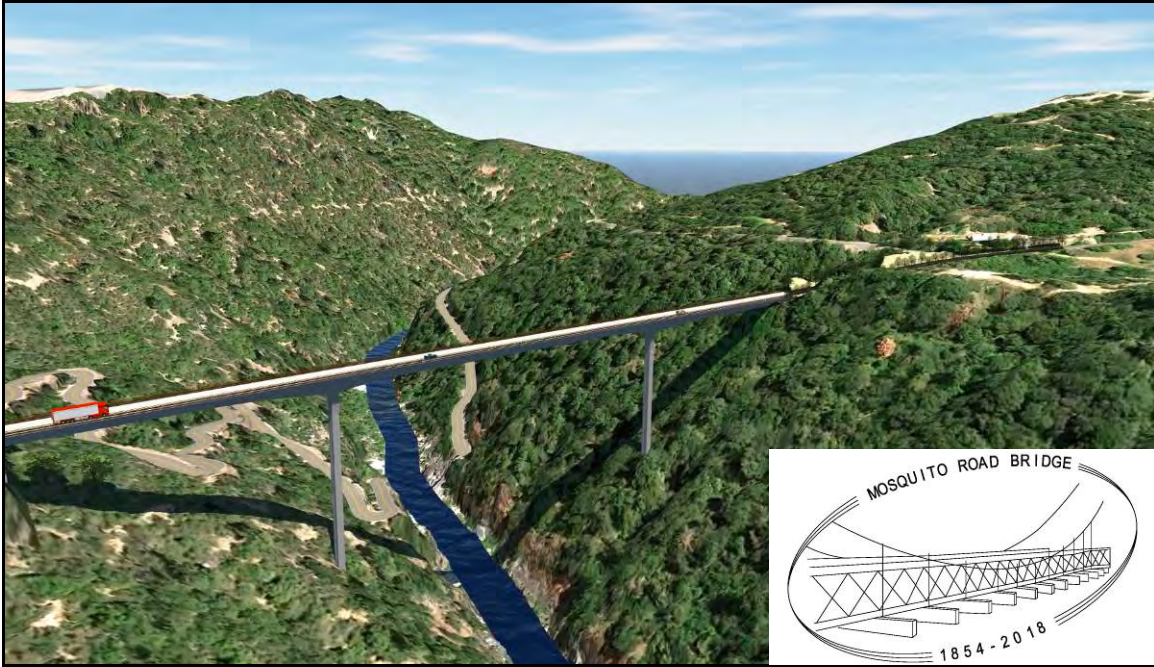


Mosquito Road Bridge Replacement Project



Draft Environmental Impact Report

SCH#: 2015062076

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Acronyms and Abbreviations

2008 Scoping Plan	2008 Climate Change Scoping Plan for AB 32
AASHTO's	American Association of State Highway and Transportation Officials'
AB	Assembly Bill
ACHP	Advisory Council on Historic Preservation
ACM	asbestos-containing materials
ADT	average daily traffic
Alquist-Priolo Act	California's Alquist-Priolo Earthquake Fault Zoning Act
APE	Area of Potential Effects
APNs	assessor parcel numbers
ARB	California Air Resources Board
Basin Plan	Water Quality Control Plan for the California Regional Water Quality Control Board Central Valley Region
BGEPA	Bald and Golden Eagle Protection Act
BLM	Bureau of Land Management
BMPs	best management practices
BP	before present
CAA	Clean Air Act
CAAQS	California ambient air quality standards
CAL FIRE	California Department of Forestry and Fire Protection
Cal/OSHA	California Division of Occupational Safety and Health
Cal-EPA	California Environmental Protection Agency
Caltrans	California Department of Transportation
CBSC	California Building Standards Code
CCAA	California Clean Air Act
CCIC	Central California Information Center
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
Central Valley RWQCB	Central Valley Regional Water Quality Control Board
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CESA	California Endangered Species Act
CFGC	California Fish and Game Code
CFR	Code of Federal Regulations
CGC	California Government Code
CH ₄	methane
CHRIS	California Historical Resources Information System
CIDH	cast-in-drill hole
CIP	cast-in-place
CNDDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNPS's	California Native Plant Society's

CO	carbon monoxide
CO ₂	carbon dioxide
CO ₂ e	carbon dioxide equivalent
County	El Dorado County Community Development Agency, Transportation Division
County General Plan	El Dorado County General Plan
CPRC	California Public Resources Code
CRHR	California Register of Historic Resources
CRPR	California Rare Plant Ranks
CUPA	Certified Uniform Program Agency
CWA	Clean Water Act
dB	decibel
dba	A-weighted decibels
dBC	C-Weighted Decibel
DOC	Department of Conservation
DPM	diesel particulate matter
Drainage Manual	County of El Dorado Drainage Manual
DTSC	California Department of Toxic Substances Control
Earthquake Fault Zones	corridors along active faults
EDCAQMD	El Dorado County Air Quality Management District
EDCTC	El Dorado County Transportation Commission
EIR	environmental impact report
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ESA	federal Endangered Species Act
F	Fahrenheit
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map
FLPMA	Federal Land Policy and Management Act
FMMP	Farmland Mapping and Monitoring Program
FR	Federal Register
GHG	greenhouse gas
Grading Ordinance	County Grading, Erosion, and Sediment Control Ordinance
H ₂ S	hydrogen sulfide
HBP	Highway Bridge Program
Hot Spots Act	Air Toxics Hot Spots Information and Assessment Act of 1987
HSWA	Hazardous and Solid Waste Amendments of 1984
HWCA	Hazardous Waste Control Act
Hz	Hertz
IBC	International Building Code
IPCC	Intergovernmental Panel on Climate Change
LBP	Lead-based paint
LCFS	Low Carbon Fuel Standard
L _{dn}	day-night sound level
L _{eq}	Equivalent Sound Level

LID	Low Impact Development
L _{max}	Maximum Sound Level
L _{min}	Minimum Sound Level
L _{min} and L _{max}	minimum and maximum sound levels
LSAA	lake and streambed alteration agreement
L _{xx}	Percentile-Exceeded Sound Level
MBTA	Migratory Bird Treaty Act
MCAB	Mountain Counties Air Basin
MLDs	most likely descendants
-MR	no mineral resources
MRZ	mineral resource zone
MTP/SCS	Metropolitan Transportation Plan/Sustainable Communities Strategy 2035
N ₂ O	nitrous oxide
NAAQS	national ambient air quality standards
NAHC	Native American Heritage Commission
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NO	nitric oxide
NO ₂	nitrogen dioxide
NOA	naturally occurring asbestos
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
OES	California Office of Emergency Services
OHP	California Office of Historic Preservation
OHWM	ordinary high-water mark
ORMP	Oak Resources Management Plan
OSHA	Occupational Safety and Health Administration
OWMP	Oak Woodland Management Plan
Ozone Plan	<i>2009 Sacramento Metropolitan Area 8-Hour Ozone Attainment and Reasonable Further Progress Plan</i>
Pb	lead
Peak Velocity or PPV	Peak Particle Velocity
PM	particulate matter
PM10	PM 10 microns in diameter or less
PM2.5	PM 2.5 microns in diameter or less
PPV	peak particle velocity
PRC	Public Resources Code
Project	South Fork American River
RCEM	Roadway Construction Emissions Model, Version 7.1.5.1
RCRA	Resource Conservation and Recovery Act of 1976
ROG	reactive organic gases

RSP	Rock slope protection
RTPs	regional transportation plans
SACOG	Sacramento Area Council of Governments
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SMAQMD	Sacramento Metropolitan Air Quality Management District
SMARA	Surface Mining and Reclamation Act of 1975
SMUD	Sacramento Municipal Utility District
SO ₂	sulfur dioxide
SO ₄	sulfates
SRAs	State Responsibility Areas
State Water Board	State Water Resources Control Board
SWANCC	Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers
SWMP	Stormwater Management Plans
SWPPP	stormwater pollution prevention plan
TACs	toxic air contaminants
Tanner Act	Toxic Air Contaminant Identification and Control Act
TMDL	total maximum daily load
TNW	tributaries of navigable waters
TWW	Treated wood waste
USACE	U.S. Army Corps of Engineers
USC	United States Code
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VdB	level in decibel units
VMT	vehicle miles traveled
WBWG	Western Bat Working Group
WDRs	waste discharge requirements
WEG	wind erodibility group
Williamson Act	California Land Conservation Act of 1965

S.1 Introduction

Pursuant to California Environmental Quality Act (CEQA) Guidelines Section 15123, this summary provides information about the environmental impact report (EIR) prepared by El Dorado County Community Development Agency, Transportation Division (County) for the proposed replacement of the Mosquito Road Bridge. It presents a description of the Project; summarizes the impacts and mitigation measures; identifies areas of known controversy, including issues raised by agencies and the public; and identifies unresolved issues.

S.2 Project Description

The County is proposing to replace the existing Mosquito Road Bridge (No. 25C0061) within the canyon of the South Fork American River (Project). The bridge is in the west-central portion of El Dorado County and within a rugged rural area of the Sierra Nevada foothills. The proposed Project site is along Mosquito Road in unincorporated El Dorado County northeast of Placerville. The existing Mosquito Road Bridge is roughly 6 miles north of U.S. Highway 50 and 2.3 miles south of the communities of Mosquito and Swansboro. The existing bridge and study area correspond to 38°46'32.95"N 120°44'54.65"W. The Project is sited on the Slate Mountain U.S. Geological Survey topographic quad.

The proposed Project would raise the bridge profile to approximately 400 feet over the river on the most direct alignment across the river. The new main bridge over the South Fork American River would be a multi-span, likely cast-in-place prestressed concrete box-girder, concrete arch, or network arch type bridge with a maximum span of approximately 650 feet. Depending on the final engineered profile, a minor bridge may be constructed over a small ravine leading to the main bridge over the river. This minor bridge would be approximately 120 feet long and would likely be a single-span, cast-in-place prestressed concrete box-girder, or precast I-girder type bridge. A large arch culvert with concrete headwalls may be constructed instead of the minor bridge. The clear-span design of either the minor bridge or the large arch culvert would be above the ordinary high-water mark (OHWM) of the small ravine.

The proposed Project would provide a reliable river crossing with a fully accessible replacement bridge that is consistent with the roadway classification and regional transportation needs. In accomplishing this, the proposed Project would eliminate substandard roadway approaches that currently restrict vehicle access to the bridge—the one hairpin on the Placerville side of the canyon and the four hairpins on the Mosquito/Swansboro side of the canyon that have been the subject of one fatality. The Project involves an approximately 2,000-foot realigned roadway. The departure from the existing roadway on the south involves approximately 575 feet of roadway approach to the nearly 1,200-foot-long bridge, then a 300-foot northerly roadway approach where the alignment converges back to the existing roadway.

S.3 Areas of Known Controversy

State CEQA Guidelines Section 15123(b) requires that a summary section include a description of areas of controversy known to the lead agency, including issues raised by agencies and the public; and issues to be resolved, including the choice among alternatives and whether or how to mitigate the significant impacts. Known areas of controversy include the availability of evacuation routes and emergency vehicle access, a bridge fully accessible and traversable by all vehicle types, river access, the potential for increased growth in the Swansboro/Mosquito area, and the alignment of the replacement bridge within the South Fork American River canyon.

S.4 Environmental Impact Report Process and Public Review

The County distributed a notice of preparation (NOP) of a Draft EIR for the proposed Project on June 24, 2015 (Appendix A). The NOP was distributed for a 45-day comment period that ended on July 26, 2015. During that time, a public meeting was held to gather public input on the scope of the EIR presented in the NOP. The public meeting was on July 15, 2015, in Mosquito/Swansboro, California. Comments about the NOP were considered in the preparation of the EIR, and are included in Appendix A.

The County encourages public review of this EIR. This Draft EIR is being circulated for a 30-day public review period. During this time, written comments may be submitted to the following staff person for consideration in the Final EIR.

El Dorado County Community Development Agency, Transportation Division
2850 Fairlane Court
Placerville, CA 95667
Attn: Janet Postlewait
Email: janet.postlewait@edcgov.us

Following the close of the public comment period, the County will prepare a Final EIR that contains this Draft EIR plus any technical clarifications and responses to significant environmental points raised in the public review and resource agency consultations. The Draft and Final EIR will be considered by the El Dorado County Board of Supervisors and, subsequently, a decision will be made to approve or deny the proposed Project.

S.5 Project Impacts and Mitigation Measures

The potential significant environmental impacts that would result from implementation of the proposed Project and the proposed mitigation measures are summarized in Table S-1 (at end of this chapter). The effects of the Project that, when compared to the significance criteria, would result in no impact or would result in a less-than-significant impact are not included in the table but are discussed in Chapter 3, *Impact Analysis*.

S.6 Other CEQA-Related Impact Conclusions

S.6.1 Cumulative Impacts

Section 15130 of the State CEQA Guidelines requires that an EIR consider a project's contribution to any significant cumulative impacts. Cumulative impacts are the incremental effects of a proposed project added to the impacts of other closely related past, present, and reasonably foreseeable future projects, which, together, are cumulatively considerable. The purpose of the cumulative impact analysis is to assess the project's contribution in the context of the larger, cumulative impact.

All resource areas were analyzed for cumulative impacts. The proposed Project would not contribute to a cumulative impact in the Project region for the following resource areas.

- Aesthetics
- Air quality
- Cultural resources
- Geology, soils, minerals, and paleontological resources
- Greenhouse gas emissions
- Hazards and hazardous materials
- Hydrology, water quality, and water resources
- Land use planning
- Noise and vibration
- Public services and utilities
- Recreation
- Traffic and circulation

The proposed Project's contribution to cumulative impacts is expected to be less than cumulatively considerable for the following resource areas within the Project region (and therefore cumulative impacts would be less than significant).

- Agricultural resources
- Biological resources

The assessment of the Project's contribution to cumulative impacts is provided in Chapter 5, *Other CEQA Considerations*.

S.6.2 Growth Inducement and Growth-Related Impacts

Section 15126.2 of the State CEQA Guidelines provides guidance for analyzing the growth-inducing impacts of a project. The growth inducement analysis must discuss ways in which a proposed project could foster economic or population growth or the construction of additional housing, either directly or indirectly, in the surrounding environment. Projects that would remove obstacles to population growth could lead to increased demand for existing community services. Growth in an area is not necessarily considered beneficial, detrimental, or of little significance to the environment.

However, the secondary impacts associated with growth (e.g., air quality impacts from new construction) can be significant.

This Draft EIR concludes that the Project would not induce growth. Growth inducement and growth-related impacts are discussed in further detail in Chapter 5, *Other CEQA Considerations*.

S.6.3 Significant Irreversible Environmental Changes

The State CEQA Guidelines Section 15126.2 requires the evaluation and discussion in EIRs of irreversible changes that would be caused by the proposed Project. Examples of such changes include use of nonrenewable resources, irreversible damage that may result from accidents associated with a project, or irretrievable commitments of resources. This EIR analyzes the extent to which the proposed Project would commit nonrenewable resources to uses that future generations will likely be unable to reverse. Implementation of the proposed Project would result in the short-term commitment of nonrenewable energy resources and natural resources, including sand and gravel, asphalt, and other resources to construct the Project, along with permanent habitat conversion, as discussed in this Draft EIR. The Project's significant impacts are discussed in detail in Chapter 3, *Impact Analysis*, and its significant irreversible environmental changes are discussed in Chapter 5, *Other CEQA Considerations*.

S.7 Project Alternatives

The Draft EIR must examine a reasonable range of alternatives to the Project that could feasibly attain most of the Project objectives and avoid or substantially lessen any of the Project's significant environmental impacts (State CEQA Guidelines 15126 [f]). As required by Section 15126.6 of the State CEQA Guidelines, the range of alternatives must always include the No-Project Alternative. The purpose of describing and analyzing a No-Project Alternative is to allow decision-makers to compare the impacts of approving the proposed Project with the impacts of not approving the proposed Project.

The following alternatives to the Project are examined in this EIR.

- No-Project Alternative
- Mid-level Alternative
- Low-level Alternative

The impacts of these alternatives are discussed in Chapter 4, *Alternatives Analysis*.

