	2045 No Project	Alternative 1	Alternative 2/3	Alternative 4	Alternative 1	Alternative 2/3	Alternative 4
Douglas Rd	Grant Line Rd	Americanos	5	6			6	4,000	42,700			51,900			9,200
	Americanos	R Cordova Pkwy	2	6			6	4,000	39,700			47,100			7,400
	R Cordova Pkwy	Sunrise Blvd	2	6			6	4,000	60,400			63,500			3,100
	Sunrise Blvd	Eagles Nest Rd	2	6			6	6,800	60,100			71,400			11,300
Bradshaw Rd to Sunrise Blvd Connector (Alternative 4)	Douglas Rd	Eagles Nest Rd	NA	NA			4E	NA	34,700			55,400			20,700
	Eagles Nest Rd	Excelsior Rd	NA	NA			4E	NA	46,100			81,900			35,800
	Excelsior Rd	Jackson Rd	NA	NA			4E	NA	42,000			71,900			29,900
	Jackson Rd	Bradshaw Rd	NA	NA			4E	NA	39,400			56,500			17,100
Bradshaw Rd	Elder Creek Rd	Florin Rd	4	6			6	20,400	52,700			57,300			4,600
	Florin Rd	Gerber Rd	2	6			6	19,400	32,000			39,200			7,200
	Gerber Rd	Calvine Rd	2	6			6	15,100	25,100			33,500			8,400
	Calvine Rd	Sheldon Rd	2	6			6	9,300	26,100			30,400			4,300
	Sheldon Rd	Bond Rd	2	6			6	8,100	22,400			25,000			2,600
	Bond Rd	Elk Grove Blvd	2	6			6	5,100	14,300			15,900			1,600
	Elk Grove Blvd	Grant Line Rd	2	6			6	3,400	14,100			15,000			900
Kammerer Road	SR 99	W Stockton Blvd	2	6	6	6	6	4,000	62,600	73,300	74,000	72,300	10,700	11,400	9,700
	W Stockton Blvd	Lent Ranch Pkwy	2	6	6	6	6	2,500	21,600	34,000	34,800	33,600	12,400	13,200	12,000
	Lent Ranch Pkwy	Lotz Pkwy	2	6	6	6	6	2,500	23,200	41,500	42,100	40,900	18,300	18,900	17,700
	Lotz Pkwy	Big Horn Blvd	2	6	6	6	6	2,500	24,800	45,100	45,600	44,700	20,300	20,800	19,900
	Big Horn Blvd	Bruceville Rd	2	6	6	6	6	2,500	19,700	43,000	43,500	42,800	23,300	23,800	23,100
Kammerer Road Extension	Bruceville Rd	Willard Pkwy	NA	6	6	6	6	NA	21,900	42,300	42,800	42,100	20,400	20,900	20,200
	Willard Pkwy	Hood-Franklin	NA	6	4E	4E	4E	NA	27,500	44,200	44,700	44,000	16,700	17,200	16,500
	Hood-Franklin	I-5	2	6	4E	4E	4E	NA	22,700	22,500	20,800	24,200	-200	-1,900	1,500

Source: DKS Associates 2010.
Notes: E = expressway.
HOV = high occupancy vehicle (carpool) lanes.
Cells shaded in yellow are segments that are not a part of the Connector under the various alternative alignments.

Table 17-9. Transportation Performance Measure for Alternative Alignments

Criteria	Measure	2008	2045 No Project	Change from 2045 No Project: Alternative 1	Change from 2045 No Project: Alternative 2/3	Change from 2045 No Project: Alternative 4
Reduces total vehicle-hours of delay (VHD) during peak commute periods on roadways with TASA	VHD (PM Peak 3-hr Period)	6,340	17,614	-9.4 %	- 11.2 %	-7.3%
Reduces peak period vehicle-miles traveled (VMT) on congested (LOS F) roadways in the TASA	VMT at LOS F (PM Peak 3-hr Period)	575,800	1,576,700	-7.3%	-5.7%	-5.2%
Contributes to the reduction of daily vehicle miles traveled (VMT)	Regional VMT	55,83,400	93,795,500	+0.17%	+0.22%	+0.30%
Reduces travel times between key origins and destinations – El Dorado Hills to Rancho Cordova – South Elk Grove to El Dorado Hills – Sunridge to El Dorado Hills – So Elk Grove to Rancho Cordova	PM Peak hour travel time (in minutes) on quickest travel path		 24.7 53.4 20.6 38.8	 -6.7% -7.6% -16.0% -5.4%	 -6.9% -11.8% -21.5% -4.5%	 -7.5% -9.7%[a] -21.2%[a] -3.7%[a]

Criteria	Measure	2008	2045 No Project	2045 Alternative 1	2045 Alternative 2/3	2045 Alternative 4
Reduces travel along the Connector alignment (Measured at common points for alternative alignments: Grant Line Rd at Bradshaw Rd to Grant Line Rd at White Rock Rd)	PM peak period travel time (in minutes)		36	41	26	39
Provides access control while minimizing impacts to existing driveways and local streets. Such methods include limiting access via directional access control or restricting development outside approved local agency general plans or the MTP2035	<u>Alternative 1 Alignment</u> Driveways Major intersection Minor intersections Interchanges	 91 34 25 0	 Unknown 42 42 0	 Unknown 39 33 10		
	<u>Alternative 2/3 Alignment</u> Driveways Major intersection Minor intersections Interchanges	 91 35 24 0	 Unknown 37 37 0		 Unknown 20 24 13	
	<u>Alternative 4 Alignment</u> Driveways Major intersection Minor intersections Interchanges	 154 28 30 0	 Unknown 38 47 0			 Unknown 35 33 15

Source: DKS Associates 2010.

[a] Fastest travel time route under Alternative 4 follows Grant Line Road, not Bradshaw Road.

a modest increase in bus service over existing levels. The Sunrise Boulevard Alignment Alternative would thus provide a benefit to transit services compared to existing conditions. This impact is considered ***less than significant.***

- Except in two areas, the Sunrise Boulevard Alignment Alternative would reduce the number of existing access points along its alignment by 1) eliminating many (but not all) existing driveways as well as connections to smaller local roadways and 2) limiting the number of new access points along the project alignment to planned arterial roadways and some new major collector roadways. The two areas where access limitations may not occur are 1) the Sheldon area, with the Sheldon High Access Roadway Option and 2) in the proposed Rio del Oro development of Rancho Cordova, which is planned as a dense mixed-use development with numerous access points along the Sunrise Boulevard Alignment Alternative alignment. If access is not limited in those areas, access rates would be significantly higher than a limited access facility.

17.2.2.2 Bradshaw Road Alignment Alternative

This alternative is the same as the proposed project, except that it would utilize existing Bradshaw Road for a portion of the alignment and would avoid a lengthy section of Grant Line Road between its intersections with Bradshaw and Douglas Roads. At the Grant Line Road/Bradshaw Road intersection, this alternative would be a thoroughfare along Bradshaw Road north to SR 16 (Jackson Highway), with access limited and consolidated where feasible. A signalized intersection spacing of ½ mile may not be feasible in this area because of existing and approved development, and therefore minimal ¼ mile spacing may be allowed for this stretch. From SR 16 (Jackson Highway), this alternative would continue as a new expressway in a predominantly easterly direction, along the southern boundary of Mather Airport, to the Sunrise Boulevard/Douglas Road intersection. The alignment would then follow Douglas Road east as a thoroughfare to Grant Line Road where it then follows Grant Line Road as an expressway. East of Grant Line Road, the alignment is the same as the proposed project. The mitigation measures identified for the project would also apply to the Bradshaw Road Alignment Alternative, as pertinent.

Aesthetics

The Bradshaw Road Alignment Alternative would result in the same visual effects as the project from I-5 to Grant Line Road at Bradshaw Road; and from Douglas Boulevard/Grant Line Road to U.S. 50. With the exception of the segment that would connect Bradshaw Road with Douglas Road, the visual character of the land uses adjacent to Bradshaw Road and Douglas Road are similar to the western landscape unit, which is defined by flat agricultural fields, row crops, and scattered residential development. However, land uses along Bradshaw and Douglas Roads are more densely developed and suburban in character than the project corridor. Large residential subdivisions are present along both roadways with commercial and retail centers at major intersections. The portion of this alternative that would connect Bradshaw Road to Douglas Road would travel through heavy industrial land uses adjacent to the Mather Air Force Base. Overall the visual quality along this alternative alignment is lower than the project corridor.