Table S-1. Summary of Significant Impacts and Mitigation Measures

Resource Topic	Significance Criteria and Significant Impact Summary	Mitigation Measures	Significance after Mitigation
Biological Resources			
	<p>Impact BIO-1: Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations or by CDFW or USFWS</p> <ul style="list-style-type: none"> • Potential for construction activities to result in the mortality or disturbance of foothill yellow-legged frog • Potential for construction activities to result in the mortality or disturbance of Blainville’s horned lizard • Potential for construction activities to result in the mortality or disturbance of nesting bald eagles • Potential for construction activities to result in the mortality or disturbance of nesting California spotted owls • Potential for construction activities to result in the loss of willow flycatcher foraging habitat • Potential for construction activities to result in the mortality or disturbance of nesting migratory birds • Potential for construction activities to result in the mortality or disturbance of special-status bats and their habitat 	<p>Mitigation Measure BIO-1: Install Construction Barrier Fencing around the Construction Area to Protect Sensitive Biological Resources to Be Avoided</p> <p>Mitigation Measure BIO-2: Conduct Environmental Awareness Training for Construction and Mitigation Planting Area Personnel</p> <p>Mitigation Measure BIO-3: Retain a Qualified Biologist to Conduct Periodic Monitoring during Construction</p> <p>Mitigation Measure BIO-4: Protect Water Quality and Prevent Erosion and Sedimentation in Wetlands and Drainages</p> <p>Mitigation Measure BIO-5: Conduct Preconstruction Surveys for Blainville’s Horned Lizard and Monitor Initial Ground Disturbance Work in Staging Areas</p> <p>Mitigation Measure BIO-6: Avoid and Minimize Potential Disturbance of Woody Vegetation</p> <p>Mitigation Measure BIO-7: Compensate for Temporary and Permanent Impacts on Interior Live Oak Woodland</p> <p>Mitigation Measure BIO-8: Remove Vegetation during the Non-Breeding Season and Conduct Preconstruction Surveys for Nesting Migratory Birds</p> <p>Mitigation Measure BIO-9: Conduct Preconstruction Survey for Mud Nests on the Bridge and Implement Protective</p>	<p>Less than significant</p>

Resource Topic	Significance Criteria and Significant Impact Summary	Mitigation Measures	Significance after Mitigation
		Measures for Bridge-Nesting Birds Mitigation Measure BIO-10: Identify Suitable Roosting Habitat for Bats and Implement Avoidance and Protective Measures	
	Impact BIO-2: Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by CDFW or USFWS <ul style="list-style-type: none"> • Permanent and temporary impacts on interior live oak woodland • Permanent and temporary impacts on willow thicket wetland 	Mitigation Measure BIO-1: Install Construction Barrier Fencing around the Construction Area to Protect Sensitive Biological Resources to Be Avoided Mitigation Measure BIO-2: Conduct Environmental Awareness Training for Construction and Mitigation Planting Area Personnel Mitigation Measure BIO-3: Retain a Qualified Biologist to Conduct Periodic Monitoring during Construction Mitigation Measure BIO-4: Protect Water Quality and Prevent Erosion and Sedimentation in Wetlands and Drainages Mitigation Measure BIO-6: Avoid and Minimize Potential Disturbance of Woody Vegetation Mitigation Measure BIO-7: Compensate for Temporary and Permanent Impacts on Interior Live Oak Woodland Mitigation Measure BIO-11: Compensate for Permanent Impacts on Willow Thicket Wetland	Less than significant

Resource Topic	Significance Criteria and Significant Impact Summary	Mitigation Measures	Significance after Mitigation
	<p>Impact BIO-3: Have a substantial adverse effect on federally protected wetlands, as defined by Section 404 of the CWA (including, but not limited to, marshes, vernal pools, coastal wetlands, etc.), through direct removal, filling, hydrological interruption, or other means</p> <ul style="list-style-type: none"> • Potential temporary and indirect effects on intermittent stream 	<p>Mitigation Measure BIO-1: Install Construction Barrier Fencing around the Construction Area to Protect Sensitive Biological Resources to Be Avoided</p> <p>Mitigation Measure BIO-2: Conduct Environmental Awareness Training for Construction and Mitigation Planting Area Personnel</p> <p>Mitigation Measure BIO-3: Retain a Qualified Biologist to Conduct Periodic Monitoring during Construction</p> <p>Mitigation Measure BIO-4: Protect Water Quality and Prevent Erosion and Sedimentation in Wetlands and Drainages</p> <p>Mitigation Measure BIO-6: Avoid and Minimize Potential Disturbance of Woody Vegetation</p> <p>Mitigation Measure BIO-12: Restore Temporary Impact Area on Intermittent Stream</p>	<p>Less than significant</p>
	<p>Impact BIO-7: Potential for construction activities to introduce or spread invasive plant species</p> <ul style="list-style-type: none"> • Potential to create additional disturbed areas for a temporary period and to introduce and spread invasive plant species to uninfected areas within and adjacent to the Project area 	<p>Mitigation Measure BIO-1: Install Construction Barrier Fencing around the Construction Area to Protect Sensitive Biological Resources to Be Avoided</p> <p>Mitigation Measure BIO-2: Conduct Environmental Awareness Training for Construction and Mitigation Planting Area Personnel</p> <p>Mitigation Measure BIO-3: Retain a Qualified Biologist to Conduct Periodic Monitoring during Construction</p> <p>Mitigation Measure BIO-12: Avoid the Introduction and Spread of Invasive Plants</p>	<p>Less than significant</p>

Resource Topic	Significance Criteria and Significant Impact Summary	Mitigation Measures	Significance after Mitigation
Geology, Soils, Minerals, and Paleontological Resources			
	<p>Impact GEO-3: Location on a geologic unit or soil that is unstable or that would become unstable as a result of the project and potentially result in an onsite or offsite landslide or subsidence</p> <ul style="list-style-type: none"> • Project excavation, grading, and changes in the routing of overland and subsurface flow may reactivate existing failures and initiate failures where none do not presently exist. 	<p>Mitigation Measure GEO-1: Design and Implement Slope Stabilization Measures</p>	<p>Less than significant</p>
Hazards and Hazardous Materials			
	<p>Impact HAZ-8: Exposure of people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands</p> <ul style="list-style-type: none"> • Project construction would involve the use of heavy equipment, welding, and other activities that have potential to ignite fires. 	<p>Mitigation Measure HAZ-1: Implement a fire protection plan</p>	<p>Less than significant</p>
Noise and Vibration			
	<p>Impact NOI-4: Potential to result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project</p> <ul style="list-style-type: none"> • Construction equipment noise would increase ambient noise levels at residences located near the southern terminus of the Project, and would potentially result in a substantial temporary or periodic increase in ambient noise levels. 	<p>Mitigation Measure NOI-1: The construction contractor shall employ noise-reducing construction practices to reduce construction noise.</p>	<p>Less than significant</p>

1.1 Introduction

El Dorado County Community Development Agency, Transportation Division (County) is proposing to replace the existing Mosquito Road Bridge (No. 25C0061) within the canyon of the South Fork American River (Project). The bridge is in the west-central portion of the county and within a rugged rural area of the Sierra Nevada foothills. The proposed Project site is along Mosquito Road in unincorporated El Dorado County northeast of Placerville. The existing Mosquito Road Bridge is roughly 6 miles north of U.S. Highway 50 and 2.3 miles south of the communities of Mosquito and Swansboro. The existing bridge and study area correspond to 38°46'32.95"N 120°44'54.65"W. The Project is sited on the Slate Mountain USGS topographic quad.

1.2 Purpose of this Environmental Impact Report

The Project is being funded by the Federal Highway Bridge Program (HBP) and therefore requires compliance with both the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA). The lead agency for NEPA is the California Department of Transportation (Caltrans) as assigned by the Federal Highway Administration (FHWA). The CEQA lead agency is the County.

This Draft environmental impact report (EIR) (State Clearinghouse No. 2015062076) has been prepared according to CEQA (California Public Resources Code [PRC] § 21000 et seq.) and the State CEQA Guidelines (California Code of Regulations [CCR], Title 14, Chapter 3) to evaluate the potential environmental impacts associated with implementing the proposed Project.

CEQA requires public agencies to consider the potential adverse environmental impacts of projects under their consideration. These adverse environmental impacts include both direct impacts and reasonably foreseeable indirect impacts. A discretionary project that would have a significant adverse impact on the environment cannot be approved without the preparation of an EIR. The proposed Project, therefore, requires an EIR.

According to Section 15002 of the State CEQA Guidelines, the basic purposes of CEQA include the following.

- Inform government decision makers and the public about the potential significant environmental effects of proposed activities
- Identify ways that environmental damage can be avoided or significantly reduced
- Prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the governing agency finds the changes to be feasible
- Disclose to the public the reasons why a governmental agency approved the project in the manner the agency chose if significant environmental effects are involved

CEQA establishes a process for analyzing a project's potential environmental impacts. It is not a permit and does not regulate the project. CEQA also does not require that a proposed project be approved or denied. CEQA's purposes are to ensure that public agencies make a good-faith effort at disclosing the potential environmental impacts of projects to decision makers, the public, and other agencies, and implement actions that will reduce or avoid potential significant impacts (e.g., mitigation measures).

The County Board of Supervisors will review the Draft EIR to understand the Project's impacts before taking action. They will also consider other information and testimony that will arise during deliberations on the Project before making their decision.

1.3 Notice of Preparation and Scope of the Environmental Impact Report

A Notice of Preparation (NOP) of an EIR was prepared for the proposed Project and published for a 30-day public review and comment period beginning June 26, 2015 (Appendix A). The County held a public scoping meeting on July 15, 2015, at the Mosquito Fire Protection District Station 75, 8801 Rock Creek Road, Placerville from 6:30 to 7:30 p.m. The scoping meeting included a presentation by County staff and consultants and was followed by a question and answer period. Comment cards were handed out to facilitate the receipt of written comments regarding the Project and the EIR.

Approximately 43 individuals, including both public agency representatives and members of the general public, provided written or verbal comments on the NOP. These comments were considered in preparing this Draft EIR and are included in Appendix A. After review of all relevant comments received during the NOP comment period on environmental issues, the County determined that the following resource areas would be reviewed for potential environmental impacts.

- Aesthetics
- Air Quality
- Biological Resources
- Cultural Resources
- Geology, Soils, Minerals, and Paleontological Resources
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology, Water Quality, and Water Resources
- Land Use Planning and Agricultural Resources
- Noise and Vibration
- Public Services and Utilities
- Recreation
- Traffic and Circulation
- Growth

1.4 Terminology Used to Describe Impacts

To assist the reader in understanding this EIR, terms used are defined as follows.

- *Project* means the whole of an action that has the potential for resulting in a physical change in the environment, directly or ultimately.
- *Environment* means the physical conditions that exist in the area and would be affected by a proposed project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historical or aesthetic significance. The area involved is the area in which significant direct or indirect impacts would occur because of the project. The environment includes both natural and human-made conditions.
- *Impacts* analyzed under CEQA must be related to a physical change. There are two types of possible impacts.
 - *Direct* or primary impacts that are caused by the proposed project and occur at the same time and place.
 - *Indirect* or secondary impacts that are caused by the proposed project and are later in time or farther removed in distance but still reasonably foreseeable, including growth-inducing impacts and other impacts related to induced changes in the pattern of land use, population density, or growth rate, and related impact on air and water and other natural systems, including ecosystems.
- *Significant impact on the environment* means a substantial, or potentially substantial, adverse change in any of the physical conditions in the area affected by the project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance. An economic or social change by itself is not considered a significant impact on the environment. A social or economic change related to a physical change may be considered in determining whether the physical change is significant.
- *Mitigation* can include any or all of the following.
 - Avoiding the impact altogether by not taking a certain action or parts of an action.
 - Minimizing impacts by limiting the degree or magnitude of the action and its implementation.
 - Rectifying the impact by repairing, rehabilitating, or restoring the affected environment.
 - Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.
 - Compensating for the impact by replacing or providing substitute resources or environments.
- *Cumulative impacts* are two or more individual impacts that, when considered together, are considerable or that compound or increase other environmental impacts. The individual impacts may be changes resulting from a single project or separate projects. The cumulative impact from several projects is the change in the environment that results from the incremental impact of the project when added to 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.

This EIR uses a variety of terms to describe the level of significance of adverse impacts. These terms are defined as follows.

- *Less-than-significant impact*: an impact that is adverse but does not exceed the defined thresholds of significance. Less-than-significant impacts do not require mitigation.
- *Potentially significant impact*: an environmental effect that may cause a substantial adverse change in the environment; however, additional information is needed regarding the extent of the impact to make the determination of significance. For CEQA purposes, a potentially significant impact is treated as if it were a significant impact.
- *Significant impact*: an impact that exceeds the defined thresholds of significance and would or could cause a substantial adverse change in the environment. Mitigation measures are recommended to eliminate the impact or reduce it to a less-than-significant level.
- *Significant and unavoidable impact*: an impact that exceeds the defined thresholds of significance and cannot be eliminated or reduced to a less-than-significant level through the implementation of mitigation measures.

1.5 Organization of the Environmental Impact Report

The EIR is organized in the following chapters.

- *Executive Summary* presents a brief summary of the Project; summarizes the impacts and mitigation measures; identifies areas of known controversy, including issues raised by agencies and the public; and identifies unresolved issues. The Executive Summary also summarizes the proposed Project's growth-inducing impacts, cumulative impacts, significant and unavoidable impacts, and significant irreversible impacts.
- Chapter 1, *Introduction*, explains the purpose of this EIR, defines terms used in the analysis, and discusses the environmental review process.
- Chapter 2, *Project Description*, describes the proposed Project, including the Project objectives, the proposed bridge and roadway design, methodologies for construction, and required project approvals.
- Chapter 3, *Impact Analysis*, presents the analysis of potential short-term, long-term, and cumulative impacts of the proposed Project for each environmental topic (e.g., aesthetics, air quality, noise). Each section is organized according to the following framework.
 - Existing Conditions
 - Regulatory Setting
 - Environmental Setting
 - Environmental Impacts
 - Methods of Analysis
 - Thresholds of Significance
 - Impacts and Mitigation Measures

- Chapter 4, *Alternatives*, presents alternatives to the proposed Project. As allowed by CEQA, the impacts of these alternatives are evaluated at a more general and comparative level than the analyses contained in Chapter 3. Chapter 4 also presents alternatives considered but rejected and not analyzed further.
- Chapter 5, *Other CEQA Considerations*, presents the analysis of the proposed Project's growth-inducing impacts, a summary of cumulative impacts, and the identification of significant and irreversible, as well as significant and unavoidable, environmental changes.
- Chapter 6, *List of Preparers*, lists the EIR authors, the technical specialists and members of the production team, and other key individuals who assisted in the preparation and review of this EIR.
- Technical appendices with supporting data and information are presented at the end of this EIR. **[[County, do you want the environmental technical studies included as an appendix?]]**

1.6 Environmental Review Process

1.6.1 Draft Environmental Impact Report Public Review and Opportunity for Public Comment

Reviewers of a Draft EIR should focus on the sufficiency of the document in identifying and analyzing the possible impacts on the environment and ways in which the significant effects of the project might be avoided or mitigated. Comments are most helpful when they suggest additional specific alternatives or mitigation measures that would provide better ways to avoid or mitigate significant environmental effects.

This Draft EIR is available for review and comment by the public, responsible agencies, organizations, and other interested parties for a 45-day period. Comments must be received either electronically or physically by 5 p.m. on the last day of the comment period. All comments or questions about the Draft EIR should be addressed to:

El Dorado County Community Development Agency, Transportation Division
2850 Fairlane Court
Placerville, CA 95667
Attn: Janet Postlewait
Email: janet.postlewait@edcgov.us

The County will conduct a public meeting to present the conclusions of the Draft EIR and solicit comments on the document. The meeting will also provide agencies and the public with opportunities to clarify any questions or concerns about the Draft EIR. Public meeting information will be posted on the El Dorado County website at <http://www.edcgov.us/MosquitoBridge/>.

1.6.2 Final Environmental Impact Report

After the close of the public review period for the Draft EIR, the County will prepare the Final EIR. The Final EIR will consist of the Draft EIR and the Final EIR and will include the comments received during the formal review period of the Draft EIR; responses to the comments received that relate to environmental issues; and any revisions made to the Draft EIR in response to the comments in

errata format. The Final EIR will also contain copies of the comments received during the formal review period.

The Final EIR and accompanying Draft EIR will be available to the County Board of Supervisors for consideration during their decision-making process to approve or deny the Project. The County will hold a public hearing during a noticed Board of Supervisors meeting before certifying the Final EIR, during which the public and agencies can provide additional comments.

1.7 Intended Uses of the Environmental Impact Report

This Draft EIR examines the potential impacts of the proposed Project. The Final EIR will be considered by the County Board of Supervisors prior to taking their final action on the Project. The agencies expected to use the Final EIR in the future include those listed below.

- Central Valley Regional Water Quality Control Board (Central Valley RWQCB).
- California Department of Fish and Wildlife (CDFW).

Federal agencies may use this EIR as reference for permitting purposes. These agencies may include the U.S. Army Corps of Engineers (USACE) and U.S. Fish and Wildlife Service (USFWS), among others.

2.1 Background

Mosquito Road is a rural narrow roadway that meanders through mountainous terrain and switchbacks in the steep and deep South Fork American River canyon. The road first served as a wagon trail in the 1800s. In 1859, El Dorado County Board of Supervisors commissioned a road to be built from Placerville to Mosquito Village. As time progressed, the trail was converted to a vehicular roadway and eventually paved with asphalt. The nature of the steep mountain slopes prohibited the development of shoulders when the trail was converted to roadway. The narrow segment of roadway within the canyon has a width less than the current standard of 24-foot two-way travel way, and is reduced to a single lane near the bridge on both roadway approaches. The steep canyon side slopes require vehicular guardrail on much of the roadway within the canyon.

The Mosquito Road “Swinging Bridge” was built in 1867. In 1939, the bridge was largely reconstructed, maintaining the 1867 foundations. In current times, the bridge requires extensive maintenance, which results in up to a 1-month road closure each summer. The existing span across the river is a one-lane, 9-foot wide, limited-capacity timber suspension bridge. The tops of existing suspension cable towers are approximately 200 feet apart, while the span itself is 140 feet long. The two main cable towers consist of reinforced concrete supported on exposed rock, and are topped with low-level steel frames propping up the suspension cables. The deck system and railing all consist of timber. Those elements are supported on timber stringers that are attached at each end to vertical steel rods hanging from the main suspension cables. The existing bridge is posted to limit vehicle loads to 5 tons. Sharp, nearly 90-degree angled turns onto the bridge prohibit access by emergency vehicles and other medium to large size vehicles that are designated to use regional facilities such as Mosquito Road. These extremely tight turns bring traffic to a crawl when entering the bridge, and the speeds across the bridge are generally less than 10 mph due to the bridge’s narrow width.

2.2 Project Location and Existing Conditions

The Project is in the west-central portion of the county and within a rugged rural area of the Sierra Nevada foothills. The proposed Project site is along Mosquito Road in unincorporated El Dorado County northeast of Placerville. The existing Mosquito Road Bridge is within the canyon of the South Fork American River roughly 6 miles north of U.S. Highway 50 and 2.3 miles south of the communities of Mosquito and Swansboro. The existing bridge corresponds to 38°46'32.95"N 120°44'54.65"W (Figure 2-1). The Project is sited on the Slate Mountain USGS topographic quad.

Land uses surrounding the Project site include rural and open space. The area around the Project site is densely vegetated. Very few sensitive receptors (e.g., residential land uses) are located within the immediate vicinity of the Project site. Land adjacent to Mosquito Road is zoned Residential Agriculture 20-acre or Unclassified, Timberland Preserve Zone with a land use designation of Natural Resources 1 dwelling unit/40 acre.

The general topography of the study area is characterized by moderate slopes changing to very steep slopes in the canyon area. The steep nature of the canyon faces can be expressed as a 450-foot drop in a horizontal distance of 750 feet. Elevations range from approximately 1,280 feet above sea level at river level to approximately 1,730 feet at the proposed Project's tie-in locations. The existing bridge deck elevation is approximately 1,346 feet above sea level.

Mosquito Road is classified within Caltrans' Local Highway Bridge Program as a Local Rural roadway and therefore the bridge is categorized as an "off-system" bridge (e.g., not on a state highway). This road is classified within the County roadway system as a Regional Road. Mosquito Road is one of two ingress/egress roadways for the communities of Mosquito and Swansboro and is thus a significant route. The bridge has a sufficiency rating of 12.5 with a status of structurally deficient. The sufficiency rating is a measure of the bridge's ability to remain in service and is based on a scale of 0 to 100. Structurally, the bridge is rated near the bottom of the list of all bridges in California. Although the bridge was extensively repaired in 1985, 1990, and recently in 2011, it is still considered structurally deficient. Bridge repairs conducted in July 2015 required a detour of as much as 20 miles.

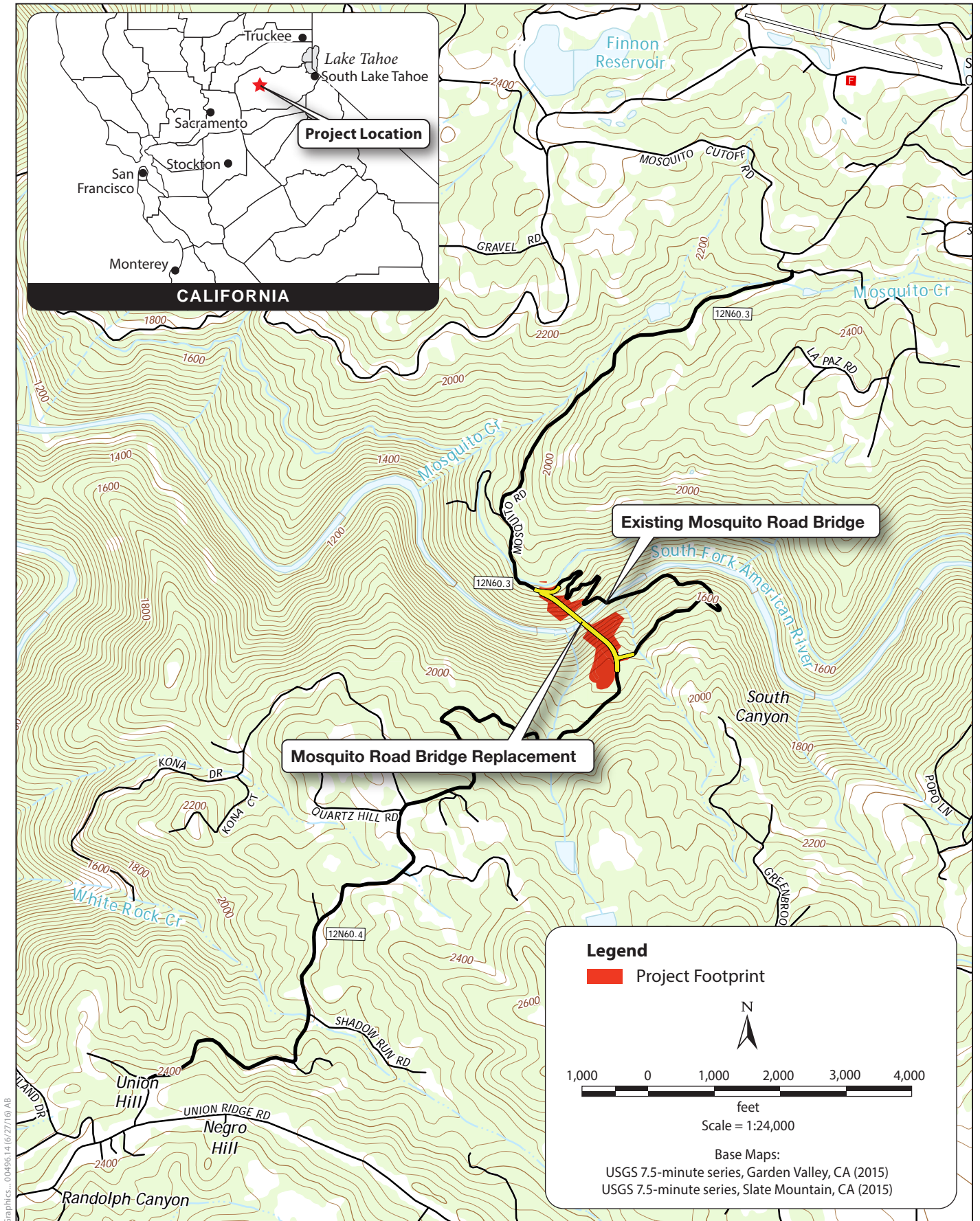
Mosquito Road is the primary access roadway to the communities of Mosquito and Swansboro, serving an average daily traffic (ADT) volume in 2015 of approximately 1,256 vehicles. The only other access roadway is Rock Creek Road, with an ADT of approximately 279 vehicles. Mosquito Road is a very restricted access roadway through the canyon. It has substandard roadway approaches to the bridge, including five tight hairpin turns—one on the south canyon face (Placerville side), and four on the north canyon face (Mosquito/Swansboro side). These hairpins and the sharp, nearly 90-degree turns onto the narrow single-lane bridge restrict bridge access to only small vehicles; larger vehicles, such as those of first responders, are obstructed. Emergency and commercial vehicles and trucks are physically unable to access the bridge. While Mosquito Road provides direct access to Placerville, Rock Creek Road provides a longer route via SR 193 and SR 49. Rock Creek Road can better accommodate varied types of vehicles, including first responders, but under high demands, such as during the 2014 King Fire, the windy narrow roadway with sharp turns is overtaken and traffic flow and the required widths and geometrics for safe passage breaks down.

2.3 Project Purpose and Objective

Mosquito Road Bridge is structurally deficient and functionally obsolete and roadway approaches to the bridge are substandard. Therefore, the primary purpose of the Project is to replace the Mosquito Road Bridge over the South fork of the American River with a functional bridge that meets current design standards. The County has identified the following two objectives that include the underlying purpose for the Project.

Objective 1. Replace the structurally deficient and functionally obsolete bridge and reconstruct the substandard roadway approaches consistent with good design practices, and; provide a safer and more reliable transportation facility that accommodates all modes of travel in keeping with the corridor's functional classification and satisfies the needs of the regional transportation system. This objective includes the following elements:

1. Replace a structurally deficient and functionally obsolete Mosquito Bridge
2. Reconstruct the substandard roadway approaches



**Figure 2-1
Location Map**

3. Provide safer and more reliable passage to the transportation facility (new bridge and approaches)
4. Provide a solution that is consistent with the corridor's functional classification and satisfies regional transportation needs

Objective 2. Protect natural resources, including native oak trees, and adjacent waterways by selecting a Project alignment that directly avoid or minimize impacts on these features to the extent feasible while producing environmental benefits wherever achievable.

2.4 Project Description

The proposed design and construction of the Project are described below. The Project is depicted on Figure 2-2.

2.4.1 Traffic Conditions and Geometric Design Parameters

Based on the ADT volumes, the roadway's functional classification, and the terrain, the design speed per the American Association of State Highway and Transportation Officials' (AASHTO's) report *A Policy on Geometric Design of Highways and Streets* (2011) is 40 mph. However, El Dorado County's adopted design standard for this roadway is 30 mph. Given the site-specific nature of a steep and deep canyon, and the 20-mph advisory speed signs (suggested reduced speeds) all along the corridor leading to and from the bridge, the County has determined that this stretch of Mosquito Road should be considered for a design speed of 30 mph. The design speed is used to determine the geometric features of the roadway and bridge and is not the same as the posted speed limit. The proposed Project would likely include additional posted advisory speed signs of 20 mph for consistency.

2.4.2 Proposed Roadway and Bridge Design

The lane widths for the new roadway portions on the bridge would range from 11 to 12 feet wide. AASHTO requires 8-foot shoulders while El Dorado County requires 6-foot paved and 3-foot graded shoulders. Following a meeting with Caltrans and FHWA, a 4-foot shoulder width was agreed upon for the bridge. Due to the steep mountainous terrain and to maintain some consistency with the existing roadway leading to and from the site, the roadway shoulder would generally include a 2- to 4-foot paved area plus a 1-foot graded area. A 3-foot graded shoulder would be provided where metal beam guardrail is required, and a 5-foot paved shoulder would be provided next to locations with a concrete barrier or retaining wall. With railing, the bridge would be approximately 35.5 feet wide (32 feet clear width).

2.4.2.1 Bridge Design

The proposed Project was developed to provide the most direct route over the river. The bridge profile would be raised to approximately 400 feet over the river. This proposed high-level bridge is on the most direct alignment across the river with very little skew, and results in a main bridge length ranging from approximately 1,150 to 1,250 feet. It is anticipated that the new main bridge over the South Fork American River would likely be a multi-span, cast-in-place (CIP) prestressed concrete box-girder, concrete arch, or network arch type bridge with a maximum span of

approximately 650 feet. Depending on the final engineered profile, a minor bridge may be constructed over a small ravine leading to the main bridge over the river. This minor bridge would be as long as 120 feet and would likely be a single span, CIP prestressed concrete box-girder or precast I-girder type bridge. Temporary falsework may be needed during construction of the minor bridge. A large arch culvert with concrete headwalls may be constructed instead of the minor bridge. The clear-span design of either the minor bridge or the large arch culvert would be above the ordinary high-water mark (OHWM) of the small ravine.

2.4.2.2 Bridge Supports

Concrete supports, at least one on each side of the river and far upslope from the river, would range from approximately 150 feet to 180 feet tall with the possibility of other supports further uphill at lesser heights. Final bridge span layout may require support height adjustments. The outside support dimensions are expected to be as large as 25 feet by 30 feet. The outside supports would rest on concrete pile caps that would likely be exposed atop the excavated hillside. The exposed concrete pile cap would have an approximate height of 10 feet.

2.4.2.3 Roadway Realignment

The proposed Project would eliminate substandard roadway approaches that currently restrict vehicle access to the bridge—the one hairpin on the Placerville side of the canyon and the four hairpins on the Mosquito/Swansboro side of the canyon.

The Project involves an approximately 2,000-foot realignment of the roadway. The departure from the existing roadway on the south involves approximately 575 feet of roadway approach to the nearly 1,200-foot-long bridge, then a 300-foot northerly roadway approach where the alignment converges back to the existing roadway.

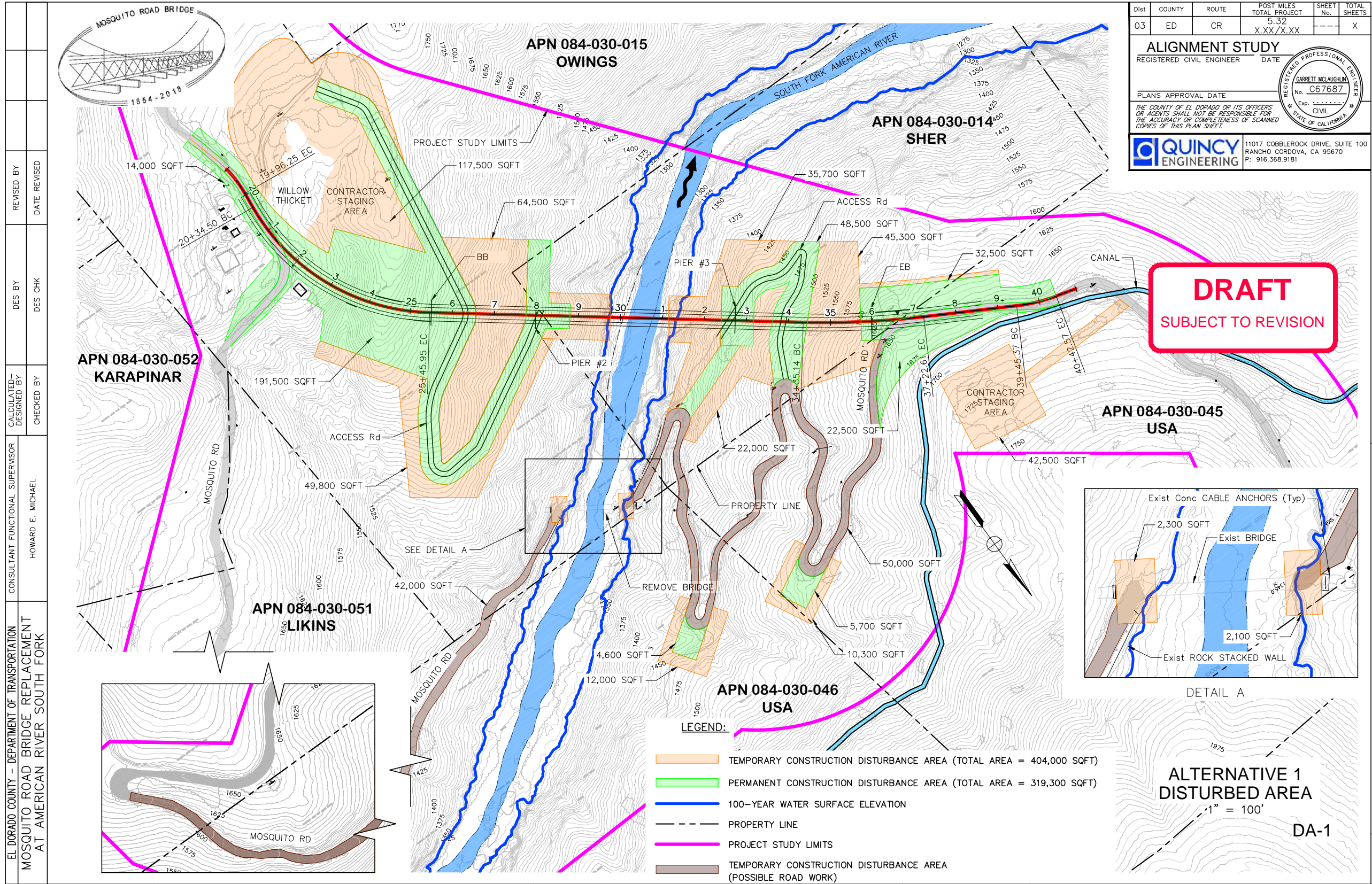
2.4.2.4 Right-of-Way and Temporary Easements

The proposed roadway and bridge alignment traverses assessor parcel numbers (APNs) 084-030-015, 084-030-014 084-030-046 and 084-030-045, requiring right-of-way acquisition for the roadway, cuts and fills, retaining walls, drainage culverts, possible utilities, and the bridge. Temporary easements would be needed for construction staging and possibly for access roads for bridge abutments and supports. Permanent easements may be needed for future maintenance of the bridge abutments and supports. If access roadways are necessary, they would be permanently barricaded (blocked) from general public access. This could be by means of steel pipe gates that would normally be locked or by placing large boulders or earthen mounds at the access points to the access roadways. If boulders are used, they would likely be obtained from the rock excavation that is to occur for the permanent roadway approaches to the bridge or access roadways.

2.4.3 Construction Method

2.4.3.1 Bridge Construction

The new main bridge would likely be a multi-span, CIP prestressed concrete box-girder, concrete arch, or network arch type bridge. It would likely be constructed using cantilever segmental construction, concrete arch, network arch, or something similar. Each method would eliminate the need for falsework in the South Fork American River. This method would avoid environmental



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	ED	CR	5.32 X.XX/X.XX	---	X

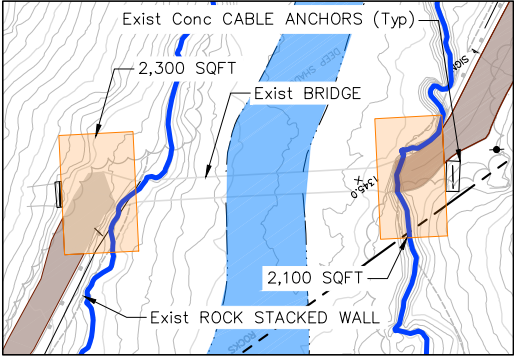
ALIGNMENT STUDY
 REGISTERED CIVIL ENGINEER DATE
 PLANS APPROVAL DATE
 THE COUNTY OF EL DORADO OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

REGISTERED PROFESSIONAL ENGINEER
 GARRETT MCLAUGHLIN
 No. C67687
 Exp.
 CIVIL
 STATE OF CALIFORNIA

QUINCY ENGINEERING 11017 COBBLEROCK DRIVE, SUITE 100
 RANCHO CORDOVA, CA 95670
 P: 916.368.9181

DRAFT
 SUBJECT TO REVISION

- LEGEND:**
- TEMPORARY CONSTRUCTION DISTURBANCE AREA (TOTAL AREA = 404,000 SQFT)
 - PERMANENT CONSTRUCTION DISTURBANCE AREA (TOTAL AREA = 319,300 SQFT)
 - 100-YEAR WATER SURFACE ELEVATION
 - PROPERTY LINE
 - PROJECT STUDY LIMITS
 - TEMPORARY CONSTRUCTION DISTURBANCE AREA (POSSIBLE ROAD WORK)



ALTERNATIVE 1
DISTURBED AREA
 1" = 100'
 DA-1

BORDER LAST REVISED 7/2/2010 USERNAME Garrettm DWG FILE S:\Client\El Dorado\E01-619 MOSQUITO Rd Br Replace PA&ED\650 - RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 UNIT -- PROJECT NUMBER & PHASE E01-619 - 0000

TIME PLOTTED: 3:16:13 PM, Garrett McLaughlin DATE PLOTTED: 9/13/2016 LAST REVISION:

Graphics...0049614 (10/4/16) AB



Figure 2-2
Proposed Project

impacts within the river channel and the need to divert river flows. Some falsework may be required depending on the bridge type determined during final design. A pair of temporary shoring towers may be required adjacent to each bridge support. Bridge supports would be placed outside the floodplain of the river. The minor bridge would be a single span (no supports), CIP prestressed concrete box girder or precast I-girder. This bridge could be constructed on falsework. A large arch culvert with concrete headwalls may be constructed instead of the minor bridge. The large arch culvert, in lieu of the minor bridge, would be constructed from large metal plates, placed on reinforced concrete strip footings. Reinforced concrete headwalls or retaining walls would be constructed over the ends of the arch metal plate. The clear-span design of either the minor bridge or the large arch culvert would be above the OHWM of the small ravine.

Because the proposed Project would be constructed outside the existing roadway alignment, the existing Mosquito Road and bridge could remain open to traffic, with traffic delays related only to equipment and materials mobilization and final roadway tie-ins. Some short-term closures may be required that would be shorter than those normally experienced when El Dorado County maintains the existing bridge; such closures could be scheduled during the County's planned maintenance closures. Long-term closures of Mosquito Road would not be necessary, greatly reducing traffic disruption during construction and avoiding distressing Rock Creek Road.

To minimize construction-related impacts on surrounding land uses and receiving waters, a number of best management practices (BMPs) would be implemented during Project construction. For example, where ground-disturbing or grading activities are necessary, on-site watering would minimize fugitive dust. Standard erosion and sediment control BMPs would also be implemented as part of the Project, as required by the stormwater pollution prevention plan (SWPPP) that is prepared and executed by the construction contractor. Construction could involve pile driving for temporary facilities and for construction of the bridges themselves. This will largely depend on the contractor's means and methods.