This alternative would widen Bradshaw Road and Douglas Road and construct a new roadway to connect these two major facilities, which would increase the dominance of transportation facilities within the landscape. However, because of the more developed nature of the surrounding landscape the increased dominance of the roadways would not result in a substantial change in overall visual quality.

Air Quality

For the analysis of the Bradshaw Road Alignment Alternative, construction emissions were estimated using the Sacramento Metropolitan Air Quality Management District's Road Construction Emissions Model. The alternative was assumed to be approximately 37 miles in length and require a construction area of 1,541 acres. Based on consultation with the JPA, it was assumed construction would begin in 2015 and last approximately 10 years. Construction activity would require water trucks and import and export 500 cubic yards of soil daily.

Operational emissions were based information provided by the traffic engineers. The data for the Bradshaw Road Alignment Alternative included volumes within the TASA. Emissions were evaluated using the CT-EMFAC emissions model and Sacramento County regional vehicle fleet profiles (see Chapter 4, "Air Quality," for additional discussion of the analysis methodologies).

Table 17-10 summarizes construction emissions for the Bradshaw Road Alignment Alternative within SMAQMD and EDCAPCD, while Table 17-11 summarizes mitigated construction emissions for the proposed project within SMAQMD and EDCAPCD, respectively. As indicated in Table 17-10, construction activities associated with the Bradshaw Road Alignment Alternative are anticipated to be less than the proposed project, but exceed the SMAQMD thresholds. Implementation of Mitigation Measures AQ-1 through AQ-4 will reduce emissions to less than significant (Table 17-11).

Revised Table 17-10. Summary of Unmitigated Construction Emissions for the Bradshaw Road Alignment Alternative (pounds per day)

				PM10			PM2.5		
Alternative	ROG	NO_X	CO	Total	Exhaust	Dust	Total	Exhaust	Dust
Bradshaw Road Alignment Alternative (SMAQMD)	24.24	189.57	140.92	778.53	7.93	770.60	167.34	7.05	160.28
SMAQMD Threshold	–	*85*	–	–	–	–		–	–
EDCAPCD Threshold	*82*	*82*	–	–	–	–		–	–

Revised Table 17-11. Summary of Mitigated Construction Emissions for the Bradshaw Road Alignment Alternative (pounds per day)

				PM10			PM2.5		
Alternative	ROG	NO_X	CO	Total	Exhaust	Dust	Total	Exhaust	Dust
Bradshaw Road Alignment Alternative (SMAQMD)	10.45	62.76	78.73	153.47	3.47	150.00	34.15	2.95	31.20
SMAQMD Threshold	–	*85*	–	–	–	–		–	–
EDCAPCD Threshold	*82*	*82*	–	–	–	–		–	–

Similar to the proposed project, operational emissions would increase because of increases in VMT. Impacts on air quality for this alternative would be similar to the impacts of the proposed project and significant and unavoidable.

Biological Resources

Construction of the Bradshaw Road Alignment Alternative has the potential to result in direct and indirect impacts to sensitive biological resources. The alternative has more acres of upland and wetland habitats within the assessment corridors relative to the proposed project, which is largely due to the greater overall acreage of land within this alternative's longer corridor (approximately 400 more acres). Table 17-12 below summarizes the biological resources within the Bradshaw Road Alignment Alternative.

The Bradshaw Road Alignment Alternative has the potential to affect critical habitat. Approximately 171.4 acres of critical habitat for vernal pool fairy shrimp and vernal pool tadpole shrimp was identified along the 400-foot corridor for and 131.0 acres between the 400 and 800-foot corridors. No critical habitat was identified within the corridors of the proposed project.

The Bradshaw Road Alignment Alternative affects substantially less conservation area lands relative to the proposed project: 27.4 acres within the 400-foot corridor and 43.4 between the 400 and 800-foot corridors, which are roughly 100 and 70 acres less than that of the proposed project, respectively.

Table 17-12. Summary of Land Use and Biological Resources within the Bradshaw Road Alignment Alternative

Land Cover and Biological Communities	Acreage of Resource in the 400-foot Corridor (Areas of Potential Direct Impacts)	Acreage of Resource between the 400 and 800-foot Corridor (Area of Potential Indirect Impacts)
Uplands		
Annual grassland	1,758.1	1,770.4
Blue oak woodland	1.4	13.2
Riparian woodland	22.7	30.4
Uplands Subtotal	**1,782.1**	**1,814.1**
Wetlands		
Seasonal wetland	1.5	3.3
Swale	11.6	13.2
Vernal pool	20.8	28.2
Freshwater marsh	14.1	11.5
Stream	14.6	15.7
Seasonal pond	10.8	9.7
Open water	5.0	5.9
Wetlands and Waters Subtotal	**78.4**	**87.5**
Agricultural		
Irrigated pasture	176.4	149.9
Cropland	360.2	339.8
Vineyard	0	0
Orchard	22.7	22.2
Agricultural Subtotal	**559.3**	**511.9**
Developed		
Major roads	151.5	20.8
Landscaped	8.9	14.9
Low density development	469.4	345.6
High density development	358.2	429.5
Dredge tailings	2.8	24.1
Disturbed	220.0	210.8
Aqueduct	2.3	2.7
Developed Subtotal	**1,213.2**	**1,048.4**
Total Acreage	**3,633.0**	**3,461.8**

Cultural Resources

The records search indentified areas previously surveyed for cultural resources, as well as previously recorded cultural resources sites. Approximately 43% of the Bradshaw Road Alignment Alternative has been previously surveyed for cultural resources. Previously recorded cultural resources within the alternative alignment and the 0.25 mile buffer study area include 61 historic sites and six prehistoric sites (Table 17-13). This alternative has 18 more recorded sites identified, despite a lower percentage of survey coverage than the proposed project. This alternative includes a long segment along Bradshaw Road which is highly developed and therefore presents more potential sites. Implementation of Mitigation Measures CUL-1 through CUL-4 would reduce significant impacts associated with the Bradshaw Road Alignment Alternative. Therefore, these impacts would be less than significant under the alternative.

Table 17-13. Survey Coverage

		Previously Recorded	
Alternative	Survey Coverage	Historic Sites	Prehistoric Sites
Project Corridor	58%	43	6
Bradshaw Road Alignment	43%	61	6

Energy

Under the Bradshaw Road Alignment Alternative, traffic flow and levels of service would improve, similar to the proposed project. One-time expenditures of energy for project construction would also be similar to the proposed project. However, it is not anticipated that this energy consumption would result in wasteful or excessive use of direct energy.

Geology, Soils, and Paleontological Resources

Construction of the Bradshaw Road Alignment Alternative would result in short-term soil-disturbing activities including cut and fill, grading, trenching, boring, and vegetation removal. This alternative project area is relatively flat with little potential for slope failure and surficial erosion during or after construction. There is no substantial difference between this build alternative and the proposed project with respect to geological, soil or paleontological resources/conditions. Therefore, this alternative would result in the similar significant impacts on geology, soils, and paleontological resources as the proposed project.

Hazards and Hazardous Materials

Construction of the Bradshaw Road Alignment Alternative would result in similar impacts as those for the proposed project as discussed in Chapter 9, “Hazards and Hazardous Materials.” According to the EDR database search, there are five potential hazardous waste/materials sites within the project study area: The Super Pallet Recycling, Aerojet Investments, LTD., Mather AFB, and the White Rock Road Disposal Sites (North and South) (Table 17-5).

The proposed project has one high risk site and two medium risk sites. This alternative has three high risk sites and two medium risk sites. The Super Pallet Recycling and the White Rock Road Disposal Sites (North and South) have been previously discussed. This build alternative would add two high risk sites, Mather AFB and Aerojet Investments LTD.

The Mather AFB site is a high risk site listed on the NPL and SWF/LF databases and comprises approximately 6,000 acres. The Mather AFB was established in 1918 as an air training command base for navigators to learn warfare operating systems. The base also contained and operated a landfill facility that was used to dispose of trichloroethylene (TCE) between 1958 and 1966. The Mather AFB was officially closed in 1993. According to the EDR report, there are 89 potentially contaminated sites identified by the AFB. Soil and groundwater are contaminated with TCE, perchloroethylene (PCE), volatile organic compounds (VOCs), and hydrocarbons associated with fuels. Site investigation and remediation activities are ongoing. Multiple land use restrictions have been place on the property.

The Aerojet Investments, LTD site is a high risk site listed on the RESPONSE database and comprises approximately 4,000 acres. It was used from 1956 to 1972 for the assembly and testing of rocket systems and components. The last static rocket test was conducted in 1969. Other areas in the site have been identified including landfills, propellant burn areas, and soil and groundwater contamination sites. Site investigation and remediation are ongoing. Multiple land use restrictions have been placed on the property. The presence of additional high risk sites within this alternative alignment would increase the potential for impact, compared to the proposed project. Therefore, this alternative would result in the significant impacts on hazardous materials.

Hydrology and Water Quality

The Bradshaw Road Alignment Alternative has the highest number of water crossings (32 crossings), compared to 21 crossings for the proposed project (without the causeway option), all of which must be bridged or culverted. The Bradshaw Road Alignment Alternative could affect up to 165.9 acres of wetlands and waters, similar to the potential impact on 158.4 acres of wetlands and waters with the proposed project. Because of the additional water crossings and slightly larger acreage of impacts on wetlands and waters, impacts related to hydrology and water quality would be greater than with the proposed project (not including the causeway option). Therefore, this alternative would result in the significant impacts on hydrology and water quality.

Land Use

Under the Bradshaw Road Alignment Alternative, land use impacts would be similar to those anticipated to occur under the proposed project. Similar disruptions to access and division of an established community could occur during construction. Agriculturally designated lands could be acquired under this alternative similar to the proposed project. Similar to the proposed project, this could result in a potentially significant land use impact. Additionally, similar to the proposed project, this alternative would be consistent with applicable land use plans and policies and is identified in the adopted SACOG MTP.

Noise

Construction noise and vibration impacts associated with implementation of the Bradshaw Road Alignment Alternative would be similar to those described for the Proposed Project. Because of the potential for noise to exceed applicable local noise standards and the potential for construction vibration to result in perceptible and potentially damaging vibration, construction noise impacts associated with this alternative would be significant.

A detailed analysis of changes in traffic volumes associated implementation of the Bradshaw Road Alignment Alternative has not been conducted. However, conclusions related to potential traffic noise impacts can be drawn from information developed for the Proposed Project. Current average daily traffic volumes along Bradshaw Road are in the range of about 13,500 near the southern end of the roadway to about 21,000 near Elder Creek Road (Sacramento County 2010c). These volumes correspond to traffic noise in the range of about 62 to 64 L_{dn} at 100 feet. The traffic analysis prepared for the Proposed Project indicates that implementation of the Proposed Project would increase average daily traffic volumes along Grant Line Road by about 10,000. Assuming that volumes along Bradshaw Road would increase by a similar amount under the Bradshaw Road

Alignment Alternative, it is expected that traffic noise would increase by 2 to 3 dB along Bradshaw Road. This indicates that significant traffic noise impacts could occur in areas along Bradshaw Road where baseline noise levels could be in excess of 65 L_{dn}.

The new roadway segments associated with this alternative northeast of Bradshaw Road and northeast of Sunrise Boulevard will likely result in traffic noise that exceeds 60 L_{dn} at 100 feet. However, there are no developed uses within about 500 feet of these new roads so it is not expected that existing residential uses would be exposed to traffic noise exceeded 60 L_{dn} from traffic on new roadway segments. There is however potential for traffic on the new roadway segment northeast of Bradshaw Road to result in a traffic noise increase greater than 5 dB at residences on the north side of the single family housing district of the Mather Field Special Planning. This would result in a significant traffic noise impact.

Mitigation Measures NOI-1 and NOI-2 would reduce significant construction and traffic noise impacts under the Bradshaw Road Alignment Alternative. However, for the same reasons identified for the Proposed Project, these impacts would be significant and unavoidable under the Bradshaw Road Alignment Alternative.

Population and Housing

Under the Bradshaw Road Alignment Alternative, there would be an additional segment of new road construction between Bradshaw Road and Douglas Road. A residential subdivision is located south of Mather Air Force Base, and south of the new road. As under the proposed project, there would be similar impacts related to property acquisition and relocation.

Public Services and Utilities

Under the Bradshaw Road Alignment Alternative, there would be an additional segment of new road construction between Bradshaw Road and Douglas Road. As under the proposed project, the impact on water facilities resulting from implementation of the Bradshaw Road Alignment Alternative would be less than significant. As under the proposed project, implementation of the Bradshaw Road Alignment Alternative would likely require or result in the construction of new storm water drainage facilities or expansion of existing facilities. Project-level review would determine whether or not expansion of existing or construction of new storm water drainage facilities would be required. Since this alternative involves additional construction activity when compared with the proposed project, the impacts on regional landfills may be greater under the Bradshaw Road Alignment Alternative.

Recreation

The Bradshaw Road Alignment Alternative would help to accommodate planned growth in the region. However, it would not directly result in an increase in population that would justify the need for additional recreational facilities. As shown in Table 17-14 below, this alternative is expected to result in the conversion of a total of 278.97 acres of park land in Sacramento County and is expected to result in the conversion of approximately 37.43 acres of park land in El Dorado County. In addition, as shown in Table 17-15 below, this alternative is estimated to result in the conversion of approximately 70.73 acres of conservation land. When compared with the proposed project, this alternative would result in the conversion of an additional 240.37 acres of park land (Table 15-1 in Chapter 15, "Recreation") and would result in approximately 164.89 acres less take of conservation land (Table 15-2 in Chapter 15, "Recreation") than under the proposed project. Although the primary purpose of conservation lands is preservation and not recreation, they are included in this analysis as they do provide some recreational benefits, such as wildlife viewing and nature walks. With implementation of Mitigation Measure REC-1 in Chapter 15, "Recreation," and implementation of Mitigation Measures 2b (Compensate for Impacts on Special-Status Plant Species), 4b (Compensate for the Loss of Riparian Community), 5b (Compensate for the Loss of Wetlands and Waters), and 6b (Compensate for Impacts to Special-Status Wildlife Species) from Chapter 5, "Biological Resources," the Bradshaw Road Alignment Alternative would result in a less-than-significant impact.

Table 17-14. Park Land Potentially Affected by the Bradshaw Road Alternative

Alternative	Park Name	Affected Acreage	Total Affected Acreage
Sacramento County			
Bradshaw Road Alignment	Mather Regional Park	240.37	
	Prairie City SVRA	38.60	278.97
El Dorado County			
Bradshaw Road Alignment	Creekside Greens Park	3.69	
	Unidentified Regional Park	33.74	37.43

Source: See Figure 15-1 in Chapter 15, *Recreation,* for data sources.
Note: – = not applicable/no information.

Table 17-15. Conservation Lands Potentially Affected by the Bradshaw Road Alternative

Alternative	Conservation Land Name	Affected Acreage	Total Affected Acreage
Bradshaw Road Alignment	Habitat Management Easement	5.67	
	Policy/Statute Lands	53.56	
	Teichert Easement	11.50	70.73

Source: See Figure 15-1 in Chapter 15, *Recreation,* for data sources.
Note: – = not applicable/no information.

Traffic and Transportation

The Bradshaw Road Alignment Alternative would involve the same roadway access and improvements as the proposed project on their common alignment segments, which are southwest of the Grant Line Road/Bradshaw Road intersection and northeast of the Grant Line Road/Douglas Road intersection. Between those intersections, this alternative would follow Bradshaw Road, a new expressway connecting Bradshaw Road to Sunrise Boulevard and then Douglas Road to reach Grant Line Road.