Bridge Abutments

A longer bridge length and higher roadway profile would enable the new bridge abutments to be placed near the top of the canyon, where slopes are less steep. Based on preliminary geotechnical investigations, it is anticipated that the bridge abutments would be constructed on cast-in-drill hole (CIDH) piles as deep as 100 feet. However, driven piles could be used instead of CIDH.

Construction of the new abutments would require two bottom excavation areas approximately 20 feet wide by 40 feet long by 15 feet deep. Excavation pit side slopes may be laid back to create a larger pit area. In addition, two retaining-wall-type wingwalls with lengths up to 50 feet may be required at each abutment. These would require bottom excavation sizes on the order of 20 feet wide by 50 feet long, with depths varying from 10 to 15 feet. The use of rock slope protection is not anticipated.

Bridge Supports

Based on preliminary geotechnical investigations, it is anticipated that the bridge supports would be constructed on CIDH piles approximately 150 feet deep. However, as for the abutments and temporary facilities needed for construction, driven piles could be used instead of CIDH.

Rock slope protection is not anticipated at the support areas, since they would be well above the South Fork American River.

Temporary Dewatering

Temporary dewatering would not be required. Work within the OHWM of the South Fork American River would not be necessary.

2.4.3.2 Roadway Construction

Roadway Approaches

The roadway approaches would involve excavation of largely decomposed granite to depths of approximately 25 to 40 feet. Some rock excavation may be required that may involve blasting to remove the rock. Excavated material that is suitable for backfill would be used for roadway embankments and fill behind retaining walls and abutments. Cut and fill slopes would be constructed on 2:1 (horizontal:vertical) conditions and seeded with native seed mixes to protect against erosion. Excavation would be required on the north end of the Project to provide approximately 400 feet of temporary realignment of the existing roadway around the abutment and roadway tie-in areas. This is necessary to maintain traffic on Mosquito Road while the abutment and roadway approach are being constructed. Temporary or permanent retaining walls may be necessary for this temporary realignment.

Roadside ditches would be constructed to convey stormwater from the roadway. Drainage culverts may be necessary to facilitate roadway drainage from one side of the road to the other. Drainage system outfalls would likely involve light rock slope protection to dissipate stormwater flow.

A construction equipment turnaround or material storage and staging area may be constructed contiguous with the roadway near each of the main bridge's abutments. Excavated material would be used to create such a usable area and would be paved with an all-weather surface to control erosion and soil tracking. Any rock removed would be placed on the Project site and possibly used as part of rock gravity walls, aesthetic treatments, barricades, or placed appropriately out of sight.

Bridge Support and Abutment Access Roadways

Methods to allow temporary access to construct bridge supports and their foundations will be necessary. Access would likely be accomplished through the use of tower cranes, temporary roadways, crane platforms with cranes, highlines, or similar, or some combination of those methods. Temporary access roadway alignments have been assumed for the proposed Project (Figure 2-2). The actual alignments for access roadways would be determined by the contractor. It is anticipated that the access roadways would be approximately 12 to 15 feet wide and excavated to largely balance the cuts (including excavated material for CIDH piles and bridge supports) and fills along the roadway in order to avoid costly removal and hauling of the excavated material. Hillside cuts are estimated to be 5 to 10 feet high. Temporary access roadways would include excavating a work area around the bridge supports and their foundations. The bridge support work area is needed to construct the foundations and columns or arches. To construct the work area, it is anticipated that an excavation of approximately 45 feet wide and 75 feet long back into the slope would be necessary. This excavation would likely require two tiered tie-back walls, each approximately 35 feet tall, with a 2:1 slope between these walls. The excavated material would be removed from the site. The access roadways would likely be paved with permeable rock to provide traction for construction equipment and avoid soil tracking.

2.4.3.3 Lighting

New lighting is not anticipated. Roadside signage would be the minimum required for safety, and would denote approaches to roadway curves with advisory speeds, bridge signs, and posted speed limit signs.

2.4.3.4 Utility Relocations

The Project area contains aerial telecommunications for AT&T and PG&E. The alignment of these facilities is generally along the roadway on the Placerville side of the canyon. The facilities diverge from the roadway and traverse the canyon directly down the face of the canyon slope. From there they cross the river near to and slightly higher than the existing bridge within APN 084-030-015, then run directly up the canyon slope, with poles placed near the mid-point of roadway segments between the steep and sharp hairpins within APN 084-030-046 and APN 084-030-045. It is not yet known if it will be necessary to relocate these utilities. Coordination with the utility companies is ongoing. If the utilities remain in their current location, the roadway to the existing bridge location would likely be used for access by the utility agencies. Segments of roadway may then require transfer of title to the utility companies that require access. If the utilities are relocated, access roadways would need to be provided on the canyon slopes to remove the facilities. This would also require titles or easements for new utility poles along the proposed roadway and placement of utilities on (within) the new bridge.

2.4.3.5 Existing Bridge and Roadway

Unless future outside funding is obtained to keep and maintain the existing bridge as a pedestrian facility, the existing bridge would likely be removed at some point after traffic is shifted onto the new bridge. If removed, the suspension span components would be disassembled without the need to drop anything into the river. Prior to being disassembled and removed, the bridge materials would be tested for the presence of hazardous materials such as paint that contains lead. The suspension cables would also be removed; however, the concrete supporting towers, short steel frames, and other bridge substructure would remain in place as a reminder of the old bridge location. Barricades would be installed at the end of the old roadway on each side of the river.

Access to the old roadway segments on each side of the river would be controlled by pipe gates, which would be closed once the new bridge is open for use. The location of the pipe gate on the Mosquito/Swansboro side of the river would change to be on the old roadway near where it meets the newly realigned road.

2.4.3.6 Traffic Management during Construction

Traffic controls would be implemented during construction, although relatively minimal traffic restrictions are anticipated. The Project contractor would be required to prepare a traffic control plan that must be approved by El Dorado County.

To keep the road mostly open to through traffic, some construction staging of the roadway where it would merge into the new alignment would be needed. This would generally consist of the following steps.

1. Shift traffic to single-lane traffic control on existing roadway.
2. Construct portion of roadway tie-in from new bridge.

3. Shift traffic to constructed portion of tie-in roadway to new bridge.
4. Complete roadway tie-in.
5. Open all lanes to new bridge.

With the exception of occasional short-term closures of up to approximately 2 to 4 weeks (a duration consistent with current closures for bridge maintenance), the existing bridge would remain open during construction. Access for emergency vehicles through the Project area would be maintained at current conditions at all times. When a closure is implemented, traffic would be rerouted on Rock Creek Road, a detour of as much as 20 miles.

2.4.3.7 Construction Equipment

General construction equipment expected to be used includes haul trucks, dump trucks, backhoes, bulldozers, scrapers, excavators, water trucks, concrete delivery trucks and extensive pumping systems, multiple high- and low-level cranes, and service vehicles.

Table 2-1 lists the equipment likely to be used for construction. Some controlled blasting may be required for hard rock excavations. To assist with materials and equipment and forms handling, high-level tower cranes supported on temporary spread footing foundations may be located near each bridge support and possibly at the abutments. Two large construction staging areas would be used to store equipment and materials when not in use. Minor grading may be required for the temporary use of material and equipment storage.

Table 2-1. Construction Equipment

Equipment	Construction Purpose
Asphalt Concrete Paver	Paving roadways
Backhoe	Soil manipulation and drainage work
Rock Drilling Equipment	Rock excavation and tie-down anchor installation
Impact Pile Driver	Pile installation
Bulldozer/Loader	Earthwork construction, cleaning and grubbing, tree removal
Cranes	Placement of bridge materials, placing of forms, and rebar
Dump Truck	Fill material delivery/surplus removal
Excavator	Soil and rock manipulation
Front-end Loader / Bobcat	Dirt or gravel manipulation
Grader	Ground leveling
Haul Trucks	Earthwork construction; large tree removal; material delivery
Concrete Pump Systems	Concrete delivery to various locations along the bridge
Roller	Earthwork and compacting
Scraper	Earthwork construction; clearing and grubbing
Truck with Seed Sprayer	Erosion control and landscaping
Water Truck	Earthwork construction; clearing and grubbing

2.5 Construction Schedule

It is anticipated that the Project would be constructed within approximately two construction seasons and that it will require approximately 30 months to complete. Project construction would occur year-round, likely in 2018 and 2019. Construction activities would occur Monday through Friday between the hours of 7 a.m. and 7 p.m. and Saturday between the hours of 8 a.m. and 6 p.m. Crews may arrive at the worksite earlier and leave later than the hours of actual construction activity.

Bridge foundation excavation and construction for abutments and bridge supports is anticipated to occur in the first spring-through-fall construction season of the Project. Once out of the ground, bridge support and span construction segments would operate continuously until complete. The roadway approaches would likely be constructed during the first construction season in concert with abutment construction. The roadway approach fill would follow the abutment construction by approximately 1 month. The roadway approaches to the bridge could provide construction access to facilitate bridge construction to the abutments. Falsework for the bridge near the abutments would likely be erected early in the second construction season as the spans begin to approach the abutment areas.

2.6 Construction Contract

The County would retain a construction contractor to construct the proposed improvements. The contractor would be responsible for compliance with all applicable rules, regulations, and ordinances associated with proposed Project activities and for implementing construction-related mitigation measures. The County would provide construction contractor oversight and management

and would be responsible for verifying implementation of the mitigation measures. The contractor would construct the proposed Project in accordance with the Public Contracts Code of the State of California, the Caltrans Standard Plans and Standard Specifications, and the Contract, Project Plans, and Project Special Provisions under development by the County. The following are a combination of standard and Project-specific procedures/requirements applicable to Project construction.

- Construction contract special provisions will require that a Traffic Management Plan be prepared. The Traffic Management Plan will include construction staging and traffic control measures to be implemented during construction to maintain and minimize impacts on traffic during construction. The Traffic Management Plan will address the coordination issues for residential access during short-term road closures during the construction window.
- Contract special provisions will require compliance with El Dorado County Air Quality Management District (EDCAQMD) Rules 223, 223-1, and 223-2 to minimize fugitive dust emissions as well as utilize all applicable best management practices.
- Contract provisions will require notification of County and compliance with California Health and Safety Code Section 7050.5 and California PRC Sections 5097.5, 5097.9 et seq., regarding the discovery and disturbance of cultural materials or human remains should any be discovered during Project construction.
- Contract provisions will require that in the event unanticipated historical, archeological (including structural features, unusual amounts of bone or shell, artifacts, human remains, or architectural remains) or paleontological resources are encountered during construction, all earthmoving activity shall cease within 60 feet of the find until the County retains the services of a qualified archaeologist and/or paleontologist. Any and all potential archaeological or paleontological resources discovered during construction will be examined by a qualified archaeologist or paleontologist, respectively, who will examine the findings, assess their significance, and offer recommendations for procedures deemed appropriate to either further investigate or mitigate adverse impacts on those archaeological or paleontological resources that have been encountered (e.g., excavate the significant resource).
- The County or its construction contractors will conduct early coordination with utility service providers, law enforcement and emergency service providers to ensure minimal disruption to service during construction.
- The County and its construction contractors will comply with the State of California Standard Specifications, written by Caltrans.
- The Project would comply with General Plan Policy 6.5.1.11 pertaining to construction noise.

2.7 Required Approvals

Based on the environmental conditions of the Project area and the analysis of potential impacts, Project implementation would require NEPA and CEQA compliance and the issuance of other approvals, as listed in the table below.

Table 2-2. Project Permits and Approvals

Agency	Permit/Approval
California Department of Fish and Wildlife	Section 1602 Streambed Alteration Agreement.
California State Water Resources Control Board	General Permit for Storm Water Discharges associated with Construction and Land Disturbance Activities
U.S. Army Corps of Engineers	Section 404 Nationwide Permit for Placement of Fill within Waters of the United States

This chapter contains an evaluation of the environmental impacts of the proposed Project for compliance with CEQA. The following sections examine the temporary, permanent, direct, and indirect effects on the physical environment.

Resources Considered in the Environmental Impact Report

Based on the Project description and the County's understanding of the environmental issues associated with the Project, the following topics are analyzed in detail in Chapter 3, Sections 3.1 through 3.13, of this EIR.

- 3.1, *Aesthetics*
- 3.2, *Air Quality*
- 3.3, *Biological Resources*
- 3.4, *Cultural Resources*
- 3.5, *Geology, Soils, Minerals, and Paleontological Resources*
- 3.6, *Greenhouse Gas Emissions*
- 3.7, *Hazards and Hazardous Materials*
- 3.8, *Hydrology, Water Quality, and Water Resources*
- 3.9, *Land Use Planning and Agricultural Resources*
- 3.10, *Noise and Vibration*
- 3.11, *Public Services and Utilities*
- 3.12, *Recreation*
- 3.13, *Traffic and Circulation*

Pursuant to CEQA Guidelines Section 15065(a), the Mandatory Findings of Significance were considered in the selection of the above resource topics and discussions are subsumed within each of the above applicable sections.

Terminology

For each resource topic, the EIR presents following information.

- **Existing Conditions**
 - **Regulatory Setting**—Pertinent federal, state, and local policies, regulations, and standards are described.
 - **Environmental Setting**—Existing site and study area conditions are described.

- **Environmental Impacts**

- **Methods for Analysis**—describes the technical methodology for impact assessment. If models were used to assess impacts, they are described in this section, as are other technical tools.
- **Thresholds of Significance**—presents the thresholds used to determine the significance of the impacts. The significance conclusions that can be noted at the end of each impact discussion are defined below.
 - **No Impact:** This level of significance is used for impacts where it was clear at the outset that there would be no impact on a particular resource topic under any of the alternatives.
 - **Less than Significant:** This level of significance is used for impacts where there would be an impact, but the degree of the impact would not meet or exceed the identified thresholds.
 - **Less than Significant with Mitigation:** This level of significance is used for impacts that would meet or exceed the identified thresholds, but implementing mitigation measures would reduce such impacts to less-than-significant levels.
 - **Significant and Unavoidable:** This level of significance is used for significant impacts where mitigation is not available or feasible to reduce the significant impact to a less-than-significant level.
- **Impacts and Mitigation Measures**—describes the effects of the proposed Project. For each identified significant or potentially significant impact, mitigation measures are identified. As stated above, where mitigation is not available or feasible to reduce the impact to a less-than-significant level, the impact is identified as significant and unavoidable.

CEQA requires that each public agency mitigate or avoid the significant impacts of any project it approves or implements (State CEQA Guidelines Section 15126.4). State CEQA Guidelines Section 15370 defines mitigation as follows.

- 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.
- Compensating for the impact by replacing or providing substitute resources or improvements to the environment.

This EIR recommends feasible mitigation measures consistent with State CEQA Guidelines to reduce impacts of the proposed Project.

Topics required by CEQA in addition to the resource topics addressed in Chapter 3 are addressed in Chapter 4, *Alternatives Analysis*, and Chapter 5, *Other CEQA Considerations*. Chapter 4 examines a range of feasible alternatives to the Project, including no project, which would reduce one or more of its potential environmental impacts. Chapter 5 includes the following additional topics.

- Cumulative Impacts
- Growth-Inducing Impacts
- Significant and Unavoidable Impacts
- Significant Irreversible Environmental Changes
- Mitigation Measures with the Potential for Environmental Effects Under CEQA

3.1 Aesthetics

This section describes concepts and terminology used to describe and evaluate aesthetics/visual resources and existing conditions related to aesthetics or visual resources and analyzes potential impacts that could result from implementation of the proposed Project.

3.1.1 Existing Conditions

3.1.1.1 Regulatory Setting

Federal

There are no roadways within the Project area that are designated in federal plans as a scenic roadway or as a corridor worthy of protection for maintaining and enhancing scenic viewsheds (California Department of Transportation 2016).

State

There are no roadways within the Project area that are designated in state plans as a scenic roadway or as a corridor worthy of protection for maintaining and enhancing scenic viewsheds (California Department of Transportation 2016).

California Environmental Quality Act

CEQA establishes the policy of the state to take all action necessary to provide the people of the state “with...enjoyment of aesthetic, natural, scenic and historic environmental qualities” (California PRC § 21001[b]).

Local

El Dorado County General Plan

The El Dorado County General Plan (County General Plan) Land Use Element and Conservation and Open Space Element (El Dorado County 2004:38-42, 135, 142-143, 152-154) include goals, objectives, and policies that pertain to this Project that are in place to maintain the rural and open character of the County, minimize the visual impacts of grading and vegetation removal, encourage conforming earthworks to natural contours, and protect native plants and trees.

3.1.1.2 Environmental Setting

The Project area lies in the west-central portion of unincorporated El Dorado County, within a rugged rural area of the Sierra Nevada foothills, and the existing Mosquito Road Bridge is roughly 6 miles north of U.S. Highway 50 and 2.3 miles south of the communities of Mosquito and Swansboro. Mosquito Road is a rural narrow roadway that meanders through mountainous terrain and the road switchbacks to cross the steep and deep South Fork American River canyon. The South Fork American River flows over a rocky, bouldered channel and rock outcroppings and boulders are also a common visual feature on the hillside slopes and along Mosquito Road. The hillsides are largely covered with dense interior live oak woodland that is intermixed with foothill pine, and when this

evergreen woodland is combined with the terrain, these features greatly limit views to the immediate foreground in the Project area.

The only development directly adjacent to the Project site includes a permanent residence and ancillary structures located at the southern Project terminus, on the east side of the roadway. The private land owner has agreed to the use of his lands on the west side of the roadway as a staging area. There is other development located further southwest along Mosquito Road and along Glenbrook Drive, to the southeast; however, these residents do not have views of the Project site due to terrain and surrounding vegetation. Recreationists using the river would have views of the Project, but there is no formal recreational access at this location. Recreationists most commonly access the river in the warm summer months. Bureau of Land Management (BLM) lands are also crossed by the proposed Project.

Mosquito Road is viewed daily by motorists using the roadway for commuting and accessing recreational areas outside of the vicinity, by the one residential viewer within the Project limits, and by seasonal recreational viewers. Motorists are the largest viewer group of the proposed Project. The winding roadway, terrain, and vegetation limit views out and over the landscape. Most views of the proposed Project area are only available from a short distance away from either end of the Project termini or when crossing the existing bridge. The residential viewer is surrounded by mature vegetation so that views of the roadway are mostly available from the driveway and from open-space areas on the property where there are gaps in roadside vegetation. Views are of the portion of Mosquito Road immediately adjacent to the residence; views beyond are not present due to the winding roadway, terrain, and vegetation. Recreationists using the river have limited views of the Project site, looking up toward the underside and sides of the bridge from elevations below the bridge. Views toward the roadway leading up to the bridge are not available from lower elevations along the river.

Mosquito Road is not a state or El Dorado County designated scenic highway. According to the *Historical Resources Evaluation Report* prepared for the Project (ICF International 2016), the existing bridge is not eligible for either National Register of Historic Places (NRHP) or the California Register of Historic Resources (CRHR). In addition, the South Fork American River is not a federal or state designated Wild and Scenic River. There are no scenic vistas or designated scenic highways in the Project area. Also, there are no historic properties that are listed on, or eligible for listing on, the NRHP.

3.1.2 Environmental Impacts

3.1.2.1 Methods of Analysis

Analysis of the visual effects of the Project are based on the following.

- Review of Google Earth Street View and site photographs taken from vantage points, including neighboring properties and roadways (September 17, 2015)
- Evaluation of regional visual context
- Review of the Project description and proposed land uses and zoning
- Review of the Project in regard to compliance with state and local ordinances and regulations and professional standards pertaining to visual quality

Professional Standards

Professional standards result from professional and direct expertise gained by staff working on visual analyses and consulting with other experienced staff, subconsultants, and clients on visual effects, including knowledge gained from public input on a broad range of projects. The effects listed represent collective knowledge that is professionally agreed upon and represents common, general public concerns. According to professional standards, a project may be considered to have significant impacts if it would significantly:

- Conflict with local guidelines or goals related to visual quality.
- Alter the existing natural viewsheds, including changes in natural terrain where the project dominates the view.
- Alter the existing visual quality of the region or eliminate visual resources.
- Increase light and glare in the project vicinity.
- Result in backscatter light into the nighttime sky.
- Result in a reduction of sunlight or introduction of shadows in community areas.
- Obstruct or permanently reduce visually important features.
- Result in long-term (that is, persisting for 2 years or more) adverse visual changes or contrasts to the existing landscape as viewed from areas with high visual sensitivity.

3.1.2.2 Thresholds of Significance

In accordance with Appendix G of the State CEQA Guidelines, the proposed Project would be considered to have a significant impact if it would result in any of the conditions listed below.

- Have a substantial adverse effect on a scenic vista.
- Substantially damage scenic resources, including but not limited to trees, rock outcroppings, and historic buildings along a scenic highway.
- Substantially degrade the existing visual character or quality of the site and its surroundings.
- Create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area.

3.1.2.3 Impacts and Mitigation Measures

Impact AES-1: Have a substantial adverse effect on a scenic vista (no impact)

There are no designated scenic vistas in the study area and the South Fork American River in the Project vicinity is not a designated Wild and Scenic River. There would be no impact. No mitigation is required.

Impact AES-2: Substantial damage to scenic resources, including but not limited to trees, rock outcroppings, and historic buildings along a scenic highway (no impact)

Mosquito Road is not a state or El Dorado County–designated scenic highway and the existing bridge is not eligible for either NRHP or the CRHR (refer to Section 3.4, *Cultural Resources*). Accordingly, the proposed Project would not substantially damage scenic resources, including but not limited to,

trees, rock outcroppings, and historic buildings within a state scenic highway. There would be no impact and no mitigation is required.

Impact AES-3: Substantially degrade the existing visual character or quality of the site and its surroundings (less than significant)

The proposed Project involves straightening and widening the bridge roadway approaches which would remove hairpin turns, resulting in increased access and a safer approach. Roadway approach lanes would be 11 to 12 feet wide with a 2-foot to 4-foot paved area plus a 1-foot graded area for the roadway shoulder. Where metal beam guardrails are required, a 3-foot graded shoulder would be provided, and a 5-foot paved shoulder would be provided next to concrete barriers or retaining walls. Cut and fill slopes would be constructed on 2:1 (horizontal:vertical) conditions and seeded with native seed mixes to protect against erosion. Also, any rock removed would be placed on the Project site and possibly used as part of rock gravity walls, aesthetic treatments, barricades, or placed appropriately out of sight.

The Project also involves replacing the existing Mosquito Road Bridge over the river with a taller, multi-span structure that is wider to accommodate two lanes of traffic, has shoulders and safety barriers. The existing approximately 9-foot-wide one-lane timber suspension bridge is just above the river's elevation. The proposed bridge profile would be raised to approximately 400 feet over the river and, with railing, it would be approximately 35.5 feet wide (32 feet clear width). The bridge supports would be located far upslope from the river. The proposed bridge would likely be a cast-in-place prestressed concrete box-girder, concrete arch, or network arch type bridge. A smaller, 120-foot-long, single span, cast-in-place prestressed concrete box-girder or precast I-girder type bridge may also be needed to cross a small ravine near the bridge approach. A large arch culvert with concrete headwalls may be constructed instead of the minor bridge. The clear-span design of either the minor bridge or the large arch culvert would be above the OHWM of the small ravine. The new bridge may have a thematic aesthetic treatment tying it to its natural and cultural setting. The existing bridge may be removed at some point after traffic is shifted onto the new bridge. The suspension cables would then also be removed; however, the concrete supporting towers, short steel frames, and other bridge substructure would remain in place as a visual reminder of the old bridge location.

Construction equipment turnaround, material storage, and staging areas would be needed near each of the abutments for the new bridge. Construction access roads would be cut into the canyon slopes to build the new bridge foundations and would be barricaded after construction is completed. Barricades, in the form of pipe gates, would also be installed on each side of the river at the ends of the abandoned segments of Mosquito Road. The pipe gates would be closed once the new bridge is open for use. The abandoned roadway segments and the turnaround areas near the bridge abutments potentially would provide informal and formal visual access areas for recreational viewers.

A construction staging area would be located on the Placerville side of the canyon across from the residence at the southern Project terminus. The private land owner has willingly offered the use of his land as a staging area, so the owner would not be negatively affected by the staging area. Another staging area would be located on BLM-owned land on the Swansboro side of the river within an existing clearing located approximately 350 feet off of Mosquito Road, accessed by an existing short dirt road. Vegetation and terrain prevent views of the clearing. Both staging areas would require some grading, vegetation removal, and trimming around the edges of existing openings to

accommodate construction equipment and materials storage. Where possible, shrubs in the staging areas would be trimmed near to the ground and not grubbed, to allow them to regrow. Grubbing may be necessary at the BLM-owned staging area, however. Once construction is complete, at a minimum, staging areas would be reseeded.

Project construction activities would result in only temporary visual changes lasting no longer than 2 years, which would not negatively affect viewers. While the new bridge crossing would be realigned, widened, and raised compared to the existing crossing, views of the Project are very limited and local stakeholders are in support of the proposed Project because of the improvements that would result from providing a safer evacuation route and safer driving conditions that would result from removing the switchbacks leading up to the bridge. Also, a bridge is an existing visual element within the Project area, and the proposed Project would not substantially alter the existing visual character of the Project area as seen by all viewer groups.

Vegetation removal would slightly alter views, but remaining vegetation would screen views of areas where vegetation has been removed to residential and recreational viewers and roadway users would only see these areas briefly, in passing. Construction would also remove mature trees and shrubs to accommodate the roadway realignment and new bridge crossing. The least possible number of trees would be removed. On-site revegetation of cleared areas, required for soil stabilization and to mitigate the loss of mature vegetation, would reduce the visual effects of the Project. Impacts and mitigation related to vegetation removal is discussed further in Section 3.3, *Biological Resources*. The Project's effects on the visual character or quality of the site are considered less than significant. No mitigation is required.

Impact AES-4: Creation of a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area (less than significant)

Project construction would occur year-round, Monday through Friday between the hours of 7 a.m. and 7 p.m. and Saturday between the hours of 8 a.m. and 6 p.m. This schedule would reduce the need for high-intensity lighting for nighttime construction, because construction would primarily take place during daylight hours. However, if needed, such lighting would not result in adverse impacts because sensitive residential visual receptors are at a great enough distance or are not within visual sight of the construction area and roadway travelers would pass by such lighting very briefly. The proposed Project would not involve improvements that would increase daytime glare, and no operational lighting is proposed. The impact would be less than significant. No mitigation is required.

3.1.3 References

- California Department of Transportation. 2016. California Scenic Highway Mapping System. Officially Designated State and Scenic Highways and Historic Parkways. Available: <http://www.dot.ca.gov/hq/LandArch/16_livability/scenic_highways/>. Accessed: June 2016.
- El Dorado County. 2004. *2004 El Dorado County General Plan*. July.
- ICF International. 2016. *Historical Resources Evaluation Report, Mosquito Road Bridge Replacement Project, El Dorado County Federal Project No.: BRLO 5925*. Prepared for Caltrans District 3. Sacramento, CA.

3.2 Air Quality

This section describes the environmental and regulatory setting for air quality. It also describes impacts on air quality that would result from implementation of the proposed Project. Impacts related to greenhouse gases (GHG) and climate change are described in Section 3.6, *Greenhouse Gas Emissions*.

3.2.1 Existing Conditions

3.2.1.1 Regulatory Setting

The agencies of direct importance to the Project for air quality are the U.S. Environmental Protection Agency (EPA), California Air Resources Board (ARB), and EDCAQMD. EPA has established federal air quality standards for which ARB and EDCAQMD have primary implementation responsibility. ARB and EDCAQMD are also responsible for ensuring that state air quality standards are met.

Federal Regulations

Clean Air Act and National Ambient Air Quality Standards

The federal Clean Air Act (CAA) was first enacted in 1963 and has been amended numerous times in subsequent years (1965, 1967, 1970, 1977, and 1990). The CAA establishes federal air quality standards, known as national ambient air quality standards (NAAQS), and specifies future dates for achieving compliance. The CAA also mandates that the state submit and implement a State Implementation Plan (SIP) for local areas not meeting those standards. The plans must include pollution control measures that demonstrate how the standards will be met.

The 1990 amendments to the CAA identify specific emission-reduction goals for areas not meeting the NAAQS. These amendments require both a demonstration of reasonable further progress toward attainment and incorporation of additional sanctions for failure to attain or meet interim milestones. Table 3.2-1 shows the NAAQS currently in effect for each criteria pollutant. The California ambient air quality standards (CAAQS) (described below) are also provided for reference.

Table 3.2-1. National and State Ambient Air Quality Standards

Criteria Pollutant	Average Time	California Standards	National Standards ^a	
			Primary	Secondary
Ozone	1-hour	0.09 ppm	None ^b	None ^b
	8-hour	0.070 ppm	0.070 ppm	0.070 ppm
Particulate matter (PM10)	24-hour	50 µg/m ³	150 µg/m ³	150 µg/m ³
	Annual mean	20 µg/m ³	None	None
Fine particulate matter (PM2.5)	24-hour	None	35 µg/m ³	35 µg/m ³
	Annual mean	12 µg/m ³	12.0 µg/m ³	15.0 µg/m ³
Carbon monoxide	8-hour	9 ppm	9 ppm	None
	1-hour	20 ppm	35 ppm	None
	8-hour (Lake Tahoe)	6 ppm	None	None
Nitrogen dioxide	Annual mean	0.030 ppm	0.053 ppm	0.053 ppm
	1-hour	0.18 ppm	0.100 ppm	None
Sulfur dioxide ^c	Annual mean	None	0.030 ppm	None
	24-hour	0.04 ppm	0.14 ppm	None
	3-hour	None	None	0.5 ppm
	1-hour	0.25 ppm	0.075 ppm	None
Lead	30-day average	1.5 µg/m ³	None	None
	Calendar quarter	None	1.5 µg/m ³	1.5 µg/m ³
	3-month average	None	0.15 µg/m ³	0.15 µg/m ³
Sulfates	24-hour	25 µg/m ³	None	None
Visibility reducing particles	8-hour	- ^d	None	None
Hydrogen sulfide	1-hour	0.03 ppm	None	None
Vinyl chloride	24-hour	0.01 ppm	None	None

Source: California Air Resources Board 2016a.

µg/m³ = micrograms per cubic meter.

ppm = parts per million.

^a National standards are divided into primary and secondary standards. Primary standards are intended to protect public health, whereas secondary standards are intended to protect public welfare and the environment.

^b The federal 1-hour standard of 12 parts per hundred million was in effect from 1979 through June 15, 2005. The revoked standard is referenced because it was employed for such a long period and is a benchmark for State Implementation Plans.

^c The annual and 24-hour NAAQS for sulfur dioxide only apply for 1 year after designation of the new 1-hour standard to those areas that were previously nonattainment for 24-hour and annual NAAQS.

^d The CAAQS for visibility-reducing particles is defined by an extinction coefficient of 0.23 per kilometer – visibility of 10 miles or more due to particles when relative humidity is less than 70%.

Transportation Conformity

The conformity requirement is based on CAA Section 176(c), which prohibits the U.S. Department of Transportation and other federal agencies from funding, authorizing, or approving plans, programs or projects that do not conform to the SIP for attaining the NAAQS. Transportation conformity applies to highway and transit projects and takes place on two levels: the regional—or, planning and programming level—and the project level. The proposed Project must conform at both levels to be approved.

State Regulations

California Clean Air Act and California Ambient Air Quality Standards

In 1988, the state legislature adopted the California Clean Air Act (CCAA), which established a statewide air pollution control program. CCAA requires all air districts in the state to endeavor to meet the CAAQS by the earliest practical date. Unlike the federal CAA, the CCAA does not set precise attainment deadlines. Instead, the CCAA establishes increasingly stringent requirements for areas that will require more time to achieve the standards. CAAQS are generally more stringent than the NAAQS and incorporate additional standards for sulfates (SO₄), hydrogen sulfide (H₂S), vinyl chloride, and visibility-reducing particles. The CAAQS and NAAQS are listed together in Table 3.2-1.

The ARB and local air districts bear responsibility for achieving California's air quality standards, which are to be achieved through district-level air quality management plans that would be incorporated into the SIP. In California, EPA has delegated authority to prepare SIPs to ARB, which, in turn, has delegated that authority to individual air districts. ARB traditionally has 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.

The CCAA substantially adds to the authority and responsibilities of air districts. The CCAA designates air districts as lead air quality planning agencies, requires air districts to prepare air quality plans, and grants air districts authority to implement transportation control measures. The CCAA also emphasizes the control of "indirect and area-wide sources" of air pollutant emissions. The CCAA gives local air pollution control districts explicit authority to regulate indirect sources of air pollution and to establish traffic control measures.

State Tailpipe Emission Standards

To reduce emissions from off-road diesel equipment, on-road diesel trucks, and harbor craft, ARB established a series of increasingly strict emission standards for new engines. New construction equipment used for the Project including heavy duty trucks, off-road construction equipment, tugboats, and barges, will be required to comply with the standards.

Toxic Air Contaminant Regulation

California regulates toxic air contaminants (TACs) primarily through the Toxic Air Contaminant Identification and Control Act (Tanner Act) and the Air Toxics "Hot Spots" Information and Assessment Act of 1987 (Hot Spots Act). In the early 1980s, ARB established a statewide comprehensive air toxics program to reduce exposure to air toxics. The Tanner Act created California's program to reduce exposure to air toxics. The Hot Spots Act supplements the Tanner Act

by requiring a statewide air toxics inventory, notification of people exposed to a significant health risk, and facility plans to reduce these risks. ARB has also approved a comprehensive Diesel Risk Reduction Plan to reduce emissions from both new and existing diesel-fueled engines and vehicles (California Air Resources Board 2000). The goal of the plan is to reduce diesel particulate matter (DPM) emissions and the associated health risk by 75% in 2010 and by 85% by 2020. The proposed Project would be required to comply with applicable diesel control measures.

Local Regulations

Sacramento Area Council of Governments Regional Transportation Plan

The Sacramento Area Council of Governments (SACOG) is the Metropolitan Planning Organization for the Sacramento region, including the western slope of El Dorado County. SACOG adopted its *Metropolitan Transportation Plan/Sustainable Communities Strategy* (MTP/SCS) in February 2016. The MTP/SCS provides a long-range framework to minimize transportation impacts on the environment, improve regional air quality, protect natural resources, and reduce GHG emissions.

El Dorado County General Plan

The Public Health, Safety, and Noise Element of the County General Plan (El Dorado County 2004) includes the following applicable goals, objectives, and policies regarding air quality.

- Goal 6.7, *Air Quality Maintenance*, strives to achieve and maintain ambient air quality standards established by the EPA and ARB, and to minimize public exposure to toxic or hazardous air pollutants and air pollutants that create unpleasant odors. This goal includes:
 - Objective 6.7.2, *Vehicular Emissions*, and implementing Policy 6.7.2.5, which encourages use of and facilities for alternative-fuel vehicles, including low-emission vehicles used in construction.
 - Objective 6.7.6, *Air Pollution-Sensitive Uses*, and implementing Policies 6.7.6.1 and 6.7.6.2, which direct that air pollution-sensitive land uses be separated by significant sources of air pollution.
 - Objective 6.7.7, *Construction-Related, Short-Term Emissions*, and implementing Policy 6.7.7.1, which requires that short-term construction, long-term operations, and toxic and odor-related impacts be evaluated in accordance with EDCAQMD CEQA Guidelines and feasible mitigation for such impacts.

In addition, the Public Health, Safety, and Noise Element includes the following goal that addresses naturally occurring asbestos (NOA).

- Goal 6.3, *Geologic and Seismic Hazards*, addresses minimizing threats to life and property from geologic hazards such as NOA through evaluation of NOA hazards and includes Objective 6.3.1, *Building and Site Standards*, and implementing Policies 6.3.1.1, 6.3.1.2, and 6.3.3.3.

El Dorado County Air Quality Management District

As described above, under the CCAA, the EDCAQMD is required to develop an air quality plan for nonattainment criteria pollutants within the air district. Air districts within the Sacramento Federal

Nonattainment Area¹ have adopted the *2009 Sacramento Metropolitan Area 8-Hour Ozone Attainment and Reasonable Further Progress Plan* (Ozone Plan), which was last updated in 2013. This plan outlines how the region continues to meet federal progress requirements and demonstrates that the Sacramento Region will meet the 1997 ozone NAAQS by 2018.

The EDCAQMD develops and adopts rules to regulate sources of air pollution in El Dorado County. The rules most pertinent to the proposed Project are briefly described below.