Bradshaw Road is planned to be a six-lane thoroughfare. Along Bradshaw Road, between Grant Line Road and Jackson Road, there are a large number of existing access points including about 154 existing driveways and 58 existing intersections with major and minor roadways. It would not be feasible to significantly limit access to Bradshaw Road (Table 17-9). Thus the Bradshaw Road Alignment Alternative would have about 154 existing driveways and 58 existing intersections with major and minor roadways, and the same speed limit and capacity as existing conditions along Bradshaw Road.

Between Bradshaw Road (near Elder Creek Road) and Douglas Road (near Sunrise Boulevard) the Bradshaw Road Alignment Alternative includes a new expressway with grade-separated interchanges at major cross-streets (including Jackson Road, Kiefer Boulevard, and Zinfandel Drive/Eagles Nest Road). Douglas Road would be a six lane arterial with about ten signalized intersections between Sunrise Boulevard and Grant Line Road. It would not be feasible to significantly limit access to Douglas Road, thus this level of access was assumed for this segment with and without the Bradshaw Road Alignment Alternative.

Tables 17-8 and 17-9 indicate the following about the general performance of the Bradshaw Road Alignment Alternative:

- The Bradshaw Road Alignment Alternative would cause increases in traffic volumes on 1) all of the segments along its alignment and 2) most major roadways that provide access to this alternative near where they intersect it.
- The Bradshaw Road Alignment Alternative would decrease total vehicle-hours of delay in the traffic analysis study area since it would decrease traffic on a number of arterial/collector roadway segments in the traffic analysis study area, as well as decrease traffic volumes on portions of US 50, SR 99 and I-5. However, this alternative would not decrease total vehicle-hours of delay as much as the proposed project alignment.
- The Bradshaw Road Alignment Alternative would have the highest number of driveways and require the most grade-separated interchanges of all the alignment alternatives
- The travel time along the Bradshaw Road Alignment Alternative (measured at common points for the alternative alignments) between Grant Line Road at Bradshaw Road and Grant Line Road at White Rock Road would take 3 minutes longer than the time to use Grant Line Road for this entire trip, even with no further improvements to Grant Line Road than the existing conditions for that segment. Thus through traffic would not use the Bradshaw Road Alignment Alternative as a preferred route.

17.3 Environmentally Superior Alternative

CEQA requires that an environmentally superior alternative be identified among the alternatives that are analyzed in an EIR. In general, the environmentally superior alternative is defined as that alternative with the least adverse impacts on a project area and its surrounding environment. Because roadway improvements would be less extensive than what is proposed under the project or alternatives, the No-Project Alternative is the environmentally superior alternative. However, when a No-Project Alternative is the environmentally superior alternative, CEQA requires that an EIR must also identify an environmentally superior alternative among the other alternatives (State CEQA Guidelines Section 15126.6[e][2]).

The proposed project, the Sunrise Boulevard Alignment Alternative, and the Bradshaw Road Alignment Alternative all assume the same land use projections and population estimates and would all result in similar types of transportation improvements with similar impacts, although the locations and levels of impact could vary. Each of the alternatives could reduce one or more of the specific significant impacts of the project. Of the alternatives, the Sunrise Boulevard Alignment Alternative is the environmentally superior alternative. However, none of the alternatives would avoid all the significant impacts of the proposed project, and each would have greater impacts in some areas, as shown in Table 17-16.

Table 17-16. Summary of Impacts of the Alternatives Compared to the Proposed Project

Resource Topic	No-Project Alternative	Sunrise Boulevard Alignment Alternative	Bradshaw Road Alignment Alternative
Aesthetics	<	=	>
Air Quality	<	=	=
Biological Resources	<	<	>
Cultural Resources	<	=	>
Energy	=	=	=
Geology, Soils, and Paleontological Resources	<	=	=
Hazards and Hazardous Materials	<	=	>
Hydrology and Water Quality	<	>	>
Land Use	<	=	=
Noise	=	=	=
Public Services and Utilities	<	>	>
Population and Housing	=	=	=
Recreation	=	>	=
Traffic and Transportation	<	=	=

Notes: < – impacts are less.
> – impacts are greater.
= – impacts are approximately the same.

17.4 Other CEQA Conclusions

17.4.1 Significant and Irreversible Environmental Changes

CEQA defines the significant and irreversible changes as the use of nonrenewable resources during the initial and continued phases of a project that require a large commitment of such resources that may make unlikely the future removal or nonuse of the resources. As discussed in Chapter 2, the project would result in acquisition of right of way for roadway use. Most converted land would be in the form of long, narrow bands adjacent to roadways (lane improvements or modifications), not large, contiguous parcels. The magnitude of this impact cannot be fully known until a project-level design is developed. However, the impact would represent a significant irreversible change to the environment because open space would be permanently converted.

Additionally, construction of the project will require irretrievable quantities of a variety of limited natural resources including aggregates, petrochemicals, metals, and asphalt products.

Chapter 18 (Revised)
Cumulative and Growth-Inducing Impacts

18.1 Cumulative Impacts

This chapter was updated and recirculated for public review from December 2011 to January 2012. Therefore, only changes made to this chapter since it was recirculated in December 2011 are shown with vertical lines in the margin.

The State CEQA Guidelines define a *cumulative impact* as one in which two or more individual impacts which, when considered together, are significant or which compound or increase other significant environmental impacts. The incremental impact of a project may be considerable when viewed in the context of other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor, but collectively significant projects taking place over a period of time (State CEQA Guidelines Section 15355).

18.1.1 CEQA Requirements

Cumulative impacts must consider the combined impact of past, present, and reasonably foreseeable future projects. When assessing a cumulative impact, an EIR must identify whether the project makes a *cumulatively considerable* contribution to the cumulative impact. A project's contribution may be cumulatively considerable even if the project's individual impact is considered less than significant. State CEQA Guidelines Section 15130(b) requires that discussion of cumulative impacts reflect the severity of the impacts and their likelihood of occurrence. The State CEQA Guidelines state that the cumulative impacts discussion does not need to provide as much detail as is provided in the analysis of project-only impacts and should be guided by the standards of practicality and reasonableness. Pursuant to State CEQA Guidelines Section 15130(b), cumulative impacts may be discussed in the form of either:

- a list of past, present, or reasonably foreseeable probable future projects producing related cumulative impacts; or
- a summary of projections contained in an adopted general plan or related planning document, or in a prior adopted or certified environmental document.

This Draft Program EIR uses a combination of these two methods, using projections contained in the adopted general plans and related planning documents, and in prior environmental documents that have been adopted or certified, which described or evaluated regional or area-wide conditions contributing to cumulative impacts, as well as known major reasonably foreseeable other projects.

18.1.2 Cumulative Impact Assessment

The State CEQA Guidelines encourage agencies to use a program EIR in circumstances involving implementation of a series of related projects. A program EIR is an environmental document that provides a framework for future environmental analyses. The use of a program-level EIR allows the JPA to characterize the Capital SouthEast Connector as the *project* being analyzed and to consider the broad, regional impacts of a program of actions.

The cumulative significant effects to which the project would potentially contribute are: aesthetics (planned conversion of rural to urbanized areas); air quality (criteria and GHG emissions); biological resources (listed species and habitat loss); water quality (impaired water bodies); land use (agricultural conversion) noise (operational noise impacts); and traffic (increased congestion). CEQA requires that the cumulative impact analysis consider whether project impacts would make a cumulatively considerable contribution to a cumulatively significant impact. The following discussion presents the basis for conclusions on cumulative impacts.

18.1.2.1 Aesthetics

The cumulative setting for aesthetics includes any proposed projects within the same viewshed of the project corridor, as identified in the local planning documents See Figure 11-1 for general and community plan designations of future land uses within the study area. Other planned or reasonably foreseeable roadway improvement projects in the immediate area include the US 50/Silva Valley Parkway Interchange Project and the widening of Grant Line Road in the Sheldon area. In addition, the Rancho Cordova General Plan contains future land use planning areas for 16 locations in the county, five of which border the project corridor along Grant Line Road and are planned for future mixed use residential and commercial uses:

- Grant Line South Planning Area,
- Grant Line North Planning Area,
- Suncreek Preserve Planning Area,
- East Planning Area (Grant Line East Visioning Plan), and
- Grant Line West Planning Area (Sunrise Douglas Community Plan).