- Rule 202, *Visible Emissions*. Limits emissions that are darker in shade than No. 1 on the “Ringelmann Chart” or of such opacity as to obscure an observer’s view to a degree equal to or greater than smoke.
- Rule 205, *Nuisance*. Prohibits discharge of air contaminants or other material that (1) cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public; (2) endanger the comfort, repose, health, or safety of any such persons or the public; or (3) cause, or have a natural tendency to cause, injury or damage to business or property.
- Rule 207, *Particulate Matter*. Limits particulate matter emissions in excess of 0.1 grains per cubic foot of dry exhaust gas.
- Rule 223-1, *Fugitive Dust*. Limits fugitive dust emissions from construction and construction-related activities. The rule requires submission of a detailed Fugitive Dust Control Plan to the EDCAQMD prior to the start of any construction activity for which a grading permit was issued by El Dorado County.
- Rule 223-2, *Asbestos Hazard Mitigation*. Requires an Asbestos Dust mitigation plan must be prepared, submitted, approved and implemented when more than 20 cubic yards of earth will be moved at all sites identified as being in an Asbestos Review Area as shown on the *El Dorado County Naturally Occurring Asbestos Review Map* maintained by the EDCAQMD.
- Rule 224, *Cutback Asphalt Paving Material*. Specifies volatile organic compound content limits for cutback asphalt.
- Rule 233, *Stationary Internal Combustion Engines*. Limits nitrogen oxides (NO_x) and carbon monoxide (CO) emissions from stationary internal combustion engines.

3.2.1.2 Environmental Setting

Regional Climate and Meteorology

The primary factors that contribute to overall air quality are the locations of air pollutant sources and the amount of pollutants emitted from those sources. Meteorological conditions and topography are also important contributing factors. Atmospheric conditions, such as wind speed, wind direction, and air temperature gradients interact with the physical features of the landscape to determine the movement and dispersal of air pollutants.

The Project site is located in the Mountain Counties Air Basin (MCAB). The MCAB lies along the northern Sierra Nevada, close to or contiguous with the Nevada border, and covers an area of roughly 11,000 square miles. El Dorado County consists of hilly and mountainous terrain that affects

¹ Air districts in the Sacramento Federal Nonattainment Area consist of the Sacramento Metropolitan Air Quality Management District and Yolo-Solano Air Quality Management District, as well as parts of EDCAQMD, Placer County Air Pollution Control District, and Feather River Air Quality Management District.

airflow patterns throughout the county. These mountain and hill formations direct surface air flows, cause shallow vertical mixing, and create areas of high pollutant concentrations by hindering dispersion. Because of its proximity to the Sacramento Valley, the MCAB and El Dorado County are prone to receiving pollutant transport from the more populated and traffic-heavy areas.

The general climate of the MCAB varies considerably with elevation and proximity to the Sierra Ridge. The terrain features of the basin make it possible for various climates to exist in relatively close proximity. The pattern of mountains and hills causes a wide variation in rainfall, temperature, and localized winds throughout the basin. Temperature variations have an important influence on basin wind flow, dispersion along mountain ridges, vertical mixing, and photochemistry. The Sierra Nevada receives large amounts of precipitation from storms moving in from the Pacific in the winter, with lighter amounts from intermittent "Monsoonal" moisture flows from the south and cumulus buildup in the summer. Precipitation levels are high in the highest mountain elevations but decline rapidly toward the western portion of the basin. Winter temperatures in the mountains can be below freezing for weeks at a time, and substantial depths of snow can accumulate, but in the western foothills, winter temperatures usually dip below freezing only at night and precipitation is mixed as rain or light snow.

Criteria Pollutants of Concern

As discussed above, the federal and state governments have established NAAQS and CAAQS, respectively, for six criteria pollutants: ozone, CO, lead (Pb), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), and particulate matter (PM), which consists of PM 10 microns in diameter or less (PM10) and PM 2.5 microns in diameter or less (PM2.5). Ozone and NO₂ are considered regional pollutants because they (or their precursors) affect air quality on a regional scale. Pollutants such as CO, SO₂, and Pb are considered local pollutants that tend to accumulate in the air locally. PM is both a local and a regional pollutant.

The primary criteria pollutants of concern in the study area are ozone (including reactive organic gases [ROG] and NO_x), CO, and PM. Principal characteristics surrounding these pollutants are described below.

Ozone

Ozone, or smog, is a photochemical oxidant that is formed when ROG and NO_x (both by-products of the internal combustion engine) react with sunlight. Ozone poses a health threat to those who already suffer from respiratory diseases as well as to healthy people. Ozone is a respiratory irritant that can cause severe ear, nose, and throat irritation and increases susceptibility to respiratory infections. Additionally, ozone has been tied to crop damage, typically in the form of stunted growth and premature death. It is also an oxidant that causes extensive damage to plants through leaf discoloration and cell damage. Ozone can also act as a corrosive, resulting in property damage such as the degradation of rubber products. It can cause substantial damage to other materials as well, such as synthetic rubber and textiles.

Reactive Organic Gases

ROG are compounds made up primarily of hydrogen and carbon atoms. Internal combustion associated with motor vehicle usage is the major source of hydrocarbons. Other sources of ROG are emissions associated with the use of paints and solvents, the application of asphalt paving, and the use of household consumer products such as aerosols. Adverse effects on human health are not caused directly by ROG, but rather by reactions of ROG to form secondary pollutants such as ozone.

Nitrogen Oxides

NO_x are a family of highly reactive gases that are a primary precursor to the formation of ground-level ozone, and react in the atmosphere to form acid rain. The two major forms of NO_x are nitric oxide (NO) and NO₂. NO is a colorless, odorless gas formed from atmospheric nitrogen and oxygen when combustion takes place under high temperature and/or high pressure. NO₂ is a reddish-brown irritating gas formed by the combination of NO and oxygen. NO_x acts as an acute respiratory irritant and increases susceptibility to respiratory pathogens.

Carbon Monoxide

CO is a colorless, odorless, toxic gas produced by incomplete combustion of carbon substances, such as gasoline or diesel fuel. In the study area, high CO levels are of greatest concern during the winter, when periods of light winds combine with the formation of ground-level temperature inversions from evening through early morning. These conditions trap pollutants near the ground, reducing the dispersion of vehicle emissions. Moreover, motor vehicles exhibit increased CO emission rates at low air temperatures. The primary adverse health effect associated with CO is interference with normal oxygen transfer to the blood, which may result in tissue oxygen deprivation.

Particulate Matter

PM consists of finely divided solids or liquids such as soot, dust, aerosols, fumes, and mists. Two forms of particulates are now generally considered: inhalable coarse particles, or PM₁₀, and inhalable fine particles, or PM_{2.5}. Particulate discharge into the atmosphere results primarily from industrial, agricultural, construction, and transportation activities. However, wind on arid landscapes also contributes substantially to local particulate loading. Both PM₁₀ and PM_{2.5} may adversely affect the human respiratory system, especially in those people who are naturally sensitive or susceptible to breathing problems.

Existing Air Quality Conditions

ARB collects ambient air quality data through a network of air monitoring stations throughout the state. In El Dorado County, there are three stations that record ozone levels and one station that records PM₁₀ levels. There are no monitoring stations in the county that collect data on CO, PM_{2.5}, or NO₂. The closest ozone monitoring station is the Placerville-Gold Nugget Way station, which is approximately 5 miles southwest of the Project area. The PM₁₀ monitoring station is located in the Lake Tahoe Air Basin portion of El Dorado County. Given the distinct meteorological conditions in the Lake Tahoe Air Basin that can influence pollutant concentrations, PM₁₀ data from the Sacramento-Branch Center Road monitoring station in Sacramento County² are used as

² Sacramento County is located in the Sacramento Valley Air Basin, which borders the MCAB to the west.

representative data for the Project area. The Sacramento-Branch Center Road station is approximately 35 miles west of Project area.

Table 3.2-2 summarizes ozone and PM10 levels for the last 3 years for which complete data are available (2013–2015). As shown in Table 3.2-2, the Placerville-Gold Nugget Way station has experienced frequent violations of the ozone standards. Six violations of the state 24-hour PM10 standard were recorded in 2013 at the Sacramento-Branch Center Road station.

Attainment Status

Local monitoring data (Table 3.2-2) are used to designate areas as nonattainment, maintenance, attainment, or unclassified for the NAAQS and CAAQS. The four designations are 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 3.2-2. Ambient Criteria Air Pollutant Monitoring Data (2013–2015)

Pollutant Standards	2013	2014	2015
Ozone (O₃)			
Maximum 1-hour concentration (ppm)	0.097	0.104	0.103
Maximum 8-hour concentration (ppm)	0.084	0.090	0.090
Number of days standard exceeded ^{a, b}			
CAAQS 1-hour (>0.09 ppm)	1	1	4
CAAQS 8-hour (>0.070 ppm)	21	36	23
NAAQS 8-hour (>0.075 ppm)	11	12	7
Particulate matter (PM10)^c			
National ^d maximum 24-hour concentration (µg/m ³)	59.0	45.0	44.0
National ^d second-highest 24-hour concentration (µg/m ³)	48.0	39.0	40.0
State ^e maximum 24-hour concentration (µg/m ³)	63.0	46.0	45.0
State ^e second-highest 24-hour concentration (µg/m ³)	49.0	41.0	41.0
National annual average concentration (µg/m ³)	22.7	18.1	19.0
State annual average concentration (µg/m ³) ^f	23.6	18.6	19.5
Number of days standard exceeded ^b			
NAAQS 24-hour (>150 µg/m ³) ^f	0	0	0
CAAQS 24-hour (>50 µg/m ³) ^f	6	0	0

Source: California Air Resources Board 2016b.

ppm = parts per million

NAAQS = National Ambient Air Quality Standards

CAAQS = California Ambient Air Quality Standards

µg/m³ = micrograms per cubic meter

- = data not available.

Pollutant Standards	2013	2014	2015
^a An exceedance of a standard is not necessarily a violation, because each pollutant has specific criteria on which a violation of the state and federal standards would occur.			
^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 Measurements usually 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 rounded.			

Table 3.2-3 summarizes the attainment status for the El Dorado County portion of MCAB with regard to the NAAQS and CAAQS.

Table 3.2-3. Federal and State Attainment Status for El Dorado County

Criteria Pollutant	Federal Designation	State Designation
Ozone (8-hour)	Severe 15 ^a nonattainment	Nonattainment
CO	Attainment	Unclassified
PM10	Attainment	Nonattainment
PM2.5	Nonattainment	Unclassified
NO ₂	Attainment	Attainment
SO ₂	Attainment	Attainment
Lead	Attainment	Attainment
Sulfates	(No federal standard)	Attainment
Hydrogen sulfide	(No federal standard)	Attainment
Visibility-reducing particles	(No federal standard)	Unclassified

Source: California Air Resources Board 2016c; U.S. Environmental Protection Agency 2016.

CO = carbon monoxide.

PM10 = particulate matter less than or equal to 10 microns.

PM2.5 = particulate matter less than or equal to 2.5 microns.

NO₂ = nitrogen dioxide.

SO₂ = sulfur dioxide.

^a Areas within the “severe 15” nonattainment class have an 8-hour ozone design value between 0.113 and 0.119 ppm.

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. TACs are emitted from a variety of sources, including on-road vehicles, gas stations, and dry cleaning facilities. The primary TACs of concern associated with the proposed Project are DPM and NOA.

Sensitive Receptors

EDCAQMD generally defines a sensitive receptor as people or facilities that generally house people (e.g., schools, hospitals, clinics, elderly housing, residences), that may experience adverse effects from unhealthful concentrations of air pollutants. The Project area is largely rural with little to no development. There is one residence in the immediate vicinity of the Project, which is approximately 150 feet from the Project footprint.

Odors

Although offensive odors rarely cause physical harm, they can be unpleasant and lead to considerable distress among the public. This distress often generates citizen complaints to local governments and air districts. According to the EDCAQMD CEQA Guidelines and ARB's *Air Quality and Land Use Handbook* (California Air Resources Board 2005), land uses associated with odor complaints typically include sewage treatment plants, landfills, recycling facilities, and manufacturing.

3.2.2 Environmental Impacts

3.2.2.1 Methods of Analysis

The air quality analysis has been prepared in accordance with guidelines established by the EDCAQMD, which has local air quality jurisdiction over the Project area. Construction emissions were estimated using the Roadway Construction Emissions Model, Version 7.1.5.1 (RCEM). RCEM is specifically developed to estimate emissions associated with roadway construction projects since the default equipment, activities, and typical phasing are different than those of land use development projects and building construction projects. The methodologies and assumptions used in RCEM are appropriate for road construction projects, including new road construction, road widening and bridge or overpass construction.

Regarding operational emissions, the new bridge would not result in a negligible increase in traffic volumes under the build conditions compared to the no build conditions. Accordingly, potential changes in local and regional operational emissions are assessed qualitatively.

3.2.2.2 Thresholds of Significance

In accordance with Appendix G of the State CEQA Guidelines, the proposed Project would have a significant impact related to air quality if it would meet any of the following criteria.

- 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 nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)
- Expose sensitive receptors to substantial pollutant concentrations
- Create objectionable odors affecting a substantial number of people

Based on the EDCAQMD regulatory role in the MCAB, the proposed Project would have a significant impact related to construction activity if it meets any of the following criteria.

- Inconsistent with SACOG's MTP/SCS or EDCAQMD's rules and regulations.
- Generate emissions of ozone precursors (ROG and NO_x) that exceed the mass emissions thresholds presented in Table 3.2-4.
- Generate emissions of other criteria pollutants that cause or contribute to a violation of the applicable CAAQS. The EDCAQMD has developed a screening approach based on the average daily fuel use to determine the potential for construction emissions to exceed the CAAQS. If the average amount of daily diesel fuel usage is less than the fuel usage screening threshold of 402 gallons per day (for construction equipment 1996 model year or later), it can be concluded that the ROG and NO_x emissions would not be significant. If ROG and NO_x emissions would not be significant, then CO, SO_x, and PM exhaust emissions would also not be significant.
- Generate TAC emissions that would result in a lifetime probability of contracting cancer greater than ten in one million or a ground-level concentration of non-carcinogenic TAC of greater than 1 on the hazard index. EDCAQMD has adopted a fuel-based screening threshold for TAC in which projects that consume less than 37,000 gallons of fuel over the construction period are considered to have a less-than-significant impact.
- Create an odor nuisance.

Table 3.2-4. El Dorado County Air Quality Management District Significance Thresholds

Criteria Pollutant	Construction	Operations
Reactive Organic Gases (ROG)	82 pounds per day ^a	
Nitrogen Oxides (NO _x)	82 pounds per day	
Carbon Monoxide (CO)	CAAQS (or fuel screening) ^b	
Sulfur Oxides (SO _x)	CAAQS (or fuel screening) ^b	
Fine Particulates (PM2.5)	Best management practices (dust) CAAQS (or fuel screening) ^b (exhaust)	CAAQS (or fuel screening) ^b
Particulates (PM10)	Best management practices (dust) CAAQS (or fuel screening) ^b (exhaust)	CAAQS (or fuel screening) ^b
TAC	Cancer risk of 10 in a million or HI greater than 1 (or fuel screening) ^c	

Source: El Dorado County Air Quality Management District 2002.

^a During construction, this threshold can be combined to obtain a total ozone threshold of 164 pounds per day. With the combined threshold, construction emissions of one pollutant may be in excess of 82 pounds per day; however, as long as the combined total is below 164 pounds per day, the EDCAQMD considers the impact to be less than significant. Unlike with construction emissions, the 82 pound per day threshold for operational ROG and NO_x cannot be combined for a total ozone threshold.

^b If the average amount of daily diesel fuel usage is less than the fuel usage screening threshold of 402 gallons per day (for construction equipment 1996 model year or later), EDCAQMD considers emissions to be less than significant.

^c If total diesel fuel usage is less than the fuel usage screening threshold of 37,000 gallons, EDCAQMD considers health risks to be less than significant.

3.2.2.3 Impacts and Mitigation Measures

Impact AQ-1: Conflict with or obstruct implementation of the applicable air quality plan (less than significant)

The proposed Project is listed in SACOG's financially constrained 2015/2018 Metropolitan Transportation Improvement Program (MTIP) and 2016 MTP/SCS. The SACOG Project ID No. ELD19340 and the proposed Build Alternative are described as "Mosquito Rd, over South Fork American River, 5.7 miles north of US 50: Replace existing structurally deficient 1 lane bridge with new 2 lane bridge. (Toll credits programmed for PE, right-of-way, & CON. CIP77126)".

Projects included in the MTP/SCS and MTIP are required to be consistent with the planning goals of SIPs adopted by local air quality management agencies. While construction of the Project would result in an emissions increase, the emissions would be short term and would not exceed EDCAQMD thresholds. Moreover, implementation of the Project would improve overall efficiency as the proposed roadway approaches on the more direct alignment over the river would permit a more consistent vehicular speed, thereby reducing the currently required extreme deceleration and acceleration to get to, and across, the existing bridge. This improved efficiency is consistent with the objectives and policies outlined in SACOG's MTP/SCS and the Ozone Plan. This impact would be less than significant, and no mitigation is required.

Impact AQ-2: Violate any air quality standard or contribute substantially to an existing or projected air quality violation (less than significant)

Construction

Site preparation and roadway construction would involve clearing, grading, and paving roadway surfaces. Construction-related impacts on air quality would be greatest when multiple pieces of equipment are operating simultaneously and generating exhaust emissions. Sources of fugitive dust would include disturbed soils at the construction site and trucks carrying uncovered loads of soils. These emissions would predominantly occur during grading and earthmoving activities. Emissions would vary day-to-day, depending on the nature and magnitude of construction activity and local weather conditions.

Daily construction emissions and daily and total fuel consumption are shown Tables 3.2-5 and 3.2-6, respectively. Since construction of each phase would occur sequentially, emissions for each phase are compared separately to EDCAQMD's thresholds as opposed to adding emissions across all phases. Accordingly, if emissions generated during a single phase exceed EDCAQMD's thresholds, the Project would result in a significant air quality impact.

Table 3.2-5. Estimated Criteria Pollutant Emissions from Construction (pounds per day)

Phase	ROG	CO	NO _x	PM10	PM2.5
Grubbing/Land Clearing	3	18	26	4	2
Grading/Excavation	5	33	51	3	2
Drainage/Utilities	2	17	11	1	1
Paving	1	11	6	<1	<1
<i>Significance Threshold</i>	<i>82</i>	<i>CAAQS</i>	<i>82</i>	<i>CAAQS/BMPs</i>	<i>CAAQS/BMPs</i>

Source: Terry A. Hayes Associates Inc. 2016.