The project in combination with planned and reasonably foreseeable projects could result in substantial changes to the aesthetic character and visual quality of the study area. The project would increase the dominance of transportation facilities within the predominately rural character of the study area. Other planned and reasonably foreseeable projects would introduce suburban and urban land uses that would reduce the intactness and unity of the agricultural and rural aesthetic, resulting in a cumulative impact on visual quality.

Cumulative impacts could be reduced through design measures incorporated into future development to be sensitive to the rural and agricultural aesthetic. Table 3-3 lists various general plan policies that would have the effect of reducing cumulative visual change, such as the creation of open space areas and view corridors to preserve key visual elements. The Elk Grove General Plan EIR concluded that buildout of the general plan would result in significant and unavoidable visual impacts even with implementation of the general plan policies that would reduce the impacts. The cumulative impact of the proposed project and Elk Grove General Plan buildout would therefore be significant and unavoidable. The project's contribution to the significant and unavoidable cumulative impact from physical construction of the roadway improvements and its support of increasing urbanization of the rural area would be considerable.

18.1.2.2 Air Quality

As discussed in Chapter 4, "Air Quality," the project is consistent with the regional air quality attainment plans. Project construction would exceed SMAQMD significance thresholds, but mitigation is available to reduce these impacts to a less-than-significant level. The amount of construction disturbance would be limited 15 acres per day, and the project would follow SMAQMD basic emissions control practices; therefore, the project is not considered to have a significant cumulative construction impact on PM10 or PM2.5.

NO_x Emissions

Within the SMAQMD, operational NO_x emissions in 2025 are expected to exceed the district's threshold of significance under the proposed project with all project options. Due to continuing improvements in engine technology, emissions in 2035 will be slightly lower, but still exceed the NO_X threshold for the proposed project with the Deer Creek Causeway Options 1and 2 (refer to Table 4-14). Within the EDCAPCD, emissions will not exceed the district's significant thresholds under future conditions for any project options (refer to Table 4-15). There is no feasible mitigation to reduce NO_X emissions in the SMAQMD to less-than-significant. Therefore, the project will have a significant cumulative impact on NO_X emissions.

VMT

The Synchro traffic simulation model used to evaluate the effects of the project and options on changes in congestion and associated VMT and fuel consumption in the project alignment area indicates that the change in regional fuel consumption would be less than 0.06 percent for any of the project options along the proposed project alignment. The results of the Synchro analysis, which provides a more complete analysis of the effects of congestion on network operation, indicates that the project and options may result in a smaller increase in VMT and associated emissions. While the results of the Synchro model and analysis presented in Tables 4-14 and 4-15 cannot be directly compared due to limitations inherent in the Synchro modeling analysis, it does provide a more complete snapshot of the congestion-relief benefits of the project and its effect on fuel consumption and air quality emissions, and it is likely that the actual effects of the project to VMT fall between the Synchro results and those presented in Tables 4-14 and 4-15 of Chapter 4, "Air Quality and Climate Change".

CO Emissions

CO emissions are well below the CAAQS and are not anticipated to result in hotspots. The project is therefore not considered to have a significant cumulative impact on CO concentrations or result in elevated health risks.

Health Risk

As discussed in Chapter 4, cumulative health risks are on an assessment of DPM concentrations generated by the proposed project as well as those already present in the existing ambient environment over a given time period. Table 4-17 indicates that cancer risk associated with the proposed project and Deer Creek Causeway Options would result in cancer risks in excess of the SMAQMD's screening criterion of 281 cases in one million on US 50 and SR 99 under 2035 conditions, while the proposed project would exceed the SMAQMD's criterion under existing plus project conditions on US and SR 99. Likewise, cancer risk associated with the proposed project and the Deer Creek Causeway Options would exceed the SMAQMD's criterion on Sunrise Boulevard between Zinfandel Road and US 50 under 2035 conditions, while the proposed project would exceed the SMAQMD's criterion under existing plus project conditions on Sunrise Boulevard between Zinfandel Road and US 50. Implementation of Mitigation Measure AQ-5 will likely reduce potential cancer risks to sensitive receptors adjacent to impacted roadways, but not to a less-than-significant level. Therefore, the project will have a significant cumulative impact.

GHG Emissions

The project is anticipated to have a cumulative considerable contribution to global climate change and GHG emissions. Construction-related CO_2, methane (CH_4), and nitrous oxide (N_2O) emissions produced as a result of onsite construction equipment and employee vehicle commutes are shown in Table 18-1. These emissions will be produced at different levels throughout the construction phase; their frequency and occurrence can be reduced through innovations in plans and specifications and by implementing better traffic management during construction phases. In addition, with innovations such as longer pavement lives, improved traffic management plans, and changes in materials, the GHG emissions produced during construction can be mitigated to some degree by longer intervals between maintenance and rehabilitation events. In addition, implementation of Mitigation Measures AQ-3 and AQ-4 in Chapter 4 and Mitigation Measure AQ-7 below will further reduce construction-related GHG emissions from diesel-powered equipment.

Table 18-1. Total Construction-Related CO_2e Emissions Generated by the Project (metric tons)[a]

	Diesel Equipment			Gasoline Vehicles		Total
Design Option	CO_2	CH_4	N_20	CO_2	Other	CO_2e
Proposed Project with Sheldon Reduced Access Roadway	9,921	0.57	0.25	3,941	207	14,160
Proposed Project with Deer Creek Causeway Option 1	9,921	0.57	0.25	4,180	220	14,412
Proposed Project with Deer Creek Causeway Option 2	9,921	0.57	0.25	4,189	220	14,421
Proposed Project with Sheldon High Access Roadway	9,921	0.57	0.25	3,939	207	14,158
Proposed Project with Off-Corridor Multi-Use Path	10,058	0.57	0.26	7,142	376	17,668
Proposed Project with Kammerer Bypass	9,921	0.57	0.25	4,022	212	14,245

Note: Emissions based on daily mitigated emissions presented in Tables 4-12 and 4-13 in Chapter 4.

[a] Emissions presented are for the entire 10-year construction period in both the SMAQMD and EDCAPCD.

GHG contaminant emissions tend to accumulate in the atmosphere because of their relatively long lifespan. As a result, their impact on the atmosphere is mostly independent of the point of emission; GHG contaminant emissions are more appropriately evaluated on a regional, state, or even national scale than on an individual project level. Transportation is a major source of GHG emissions, and the quantity of GHG emissions from automobiles and trucks is directly correlated with VMT and vehicle speeds. Table 18-2 presents the total CO_2 emissions that would be generated as a result of implementation of the project, relative to the no project scenario. The totals indicated in Table 18-2 represents the sum of emissions generated in the SMAQMD and EDCAPCD, which are presented in Tables 4-14 and 4-15 in Chapter 4. Table 18-2 also presents the sum of operational and amortized construction emissions.

Table 18-2. Total Operation-Related, Amortized Construction, and Total, CO_2 Emissions Relative to the No Build Alternative (metric tons per year)[a]

Design Option	Total Operational CO_2[b]	Construction CO[c]	Total CO[c]
2008 Proposed Project with Sheldon Reduced Access Roadway	15,630	283	15,913
2008 Proposed Project with Deer Creek Causeway 1	22,552	288	22,840
2025 Proposed Project with Sheldon Reduced Access Roadway	33,758	283	34,041
2025 Proposed Project with Deer Creek Causeway 1	44,074	288	44,362
2025 Proposed Project with Deer Creek Causeway 2	40,256	288	40,544
2025 Proposed Project with Sheldon High Access Roadway	32,627	283	32,910
2035 Proposed Project with Sheldon Reduced Access Roadway	36,730	283	37,013
2035 Proposed Project with Deer Creek Causeway 1	48,604	288	48,892
2035 Proposed Project with Deer Creek Causeway 2	43,726	288	44,014
2035 Proposed Project with Sheldon High Access Roadway	36,944	283	37,227

[a] Emissions are in relation to the No Project Alternative (i.e., Project Option Emissions – No Building Emissions).

[b] Represents sum of emissions generated in the SMAQMD and EDCAPCD converted to yearly emissions (Tables 4-14 and 4-15 in Chapter 4).