BMPs = best management practices

CAAQS = California Ambient Air Quality Standards

Table 3.2-6. Estimated Fuel Usage during Construction (gallons per day and total)

Phase	Fuel Use
Grubbing/Land Clearing	206 average gallons per day
Grading/Excavation	361 average gallons per day
Drainage/Utilities	222 average gallons per day
Paving	143 average gallons per day
Construction Total	197,042 gallons
<i>Daily Screening Threshold</i>	<i>402</i>
<i>Construction Total Screening Threshold</i>	<i>37,000</i>

Source: Terry A. Hayes Associates Inc. 2016.

ROG and NO_x emissions would not exceed the EDCAQMD significance threshold of 82 pounds per day. In addition, daily fuel consumption would be less than the 402 gallons per day screening threshold set by EDCAQMD. During construction of the proposed Project, occasional short-term closures of the bridge (up to approximately 2 to 4 weeks) would occur. This duration is consistent with the duration of the closures that occur for existing annual bridge maintenance. When a closure is implemented, traffic is rerouted on Rock Creek Road, a detour of as much as 20 miles. Because under no-build conditions a detour is implemented each year during the annual bridge maintenance period, no increase in criteria pollutant emissions would result from Project implementation of a short-term closure and detour during construction of the new bridge. Therefore, the proposed Project would not exceed CAAQS in the vicinity of the Project site. Fugitive dust would be controlled through implementation of best management practices, including compliance with Caltrans Standard Specifications 14-9. This impact would be less than significant, and no mitigation is required.

Operation

As shown in Table 3.2-7, the new bridge would result in a negligible increase in traffic volumes under the build conditions compared to the no build conditions. While the implementation of the new bridge may increase the truck volumes by approximately 1%, the net decrease in overall

emissions due to a shorter travel path (approximately 1 mile compared to using the old bridge) and more consistent speeds would offset the increase in emissions due to the addition of approximately 13 daily truck trips in 2015 and 26 daily trips in 2034. Based on the roadway design and anticipated volumes, it is anticipated that the new Mosquito Bridge would result in a negligible change to regional emissions. Therefore, operational emissions would not result in a significant impact on criteria pollutant emissions, and no mitigation is required.

Table 3.2-7. Average Daily Traffic on Mosquito Road Bridge

Scenario	Total ADT	% Trucks	Truck ADT
Existing (2015)			
No Build	1,256	0%	0
Build	1,269	1.02%	13
Future (2034)			
No Build	2,521	0%	0
Build	2,547	1.02%	26

Source: Terry A. Hayes Associates Inc. 2016.

ADT = Average Daily Traffic

Impact AQ-3: Result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is a nonattainment area for an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors) (less than significant)

The EDCAQMD considers cumulative air quality impacts to be less than significant if a project satisfies the following criteria.

- Does not require a change in the existing land use designation, such as through a general plan amendment or rezone.
- Does not exceed the “project alone” significance criteria.
- Implements applicable Ozone Plan emission reduction measures.
- Complies with all applicable district rules and regulations.

The proposed Project would not need any land use redesignation or rezoning. Neither construction nor operational emissions would exceed the EDCAQMD’s “project alone” significance criteria (see Impact AQ-2). The Project would implement Caltrans Standard Specifications, which require compliance with local rules and regulations, including applicable Ozone Plan control strategies. The proposed Project therefore meets the EDCAQMD’s cumulative significance criteria and would result in a less-than-significant impact related to cumulative emissions.

Impact AQ-4: Expose sensitive receptors to substantial pollutant concentrations (less than significant)

Diesel Particulate Matter

Project construction would generate DPM, resulting in the potential exposure of nearby existing sensitive receptors (e.g., residences) to increased DPM concentrations. As shown in Table 3.2-6, total fuel usage would be 197,042 gallons of diesel. This would be less than the screening threshold of

37,000 gallons set by EDCAQMD. Therefore, construction activities would result in a less-than-significant impact related to exposure of sensitive receptors to DPM.

Regarding operational emissions, health risk assessments are typically completed for substantial sources of DPM emissions (e.g., truck stops and distribution facilities). Construction of the new bridge would likely increase the truck volumes by approximately 1% to 13 daily truck trips in 2015 and 26 daily trips in 2034. These levels of truck volumes would not generate significant emissions, and do not justify completion of a health risk assessment. In addition, the Project does not meet the EPA's screening criteria for projects of air quality concern, which is greater than 125,000 ADT, where 8% or more of such traffic is diesel truck traffic—as shown in Table 3.2-7, ADT on Mosquito Bridge in 2034 would be 2,547 with 26 trucks. This impact would be less than significant, and no mitigation is required.

Carbon Monoxide

Heavy traffic congestion can contribute to high levels of CO. Individuals exposed to these CO “hot spots” may have a greater likelihood of developing adverse health effects. As shown in Table 3.2-6, daily fuel consumption would be less than the 402 gallons per day screening threshold set by EDCAQMD. Therefore, the proposed Project would not exceed the CO CAAQS in the vicinity of the Project site. This impact would be less than significant, and no mitigation is required.

Naturally Occurring Asbestos

El Dorado County has prepared a map of asbestos areas, which indicates that the proposed Project is not in an area containing NOA (Terry A. Hayes Associates Inc. 2016). Although it is not anticipated that construction activity would encounter NOA, the proposed Project would be required to comply with EDCAQMD Rule 223-2 requiring activities to reduce asbestos dust created from earth-moving activities. Standard dust control measures such as watering would effectively control unanticipated NOA exposure. This impact would be less than significant, and no mitigation is required.

Structural Asbestos

In the event the existing bridge is removed, prior to it being disassembled and removed bridge materials would be tested for the presence of hazardous materials, such as structural asbestos. If asbestos is identified in bridge materials, the County would prepare an Asbestos Control Plan in compliance with federal and state regulations. Please refer to Section 3.7, *Hazards and Hazardous Materials*, for additional information. This impact would be less than significant, and no mitigation is required.

Lead-Based Paint

Aerially deposited Pb has been found to occur in soils adjacent to highways and high use roadways. The Pb is presumably from the historical use of leaded gasoline and subsequent exhaust emissions. Pb has not been identified in the Project area. In addition, prior to the existing bridge potentially being disassembled and removed, bridge materials would be tested for the presence of hazardous materials such as lead-based paint. If Pb is identified in bridge materials, the proposed Project would be required to develop a Lead Compliance Plan to minimize exposure. Please refer to Section 3.7, *Hazards and Hazardous Materials*, for additional information. This impact would be less than significant, and no mitigation is required.

Impact AQ-5: Create objectionable odors affecting a substantial number of people (less than significant)

Construction activities associated with the proposed Project would involve the use of a variety of gasoline- or diesel-powered equipment that emit exhaust fumes and require asphalt paving, which has a distinctive odor during application. It is anticipated that these emissions would occur intermittently throughout the workday and the associated odors would dissipate rapidly within the immediate vicinity of the work area. Persons within close proximity to the construction work area may find these odors objectionable. However, the infrequency of the emissions, rapid dissipation of the exhaust into the air, and short-term nature of the construction activities would result in a less-than-significant impact associated with construction odors at the nearest residence.

Land uses and industrial operations that are associated with odor complaints include wastewater treatment plants, landfills, confined animal facilities, composting stations, food manufacturing plants, refineries, and chemical plants. Accordingly, it is not anticipated that the operations of the proposed Project would result in odor nuisances. This impact would be less than significant, and no mitigation is required.

3.2.3 References

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3.3 Biological Resources

This section provides information on biological resources in the Project study area. For the purpose of this EIR, biological resources comprise vegetation; wildlife; and waters of the State and waters of the United States, including wetlands.

Potential biological resource impacts associated with the Project are analyzed on a project level in this section. Specific and detailed mitigation measures to avoid, minimize, or compensate for potential significant impacts on biological resources are described for each potential impact, as necessary.

3.3.1 Existing Conditions

This section describes the regulatory setting and environmental setting for biological resources in the Project study area. For the purpose of this EIR, “study area” is defined as all proposed permanent and temporary project impact areas, including staging areas (Figure 3.3-1) The study area consists of the South Fork American River, oak and pine woodlands on the surrounding slopes, Mosquito Road, and rural residential areas.

3.3.1.1 Regulatory Setting

This section summarizes the federal and state regulations that protect special-status species; waters of the United States (which also are considered waters of the State), including wetlands; and sensitive habitats. This section also discusses pertinent local general plan policies and ordinances related to the protection and preservation of biological resources.

Federal Regulations

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. The following sections provide additional details on specific sections of the CWA.

Permits for Fill Placement in Waters and Wetlands (Section 404)

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

- Areas within the OHWM 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
- 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's jurisdiction in isolated waters. Based on SWANCC, the USACE no longer has jurisdiction or regulates isolated wetlands (i.e., wetlands that have no hydrologic connection with a water of the United States).

A federal ruling on two consolidated cases (June 19, 2006; *Rapanos v. United States and Carabell v. U.S. Army Corps of Engineers*), referred to as the Rapanos decision, affects whether some waters or wetlands are considered jurisdictional under the CWA. In these cases, the U.S. Supreme Court reviewed the USACE definition of waters of the United States and whether or not it extended out to traditional navigable waters (TNWs) or wetlands adjacent to those tributaries. The decision provided two standards for determining jurisdiction of waterbodies that are not TNWs: (1) if the non-TNW is a relatively permanent water or is a wetland directly connected to a relatively permanent water, or (2) if the waterbody has "significant nexus" to a TNW. The significant nexus definition is based on the purpose of the CWA ("restore and maintain the chemical, physical, and biological integrity of the Nation's waters"). Guidance issued by EPA and USACE on the Rapanos decision requires application of the two standards to support a jurisdictional determination for a waterbody.

Applicants must obtain a permit from the USACE for all discharges of dredged or fill material into waters of the United States, including adjacent wetlands, before proceeding with a proposed activity. The 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. The nationwide permits are a type of general permit issued to cover particular fill activities. Each nationwide permit specifies particular conditions that must be met for the nationwide permit to apply to a particular project.

Compliance with CWA Section 404 requires compliance with several other environmental laws and regulations. The USACE cannot issue an individual permit or verify the use of a general permit until the requirements of NEPA, the federal Endangered Species Act (ESA), and the National Historic Preservation Act (NHPA) have been met. In addition, the 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.

Permits for Stormwater Discharge (Section 402)

CWA Section 402 regulates point-source discharges, including construction-related stormwater discharges to surface waters, through the National Pollutant Discharge Elimination System (NPDES) program, administered by EPA. In California, the State Water Resources Control Board (State Water

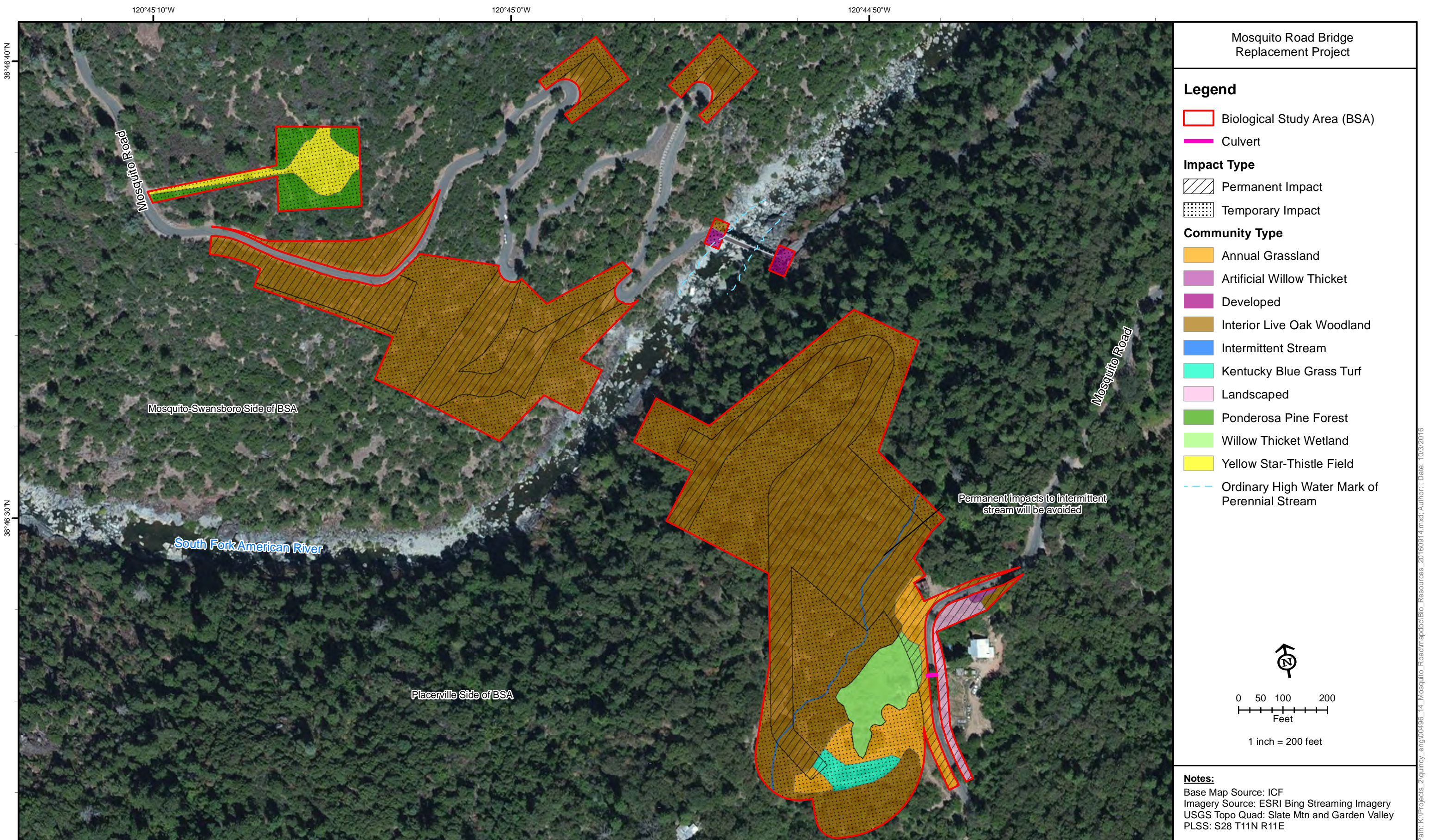


Figure 3
Impacts on Natural Communities in the Biological Study Area

Board) is authorized by EPA to oversee the NPDES program through the RWQCBs (see the related discussion under “Porter-Cologne Water Quality Control Act” below). The Project area is under the jurisdiction of the Central Valley RWQCB.

NPDES permits are required for projects that disturb more than 1 acre of land. The NPDES permitting process requires the applicant to file a public notice of intent to discharge stormwater and to prepare and implement a SWPPP. The SWPPP includes a site map and a description of proposed construction activities. In addition, it describes the BMPs that would be implemented to prevent soil erosion and discharge of other construction-related pollutants (e.g., petroleum products, solvents, paints, cement) that could contaminate nearby water resources. Permittees are required to conduct annual monitoring and reporting to ensure that BMPs are correctly implemented and effective in controlling the discharge of stormwater-related pollutants.

Water Quality Certification (Section 401)

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. A Section 401 Water Quality Certification from the Central Valley RWQCB would be required for waters of the United States identified in the study area.

For each of the above sections of the CWA, the County would obtain and comply with the applicable federal and state permits, and all conditions that are attached to those permits would be implemented as part of the proposed Project. The permit conditions would be clearly identified in the construction plans and specifications and monitored during and after construction to ensure compliance.

Migratory Bird Treaty Act

The federal 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 Code of Federal Regulations [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 gamebirds, legitimate research activities, display in zoological gardens, banding, and other 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.

Executive Order (EO) 13186 (January 10, 2001) directs each federal agency taking actions having or likely to have a negative impact on migratory bird populations to work with USFWS to develop a memorandum of understanding to promote the conservation of migratory bird populations. Protocols developed under the memorandum of understanding must include the following agency responsibilities:

- Avoid and minimize, to the extent practicable, adverse impacts on migratory bird resources when conducting agency actions
- Restore and enhance habitat of migratory birds, as practicable
- Prevent or abate the pollution or detrimental alteration of the environment for the benefit of migratory birds, as practicable

EO 13186 is designed to assist federal agencies in their efforts to comply with the MBTA, and does not constitute any legal authorization to take migratory birds.

The Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (BGEPA) (16 USC 668) prohibits take and disturbance of individuals and nests. Take permits for birds or body parts are limited to religious, scientific, or falconry pursuits. However, the BGEPA was amended in 1978 to allow mining developers to apply to USFWS for permits to remove inactive golden eagle (*Aquila chrysaetos*) nests in the course of “resource development or recovery” operations. With the 2007 removal of bald eagle from the ESA list of threatened and endangered species, USFWS issued new regulations to authorize the limited take of bald eagles (*Haliaeetus leucocephalus*) and golden eagles under the BGEPA, where the take to be authorized is associated with otherwise lawful activities. A final Eagle Permit Rule was published on September 11, 2009 (74 Federal Register [FR] 46836–46879; 50 CFR 22.26).

A permit authorizes limited, non-purposeful take of bald eagles and golden eagles and can be applied for by individuals, companies, government agencies (including tribal governments), and other organizations to allow disturbance or otherwise take eagles in the course of conducting lawful activities, such as operating utilities and airports. Under BGEPA, *take* is defined as “pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, destroy, molest or disturb.” *Disturb* is defined in the regulations as “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 to an eagle; (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.” Most permits issued under the new regulations authorize disturbance. In limited cases, a permit may authorize the physical take of eagles but only if every precaution is first taken to avoid physical take.

USFWS issued the Eagle Conservation Plan Guidance (Eagle Guidance) intended to assist parties to avoid, minimize, and mitigate adverse impacts on bald and golden eagles (U.S. Fish and Wildlife Service 2013). The Eagle Guidance calls for scientifically rigorous surveys, monitoring, assessment, and research designs proportionate to the risk to eagles.

Executive Order 13112: Prevention and Control of Invasive Species

EO 13112, signed February 3, 1999, directs all federal agencies to prevent and control the introduction of invasive species in a cost-effective and environmentally sound manner. The EO established the National Invasive Species Council, which is composed of federal agencies and departments, and a supporting Invasive Species Advisory Committee composed of state, local, and private entities. In 2008, the National Invasive Species Council released an updated national invasive species management plan (National Invasive Species Council 2008) that recommends objectives and measures to implement EO 13112 and prevent the introduction and spread of invasive species. The EO requires consideration of invasive species in NEPA analyses, including their identification and

distribution, their potential impacts, and measures to prevent or eradicate them. Caltrans will avoid violation of EO 13112 by implementing measures identified in Section 3.3.2.3 for invasive plants.