[c] Represents construction emissions from Table 18-1 amortized over a 50-year period.

[d] Represents sum of operational and amortized construction emissions.

As shown in Table 18-2, all design options would generate CO_2 emissions in excess of all thresholds adopted by state and federal agencies (Table 4-7 in Chapter 4). To put the design options in perspective, 2035 GHG emissions were compared to the most recent global, national, state, and local GHG inventories because estimated emissions in 2035 are higher than in 2025 (Table 18-3). Construction emissions, which will be produced during project construction activities but not operation, were amortized assuming a 50-year roadway lifetime and included in the emissions totals.

As previously indicated, the Synchro traffic simulation model analysis indicates that the change in regional fuel consumption would be less than 0.06 percent for any of the project options along the proposed project alignment. While the results of the Synchro model and analysis presented in Table 18-2 cannot be directly compared due to limitations inherent in the Synchro modeling analysis, it does provide a more complete snapshot of the congestion-relief benefits of the project and its affect on fuel consumption and air quality emissions, and it is likely that the actual effects of the project to VMT lie in the middle of the Synchro results and those presented in Table 18-2.

Table 18-3. Annual Greenhouse Gas Emissions in Sacramento County, California, United States, and Global Context (metric tons)

Proposed Project and Options	2005 Sacramento County	2006 ARB Statewide	2008 EPA National	2004 IPCC Global
Emissions Inventory	13,938,537	483,900,000	6,956,800,000	49,000,000,000
Percent of Emissions Inventory				
2035 Proposed Project with Sheldon Reduced Access Roadway	0.26555%	0.00765%	0.00053%	0.00008%
2035 Proposed Project with Deer Creek Causeway 1	0.35077%	0.01010%	0.00070%	0.00010%
2035 Proposed Project with Deer Creek Causeway 2	0.31578%	0.00910%	0.00063%	0.00009%
2035 Proposed Project with Sheldon High Access Roadway	0.26708%	0.00769%	0.00054%	0.00008%

Sources: Intergovernmental Panel on Climate Change 2007; U.S. Environmental Protection Agency 2010b; California Air Resources Board 2009; ICF Jones & Stokes 2009.

[a] Operational emissions associated Kammerer Road Bypass Option and the Off-Corridor Multi-Use Path could not be quantified because of traffic data for these options were unavailable, and therefore they are not included in this comparison.

[b] Construction emissions have been amortized over a 50-year time period.

Although GHG emissions from the design options may be small relative to total county, state, national, and global emissions, scientific consensus concludes that given the seriousness of climate change, small contributions of GHGs may be cumulatively considerable. All design options would generate a net increase in GHG emissions relative to the no-project Alternative. These emissions exceed all published significance criteria (Table 4-7 in Chapter 4). Although Mitigation Measures AQ-6 in Chapter 4 and Mitigation Measures AQ-7 and AQ-8 below will help reduce GHG emissions generated by the design options, there is no way to reliably estimate the emission reductions that will occur as a result of implementing these measures. The possibility therefore exists that the design options will contribute to global GHG emissions and global climate change.

The two most recent GHG legislation applicable to the proposed project are AB 32 and SB 375. AB 32 is designed to reduce California's GHG emissions to 1990 levels by the 2020. The AB 32 Scoping Plan contains the main strategies California will use to reduce GHG emissions. The scoping plan has a range of GHG reduction actions which include direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, market-based mechanisms such as a cap-and-trade system, and an AB 32 program implementation regulation to fund the program. SB 375 requires regional MPOs throughout California to develop a sustainable communities strategy that addresses how their regions will reach emission reductions targets established by the ARB for autos and light trucks. SACOG is the designated MPO within the project area and is currently in the process of revising its MTP 2035 to comply with SB 375. The proposed air quality element contains several policies related to GHG emissions with which the project will have to comply. These include (but are not limited to) provisions for bicycle and pedestrian access, incentives for the use of transportation alternatives, anti-idling strategies, and vehicle trip reduction.

Implementation of the project will increase GHG emissions relative to the baseline. This increase in emissions may obstruct implementation of AB 32 and SB 375. Therefore, this impact is considered significant and unavoidable. The project's contribution to global GHG emissions and global climate change is therefore considered cumulatively considerable. Implementing the following mitigation measures will reduce the impact, but not to a less-than-significant level.

Mitigation Measure AQ-7: Implement SMAQMD Best Management Practices for Reducing Construction-Related Greenhouse Gas Emissions

The JPA or local jurisdiction will implement through construction contract terms and specifications that the contractor adheres to the mitigation measure and implements~~,~~ all applicable SMAQMD best management practices for reducing construction-related GHG emissions. Documentation will be provided to the JPA or local jurisdiction on a weekly basis. The contract provisions and specifications will authorize the JPA or local jurisdiction to sanction contractors for non-compliance. The JPA or local jurisdiction will consult with SMAQMD prior to construction about the most current recommended construction best management practices and will adopt those practices. Practices include the following:

- Improve fuel efficiency from construction equipment:
  - Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to no more than 3 minutes (a 5-minute limit is required by the state airborne toxics control measure—13 CCR 2449[d][3], 2485). 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, including limiting idling time, minimizing warm-up time, performing routine maintenance, and optimizing equipment use.
  - Avoid using equipment that is larger than the job requires.
  - Use equipment with new technologies (e.g., repowered engines, electric drivetrains).
- Perform on-site material hauling with trucks equipped with on-road engines (if the air districts or ARB determine them to emit less than the off-road engines).
- Use alternative fuels for generators at construction sites, rather than gasoline or diesel (e.g., propane or solar), or use electrical power.
- Use an ARB-approved low-carbon fuel for construction equipment. (NO_x emissions from the use of low-carbon fuel must be reviewed and increases mitigated.)
- Encourage and provide carpools, shuttle vans, and transit passes for construction worker commutes.
- Reduce electricity use in the construction office by using compact fluorescent bulbs, powering off computers every day, and using the most efficient heating and cooling units available.
- Recycle or salvage non-hazardous construction and demolition debris (goal of at least 75% by weight) to avoid landfill disposal.

Mitigation Measure AQ-8: Conduct a Carbon Sequestration Feasibility Study and Cost-Benefit Analysis for Tree Planting as Greenhouse Gas Mitigation to Mitigate Greenhouse Gas Emissions to Net Zero

The JPA or local jurisdiction, in consultation with the SMAQMD and EDCAPCD, will conduct a carbon sequestration feasibility study and cost-benefit analysis for the proposed project. The objective of the study and analysis is to identify optimal species and numbers of trees to mitigate GHG emissions to the maximum extent feasible, and down to net zero, if practicable. A preliminary feasibility study for carbon offsets from tree planting in northern California was conducted for the Connector (ICF International 2011). This analysis indicated that the theoretical carbon offset potential ranges from 0.4 metric ton of carbon per acre per year (C/ac/year) to 2.0 metric tons C/ac/yr. Of the tree types broadly found in this region, the Douglas fir and hemlock-Sitka-spruce offer the largest sequestration potential. If future carbon sequestration studies conclude tree planting is appropriate mitigation from both cost and GHG reduction standpoints, the JPA or local jurisdiction will adopt and implement a sequestration plan committing the JPA or local jurisdiction to the planting and maintenance of selected evergreen species, such as Douglas fir and hemlock/Sitka-spruce for off-site plantings and hardwood maple or soft maple for on-site plantings, to sequester project-generated GHG emissions to the maximum extent feasible, and down to net zero, if practicable. The sequestration plan would identify the location (both on-site and off-site) and timing of plantings, funding mechanisms, maintenance plans, and other key aspects of the offset potential, including water resources, costs, future climate change impacts, and forest management practices and monitoring needs.

Mitigation Measure AQ-9: Future Project-level Analysis Will Consider Impacts on Ability of the Region to Comply with SB 375

Future project-level environmental analyses of any portion of Connector Project will consider the impact of the project on the ability of the region to meet the California Air Resources Board's current emissions reduction targets for the region. SACOG is currently underway with an update of their Metropolitan Transportation Plan for 2035 (MTP 2035), which will include the Sustainable Communities Strategy (SCS). The SCS combines transportation and land use elements, serving as a plan for achieving the emissions reduction target established for the region. However, nothing in an adopted sustainable communities strategy shall be interpreted as superseding the exercise of the land use authority of a local jurisdiction.

Mitigation Measure AQ-10: Encourage Local Jurisdictions to Develop Climate Action Plans for Reducing GHG Emissions

The JPA will encourage each of its member jurisdictions to adopt a Climate Action Plan, consistent with CEQA Guidelines Section 15183.5(b), to reduce existing transportation emissions, including greenhouse gases.

Mitigation Measure AQ-11: Encourage Local Jurisdictions to Develop Efficiency Metrics for Reducing GHG Emissions

The JPA will encourage each of its member jurisdictions to adopt efficiency metrics to address future transportation emissions, including greenhouse gases. These metrics will include, but are not limited to:

- Vehicle idling restrictions
- Per capita vehicle miles traveled goals

- Public transit ridership goals
- Traffic signal synchronization
- Land use/Transportation integrated planning goals
- Bicycles and Pedestrian Improvements

18.1.2.3 Biological Resources

As indicated in Chapter 11, "Land Use," SACOG has identified several areas in the Sacramento metropolitan area where significant growth is expected to occur by 2035. Along the project corridor, Rancho Cordova and the Vineyard Community are identified as having the highest potential for population, housing, and employment growth. One of the larger proposed projects is the Cordova Hills project, which is a 2,668-acre planned community on the east side of Grant Line Road and south of Douglas Road. Table 11-2 in Chapter 11 identifies characteristics of planned development in the project corridor. Planned projects would support a variety of land uses, including commercial, residential, office, mixed use, parks, and educational.

The same sensitive biological resources identified in the project area occur in these areas of proposed development. Considering the past and reasonably foreseeable projects in the region, the proposed project would contribute to significant and unavoidable cumulative impact on biological resources in the region, particularly vernal pool species. Vernal pool habitat in the project area and vicinity occur in the Mather Core Area of Southeastern Sacramento Valley Vernal Region, which is a recovery area identified in the USFWS's 2005 *Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon*. Impacts to vernal pools within the Mather Core Area could affect recovery of federally listed vernal pool species in this area. In the USACE's January 25, 2011Record of Decision for the Sunridge Properties project (SPK-2009-00511), the USACE states that any future impacts to vernal pools in the Mather Core Area must be mitigated within the core area. Considering other projects and planning efforts in the Mather Core Area (which includes the 2,668-acre Cordova Hills project) full buildout of Grant Line Road within the Mather Core Area may not be possible if the impacts to vernal pools and available credits in the Mather Core Area are not in balance at that time. However, if the SSHCP is approved by the USFWS, the cumulative impacts of the proposed project (a project covered by the SSHCP) would be reduced to a less-than-significant level assuming that the planning behind the SSHCP will balance impacts to available mitigation credits in the region and more importantly the Mather Core Area.

18.1.2.4 Energy

Operational activities associated with the proposed project are anticipated to result in an overall increase in energy consumption. However, it is not anticipated that this energy consumption would result in wasteful, inefficient, or excessive use of direct energy because implementation of the project would lead to improvements in congestion and roadway network efficiency. Because congestion and network inefficiency can be associated with the wasteful and inefficient use of energy (i.e., increased congestion and network inefficiency would "waste" energy because of more cars idling and traffic taking longer to travel through the roadway network), improvements to congestion and roadway network efficiency associated with the project are anticipated to result in more efficient use of energy resources. The project is not considered to result in a cumulatively considerable contribution to energy-related impacts.

18.1.2.5 Hydrology and Water Quality

Hydrology and water quality conditions can be altered by large roadway projects, such as by increasing the potential for localized flooding and resulting in short-term (during construction) and long-term (post-construction) water quality impacts. As indicated in Chapter 10, "Hydrology and Water Quality," several water bodies within project area could be affected within the 800-foot corridor of the project area. Many of these water bodies are listed as several as impaired according to Section 303(d) of the CWA, have water quality objectives that cannot be violated, and beneficial uses that cannot be compromised, according to the CWA.

The proposed project would likely have hydrology and water quality impacts. The primary hydrological impacts will likely be a greater potential for localized flooding from increases in storm runoff and construction in the floodplain. The primary water quality impacts will likely be associated with the construction of stream crossings (i.e., bridges, culverts), work adjacent to streambanks, and elevated roadways on existing floodplains, such as the Cosumnes River/Deer Creek floodplain.

Ultimately, however, if mitigation measures described in Chapter 10 are implemented, such as implementing water quality regulations into the design of the project, complying with dewatering provisions, implementing measures to maintain water quality after construction, conducting project-level drainage studies, designing and installing infiltration systems, avoiding restriction of flood flows, obtaining agency approval of construction with 100-year floodplains, and designing projects to pass flows in the event of levee or dam failure, the impacts will be less than significant. The project is not considered to result in a cumulatively considerable contribution to impacts on hydrology and water quality.

18.1.2.6 Land Use

Sacramento County has experienced substantial losses of farmland over the past decade. Growth in the County will contribute to regional conversion of agricultural lands, including important farmlands (prime farmland, farmland of statewide significance and farmland of local significance). As described in Chapter 11, "Land Use", the Connector project will have a significant impact on important agricultural lands in Sacramento County. If mitigation measures described in Chapter 11 are implemented, such as designing the project to avoid or minimize the direct conversion of important farmland to nonagricultural uses and protecting important farmland directly converted at a ratio of 1:1 (Mitigation Measure LU-1), the direct impacts will still remain significant unavoidable.

Because the project's direct effect of converting important farmland is considered significant and unavoidable, even with the adoption of Mitigation Measure LU-1, the project is also considered to have a cumulatively considerable contribution to impacts on agricultural lands in Sacramento County. Implementing the following mitigation measure will help reduce the cumulative impact, but not to a less-than-significant level.

Mitigation Measure LU-2: Implement General Plan Policies that Protect Agricultural lands from Conversion

The JPA or local jurisdiction will implement the applicable adopted general plan policies to minimize the conversion of important agricultural lands. Each member jurisdiction has its own policies for the protection of agricultural resources. Sacramento County's General Plan objectives, goals, and policies protect important farmlands from conversion to non-agricultural uses and encroachment and conserve agricultural resources (November 2011). The City of Elk Grove has adopted policies in its general plan that call for the conservation of agricultural uses, including the retention of agricultural productivity and the conservation of soils (City of Elk Grove General Plan, as amended 2009). The City of Rancho Cordova has adopted general plan policies, goals, and action items that protect and conserve farmland and agricultural practices, including the requirement to protect one acre of existing farmland of equal or higher quality for each acre of Prime Farmland, Unique Farmland or Farmland of Statewide Importance that would be converted to nonagricultural uses (City of Rancho Cordova 2006). The City of Folsom identifies the natural resources in the City planning area and outlines a comprehensive strategy for their preservation, protection and management in its Open Space and Conservation Element (City of Folsom 1993). El Dorado County addresses agricultural land conservation, management, and utilization of the County's agricultural and forest lands in its adopted General Plan, Agriculture and Forestry Element (July 2004).

18.1.2.7 Noise

Significant cumulative noise impacts are considered to occur when the cumulative noise generated by one or more individual projects exceeds an established noise standard. For example, if the land use compatibility noise standard for residential uses is 60 Ldn and traffic noise at a residential area along a roadway exceeds 60 Ldn, that residential area is considered to be exposed to a significant cumulative noise impact because noise exceeds an established standard and the traffic generating the noise is the result of one or more individual development projects in the area.

Under the requirements of CEQA a determination must be made as to whether a project's incremental contribution to a significant cumulative impact is cumulatively considerable. Significant cumulative noise impacts are considered to occur along the proposed project alignment and the alternative alignments where traffic noise exceeds 60 Ldn at residential uses. Because noise from construction activity is highly localized and temporary, the contribution of construction noise to these significant cumulative impacts is not considered to be cumulatively considerable.

As indicated in Table 12-4 in Chapter 12, "Noise", implementation of the proposed project is expected to increase cumulative traffic noise levels in 2035 by as much as 2 dB depending on location. The project's contribution to significant cumulative noise impacts in the area is therefore considered to be cumulatively considerable. Implementation of Mitigation Measure NOI-2 would reduce project-related increases in noise. However because it may not be feasible in all cases to reduce project-related increases to a less-than-considerable level, the project's contribution to significant cumulative noise impacts is considered to be unavoidable.

18.1.2.8 Traffic and Transportation

The transportation analysis of the proposed project under "cumulative" conditions is based on development assumptions for 2045, which are outlined in Table 16-12 in Chapter 16, and reflects buildout of all residential uses in the traffic analysis study area and growth in jobs that results in about the same number of jobs per household in the traffic analysis study area as current levels.

The assumed roadway system serving the traffic analysis study area under cumulative (2045) No Project conditions generally reflects the maximum number of lanes allowed under local general plans. Most of the roadway segments that make up the project alignment have six lanes. The Elk Grove General Plan calls for eight lanes on Kammerer Road from Lent Ranch to SR 99 and on Grant

Line Road from SR 99 to Bradshaw Road. The Sacramento County and El Dorado County General Plans call for White Rock Road to have four lanes between Scott Road (E) and Latrobe Road.

SACOG's travel demand model (SACMET) was used to forecast travel demand and provide key performance measures, based on the 2045 development and transportation system assumptions outlined above. Table 17-9 in Chapter 17 summarizes the projected 2045 daily traffic volumes on segments along each of the alternative alignments and shows the projected change in 2045 daily traffic volumes compared to the 2045 No Project condition. Table 17-10 summarizes some key transportation criteria for each of the alignment alternatives. The information in these tables was used to determine the general performance and impacts of the alignment alternatives, which are discussed below.

The assumed access along the proposed project in 2045 differs from the proposed project in 2035 as follows:

- An additional access point at Centennial Drive, which is expected to be extended to Grant Line Road after 2035.
- Additional interchanges (because of high traffic volumes by 2045) at Centennial Drive/Grant Line Road and at a roadway connection to White Rock Road between Grant Line Road and Prairie City Road.

Based on the general analysis of cumulative (2045) conditions, the impacts of the proposed project can be described as follows:

- The proposed project would cause increases in traffic volumes on 1) all of the segments along its alignment, and 2) most major roadways that provide access to the proposed project near were they intersect it. Because of higher levels of assumed development levels, the 2045 No Project traffic volumes would be higher on most major roadways in 2045 than in 2035 and 2008, and the increase in traffic volumes due to the proposed project would be greater under cumulative (2045) than the increases due to the proposed project in 2035 or 2008.
- The proposed project would decrease traffic on many non-project roadway segments in the traffic analysis study area. However, the proposed project would cause traffic increases on most of its cross streets near where they intersect the Connector, which would likely result in significant LOS impacts on some non-project roadways, similar to the impacts of the proposed project identified under future without-project (2035) conditions.
- Measures could be indentified to mitigate the LOS impacts on non-project roadway segments, but they would involve improvements beyond those planned by local jurisdictions, including some improvements that may not meet the policies of local jurisdictions because of concerns about adverse impacts on bicyclists and pedestrians. Improvements on non-project roadways would need to be implemented by local jurisdictions. Because local jurisdictions may choose not to implement them and the JPA can not ensure their implementation, this impact is considered unavoidable considerable contribution.
- The proposed project would decrease traffic on most of the freeway segments in the traffic analysis study area and would likely not cause any LOS impacts on the freeway mainline or at any ramp junctions. This contribution to freeway traffic is considered less than considerable.
- The proposed project would decrease total vehicle hours of delay in the traffic analysis study area by about 11% because it would decrease traffic on a number of arterial/collector roadway segments in the traffic analysis study area and on portions of US 50, SR 99 and I-5.

- The transit policies adopted by the JPA as part of the project would provide capital funding, beyond what would be available without the project, however, such capital funding is not assumed to increase in bus service in the study area. To the extent that the implementation of the JPA's transit policies will not decrease funding available for transit service in the future, or impact planned transit, and may increase transit service in the future, this impact is considered less than cumulatively considerable.
- Outside the Sheldon area, the proposed project would reduce the number of existing access points along its alignment by 1) eliminating many (but not all) existing driveways and connections to smaller local roadways, and 2) limiting the number of new access points along the project alignment to planned arterial roadways and some new major collector roadways. This would reduce accident rates in comparison to the existing conditions and future without-project conditions.
- In the Sheldon area, with the Sheldon High Access Roadway Option, access to all driveways and local roadways in the Sheldon area would be maintained, but nearly all would be limited to right turns. The accident/crash rates along Grant Line Road through the Sheldon area under the Sheldon High Access Roadway Option would not improve over existing conditions or the future without-project conditions, and therefore would not provide any benefit to safety. The proposed project with the Sheldon Access Roadway or Deer Creek Causeway Options would be less than half the accident rate for the future without-project conditions. Therefore, these options would substantially improve safety in the Sheldon area.

Overall, the proposed project would make a cumulatively considerable contribution to impacts related to traffic and transportation.

18.2 Growth-Inducing Impacts

The State CEQA Guidelines require that an EIR assess the growth-inducing impacts of a project, particularly the potential for a project to:

> foster economic or population growth or the construction of new housing, either directly or indirectly in the surrounding environment. Included in this are projects which would remove obstacles to population growth.

A project can have direct or indirect growth inducement potential. A project would be considered to directly induce growth if it included construction of new housing. A project would be considered to induce indirect growth if it generated a substantial number of new jobs in the region, leading to the need for more housing, services, and associated growth. A major roadway improvement project could result in indirect growth by requiring a large construction effort generating new short- or long-term jobs.

A project may also be considered growth-inducing if it removes an obstacle to growth, such as providing public services or utilities to an area where these services are not available, or opening up a new area to development through the construction of new transportation facilities in areas where access is not currently provided. Growth inducement has the potential to result in a significant impact if the growth is not consistent with or accommodated by the land use plans and policies for the area affected because induced growth would exceed planned facilities and services and construction of needed housing and services could result in indirect physical effects on the environment. In addition, simply because growth would be consistent with land use plans does not mean a project removing obstacles is not growth inducing (*City of Antioch v. City Council* [1986] 187 Cal. App. 3d 1325).

An established transportation network exists in Sacramento and El Dorado Counties that provides local and regional access. Major highways in the general project area include I-5, SR 99, and US 50, in addition to numerous arterial, collector, and neighborhood streets. Circulation within the general project area would be enhanced by the road widening, new road connections, and other improvements called for in the city and county general plans, which would provide access to planned development. Access to the project area is already provided along most of the project alignment by existing roadways. The proposed project would not create new access to areas that are not currently accessible to cars and other vehicles. In addition, the overall design concept for the proposed project is to limit access to the facility that would otherwise be allowed under the city and county general plans. These access limitations would reduce the growth-inducing effects of expanding the roadway capacity by ensuring that no access will be provided as a result of the project into areas where the proposed roadway improvements will extend into now-inaccessible areas, such as in the Deer Creek Causeway Options. However, the result of the project will be to reduce congestion and provide better transportation conditions and easier access to areas currently served by the existing roadways. To the extent that the project will increase roadway capacity, it will remove obstacles to growth. Further, this will increase growth pressure on areas near the Connector's interchanges that are not currently planned for development. For these reasons, the project is considered to have a significant and unavoidable growth inducing impact (Chapter 13, "Population and Housing", concludes that the project would have a significant unavoidable impact related to inducement of substantial population growth under "Impact POP-1").

Chapter 19
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The documents cited in this PEIR, including but not limited to the documents below, are hereby incorporated by reference in their entirety into this PEIR.

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19.2 Personal Communications

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Fugitt, Britt. DKS Associates, Sacramento, CA. August 31, 2010—Email message to Shannon Hatcher, ICF International.

Glover, Tina. Demographer, Sacramento Area Council of Governments, Sacramento, CA. October 7, 2010—population, housing, and employment projections for MTP 2035 provided through email correspondence.

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Chapter 20
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The Capital SouthEast Connector will be an integrated, multimodal regional facility that will accelerate economic development and facilitate goods movement while supporting sustainable planned growth and preserving open space, wildlife habitat, and valuable agricultural lands.