State Regulations

California Endangered Species Act

The California Endangered Species Act (CESA) prohibits the take of endangered and threatened species; however, habitat destruction is not included in the state's definition of take. Section 2090 of CESA requires state agencies to comply with endangered species protection and recovery and to promote conservation of these species. CDFW administers the act and authorizes take through California Fish and Game Code (CFGF) Section 2081 agreements (except for species designated as fully protected). Two state-listed species, bald eagle (*Haliaeetus leucocephalus*) and willow flycatcher (*Empidonax traillii*), have the potential to occur in or near the Project area.

Porter-Cologne Water Quality Control Act

California Water Code Section 13260 requires "any person discharging waste, or proposing to discharge waste, in any region that could affect the waters of the state to file a report of discharge (an application for waste discharge requirements)." Under the Porter-Cologne Act definition, waters of the state are "any surface water or groundwater, including saline waters, within the boundaries of the state." Although all waters of the United States that are within the borders of California are also waters of the state, the reverse is not true. Therefore, California retains authority to regulate discharges of waste into any waters of the state, regardless of whether USACE has concurrent jurisdiction under CWA Section 404. If USACE determines that a wetland is not subject to regulation under Section 404, CWA Section 401 water quality certification is not required. However, the RWQCB may impose waste discharge requirements (WDRs) or require an NPDES permit if fill material is placed into waters of the state. Because fill material will be placed into a willow thicket wetland, which is also a water of the state, an application for water quality certification from the Central Valley RWQCB will be needed.

California Fish and Game Code

Several sections of the CFGF apply to the proposed Project and are described below: 1602, 3503, 3503.5, 3511, and 3513.

Lake or Streambed Alteration Agreements (Section 1602)

Under CFGF Section 1602, public agencies are required to notify CDFW before undertaking any project that would divert, obstruct, or change the natural flow, bed, channel, or bank of any river, stream, or lake. Preliminary notification and project review generally occur during the environmental process. When an existing fish or wildlife resource may be substantially adversely affected, CDFW is required to propose reasonable project changes to protect the resources. These modifications are formalized in a Lake or Streambed Alteration Agreement (LSAA) that becomes part of the plans, specifications, and bid documents for the project. Because the proposed Project will require construction within the limits of CDFW jurisdiction, i.e., on the banks and over the bed of the South Fork American River, an application for an LSAA will be needed.

Birds and Raptors (Sections 3503 and 3503.5)

CFGC Section 3503 prohibits the destruction of bird nests. Section 3503.5 prohibits the killing of raptor species and destruction of raptor nests. Trees and shrubs in and adjacent to the study area provide suitable nesting habitat for birds and raptors.

Fully Protected Birds (Section 3511)

The CFGC provides protection from take for a variety of species, referred to as fully protected species. CFGC Section 3511 lists fully protected birds and prohibits take of these species. The code defines take as “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.” Except for take related to scientific research, all take of fully protected species is prohibited. One fully protected species, bald eagle, has the potential to occur in or near the Project area.

Migratory Birds (Section 3513)

CFGC Section 3513 prohibits the take or possession of any migratory non-game bird as designated in the MBTA or any part of such migratory non-game bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the MBTA. The County will avoid violation of CFGC Section 3513 by implementing measures for migratory birds.

Oak Woodlands Conservation Act

Senate Bill 1334, the Oak Woodlands Conservation Act, was enacted by the Legislature in 2004 to add Section 21083.4 to the PRC (CEQA) regarding oak woodlands conservation. Section 21083.4(b) requires that a county shall make a determination whether a project in its jurisdiction may result in conversion of oak woodlands that will have a significant effect on the environment. If a county determines that there may be a significant effect on oak woodlands, the county must require one or more of four oak woodlands mitigation alternatives to mitigate the significant effect of the conversion of woodlands. These alternatives are: (1) conserving oak woodlands through conservation easements; (2) planting an appropriate number of trees and maintaining them; (3) contributing funds to the Oak Woodlands Conservation Fund; or (4) other mitigation measures developed by the county. The County implements the requirements of this act through County General Plan Policy 7.4.4.4.

Local Regulations**El Dorado County General Plan Policies Relating to Forest and Oak Woodlands*****Policies 7.4.4.4 and 7.4.5.2***

Several 2004 County General Plan policies promote the protection of forest and oak woodlands in the County. Policy 7.4.4.4 requires new development, other than agriculture and fire safety plans, to mitigate for loss of woodlands, and Policy 7.4.5.2 states that the County will develop and implement an oak tree preservation ordinance. Policy 7.4.4.4 sets forth percentages of on-site canopy retention requirements for development projects until the County develops a county-wide strategy. In 2008, the County adopted the El Dorado County Oak Woodland Management Plan (OWMP) to implement these County General Plan oak woodland protection policies. The OWMP included a section that recognized roads as unique from other types of development projects because of their non-parcel-specific linear design and resultant inability to provide on-site retention or replacement. More

importantly, the OWMP acknowledged the importance of those County road projects that provide safety improvements by including an exemption from retention and replacement requirements.

The County's adoption of the OWMP was challenged in court. The petitioners claimed, in part, that the County had not complied with CEQA. Road projects were not specifically challenged. In 2012, the Appellate Court upheld the CEQA challenge to the OWMP and remanded to the Superior Court, which directed the County to rescind approval of the OWMP until additional CEQA analysis is performed. The OWMP has been updated and is now referred to as the Oak Resources Management Plan (ORMP). The Draft Environmental Impact Report for the ORMP was released on June 30, 2016. Until the ORMP EIR is certified, the existing Superior Court direction stands. The Superior Court recognized, and the petitioners accepted, an exemption from the oak canopy retention policies for public safety road projects as set forth below, and the proposed Project falls under this exemption:

Public Road and Public Utility Projects Exempt from Policy 7.4.4.4. Oak canopy removal necessary to complete the County capital improvement projects are exempt from the canopy retention and replacement standards, when the new alignment is dependent on the existing alignment. This exemption applies to road realignments or widening which are necessary for public safety reasons within the existing or any acquired right of way. The County will minimize impacts to oak woodlands and utilize the minimum area of the acquired right of way necessary to achieve the public safety purpose. This exemption shall also apply to removal of oak canopy necessary to comply with safety regulations of the Public Utilities Commission and necessary to maintain the safe operation of utility facilities.

The public road exemption would stand under the proposed revisions to the oak tree and woodland policies. Requirements of federal and state agencies for replacement of nesting habitat for bald eagles, California spotted owl, migratory birds, and special-status bats could supersede this exemption for the proposed project.

3.3.1.2 Environmental Setting

The approximately 17-acre study area for this analysis consists of the South Fork American River, oak and pine woodlands on the surrounding slopes, Mosquito Road, and rural residential areas (Figure 3.3-1). The two proposed staging areas are somewhat disturbed due to previous uses for staging and vehicle storage, while much of the rest of the study area is relatively undisturbed.

Methods

Biological resources were identified through a review of species lists from CDFW and USFWS and other literature, and field surveys. To prepare for the field surveys, ICF biologists reviewed existing resource information related to the Project to evaluate whether special-status species or other sensitive biological resources (e.g., wetlands) could occur in the study area and vicinity. The following sources of information were reviewed prior to conducting field surveys.

- A list of special-status species from the California Natural Diversity Database (CNDDB) records search for the U.S. Geological Survey (USGS) 7.5-minute Camino, Coloma, Devil Peak, Garden Valley, Georgetown, Greenwood, Placerville, Pollock Pines, Shingle Springs, Slate Mtn., Sly Park or Tunnel Hill quadrangles (California Department of Fish and Wildlife 2015a, 2016e)
- California Native Plant Society's (CNPS's) Inventory of Rare and Endangered Plants of California for the same USGS quadrangles listed above (California Native Plant Society 2015, 2016)

- A list of threatened and endangered species for the Project location in El Dorado County from the USFWS Sacramento Field Office website (U.S. Fish and Wildlife Service 2015a, 2016)
- El Dorado County General Plan
- El Dorado County Soil Survey (Natural Resources Conservation Service 2014a)

This information was used to develop lists of special-status species and sensitive vegetation communities that could be present in the Project vicinity, and determine the potential for wetlands to occur in the study area. Species from the lists were considered if they were known to occur within an approximately 10-mile radius of the study area.

Surveys for biological resources in the study area were conducted on September 17 and October 22, 2015 and March 30, May 11, and May 12, 2016. Surveys included a delineation of waters of the United States and waters of the State, mapping of vegetation communities, estimates of potentially regulated trees, appropriately timed special-status plant surveys (early and late spring and early fall), and special-status wildlife habitat assessments. Special-status plant surveys were conducted in accordance with CDFW guidelines (California Department of Fish and Game 2009).

Physical Conditions

The study area is located in the northern Sierra Nevada Foothills district of the Sierra Nevada foothills subregion of the California Floristic Province (Baldwin et al. 2012:39). The topography in the study area is steeply sloped, and elevations range from approximately 1,300 to 1,750 feet above mean sea level. The two proposed staging areas are located in relatively flat locations, but the bridge components are all located on steep slopes.

According to soil data from the Natural Resources Conservation Service (NRCS), the study area contains the following five soil map units and water (Natural Resources Conservation Service 2014a).

- Acidic rock land
- Chaix very rocky coarse sandy loam, 50 to 70 percent slopes
- Holland very rocky coarse sandy loam, 15 to 50 percent slopes
- Musick very rocky sandy loam, 15 to 50 percent slopes
- Shaver coarse sandy loam, 15 to 30 percent slopes

The study area is within the South Fork American watershed hydrologic unit (hydrologic unit code 18020129) (U.S. Environmental Protection Agency 2015). The primary river in the study area is the South Fork American River, a TNW (which also is considered a water of the State).

Land Cover Types

The Project area occurs within the northern Sierra Nevada Foothills subdivision of the California Floristic Province (Baldwin et al. 2012:39, 42–43). The vegetation communities in the study area are interspersed with roadways and rural residential development. The term land cover type is used in this document to refer to vegetation communities, open water, and unvegetated developed or disturbed areas. Land cover types mapped during field surveys are described below and shown in Figure 3.3-1.

The distribution, representative vegetation, and typical wildlife species found in land cover types within the study area are described below.

Interior Live Oak Woodland

Interior live oak woodland is the most prevalent community in the study area and occurs on both sides of the river. The Mosquito-Swansboro side of the river is on a south-facing slope and is warmer and drier than the north-facing slope of the Placerville side. As a result, the oak woodland on the Mosquito-Swansboro side includes more chaparral-type shrubs in the understory than on the Placerville side, which supports more herbaceous annual grassland species in the understory. Dominant species observed in the oak woodland include interior live oak in the overstory with shrubs such as white leaf manzanita (*Arctostaphylos viscida* ssp. *viscida*), buck brush (*Ceanothus cuneatus* var. *cuneatus*), and toyon (*Heteromeles arbutifolia*) in the understory, particularly in areas of more open canopy. Associated tree species include madrone (*Arbutus menziesii*), black oak (*Quercus kelloggii*), and foothill pine (*Pinus sabiniana*).

Local and state agencies recognize native oak woodlands as sensitive natural communities, and, although the Project is exempt, the County General Plan includes policies for the protection of oak woodlands.

Ponderosa Pine Forest

A small area of ponderosa pine forest occurs in the area surrounding the proposed staging area on the Mosquito-Swansboro side of the river. In this community, ponderosa pine (*Pinus ponderosa* ssp. *ponderosa*) is the dominant tree species, with chaparral shrubs, such as white leaf manzanita and buck brush, and annual grasses in the understory.

Willow Thicket Wetland

A willow thicket wetland occurs within the proposed staging area on the Placerville side of the river. The thicket is a dense stand of trees and shrubs dominated by arroyo willow (*Salix lasiolepis*) and California blackberry (*Rubus ursinus*). There are also two apple trees growing in the thicket. Based on the landowner's account, this area had no trees until grazing was ceased in the late 1950s and the willows grew (Owings pers. comm.). A culvert under Mosquito Road directs runoff into the thicket area.

The willow thicket is a potential jurisdictional wetland subject to regulation under CWA Section 404, and is under the jurisdiction of the USACE. The willow thicket is also a potential water of the State subject to regulation by the Central Valley RWQCB under the Porter-Cologne Act.

Annual Grassland

Annual grassland occurs in the proposed staging area on the Placerville side of the river. Dominant species in this community include annual grasses, such as wild oat (*Avena fatua*), ripgut brome (*Bromus diandrus*), and soft chess (*Bromus hordeaceus*), and forbs, such as Spanish lotus (*Acmispon americanus* var. *americanus*), dove weed (*Croton setigerus*), and Queen Anne's lace (*Daucus carota*).

Kentucky Blue Grass Turf

Kentucky blue grass turf occurs on the north-facing slope in the proposed staging area on the Placerville side of the river. Kentucky blue grass (*Poa pratensis* ssp. *pratensis*) is the dominant

species in this community, with lesser cover by Pacific rush (*Juncus effusus* ssp. *pacificus*) and clustered field sedge (*Carex praegracilis*). Although the plants in this community may occur in wetlands, this site did not meet the soil and hydrology criteria for wetlands.

Artificially Irrigated Willow Thicket

An artificially irrigated willow thicket occurs on the south side of Mosquito Road just east of the proposed staging area on the Placerville side of the river. The hydrology of this community is artificially supported by domestic water runoff and seepage. Species observed in this community include nutsedge (*Cyperus eragrostis*), fluellin (*Kickxia elatine*), and field mint (*Mentha arvensis*), with Himalayan blackberry and arroyo willow on the slope above the wetted area. This area was observed to transition from being slightly moist to being inundated during the October 22, 2015 field survey as water flowed from the drainage system. This willow thicket is not considered a wetland because the water source is artificial.

Intermittent Stream

An intermittent stream crosses the proposed bridge approach on the Placerville side of the river where a minor bridge leading to the main bridge, a construction access/maintenance road, and a staging area are proposed. During the September 17 and October 22, 2015 field surveys, the streambed was dry and covered in leaf litter, and annual grassland species were growing on the stream banks. The OHWM of the stream is 3 to 4 feet, and the stream is incised up to approximately 10 feet deep in parts of the study area. The stream drains to House Creek, a tributary of the South Fork American River just north of the study area.

The intermittent stream is a non-wetland water of the United States subject to regulation under CWA Section 404, and is under the jurisdiction of the USACE. The Central Valley RWQCB protects all waters of the State under the Porter-Cologne Act.

Perennial Stream (South Fork American River)

The existing Mosquito Road Bridge crosses the South Fork American River, which is a perennial stream. The OHWM of the river is approximately 70 feet wide at this point. The river bed and banks contain large boulders. Patches of riparian vegetation, including willows and rushes, grow between the boulders near and within the OHWM.

The South Fork American River is considered a sensitive natural community because it is a nonwetland water of the United States subject to regulation under CWA Section 404, and is under the jurisdiction of the USACE. The Central Valley RWQCB protects all waters of the State under the Porter-Cologne Act.

Landscaped

Landscaping occurs only in a narrow piece of the study area along Mosquito Road on the Placerville side of the river. This area is associated with a home and includes native and non-native species, such as incense cedar (*Calocedrus decurrens*), Italian cypress (*Cupressus sempervirens*), northern California black walnut (*Juglans hindsii*), lilac (*Syringa vulgaris*), and periwinkle (*Vinca major*).

Developed

The developed cover type refers primarily to the paved Mosquito Road in the study area.

Wildlife Habitat

The study area provides habitat for an assemblage of wildlife species typical of annual grassland, live oak woodland, and ponderosa pine forest communities. Numerous mammal species or evidence of use (i.e., scat, burrows) were observed in or near the study area during the 2015 reconnaissance survey, including black-tailed deer (*Odocoileus hemionus columbianus*), black-tailed hare (*Lepus californicus*), Botta's pocket gopher (*Thomomys bottae*), and dusky-footed woodrat (*Neotoma fuscipes*). Stream habitats in the study area also provide habitat for common amphibians and reptiles such as western toad (*Anaxyrus boreas*), Pacific tree frog (*Pseudacris regilla*), and western diamondback rattlesnake (*Crotalus atrox*). Common bird species observed throughout the study area included black phoebe (*Sayornis nigricans*), mourning dove (*Zenaida macroura*), western scrub jay (*Aphelocoma californica*), mountain bluebird (*Sialia currucoides*), spotted towhee (*Pipilo maculatus*), acorn woodpecker (*Melanerpes formicivorus*), downy woodpecker (*Picoides pubescens*), northern flicker (*Colaptes auratus*), wild turkey (*Meleagris gallopavo*), American kestrel (*Falco sparverius*), red-tailed hawk (*Buteo jamaicensis*), and turkey vulture (*Cathartes aura*).

The South Fork American River in the study area supports native fish such as Sacramento sucker (*Catostomus occidentalis*), speckled dace (*Rhinichthys osculus*), riffle sculpin (*Cottus gulosus*), and two CDFW species of special concern: hardhead (*Mylopharodon conocephalus*) and Central California roach (*Lavinia symmetricus symmetricus*).

The South Fork American River flows through the study area and is bordered by a steep canyon of interior live oak woodland, and smaller areas of annual grassland and ponderosa pine forest. The river canyon provides an important travel corridor for resident wildlife during daily foraging movements, as well as a dispersal and migration route for birds and large mammals such as coyote (*Canis latrans*) and black bear (*Ursus americanus*).

Waters of the United States/Waters of the State

As described above, the study area contains waters of the United States, consisting of willow thicket wetland, intermittent stream, and perennial stream. A preliminary delineation of the Project area was conducted in September and October 2015 and will be submitted to USACE to determine the agency's jurisdiction. Verification of the delineated boundaries is pending USACE approval.

Special-Status Species

Special-status species are plants and animals that are legally protected under ESA and CESA, or other regulations, and species that are considered sufficiently rare by the scientific community to qualify for such listing. Special-status plants and animals are those species in any of the categories listed below.

- Species listed or proposed for listing as threatened or endangered under ESA (50 CFR 17.11 [listed animals], 50 CFR 17.12 [listed plants], and various notices in the FR [proposed species]).
- Species that are candidates for possible future listing as threatened or endangered under ESA (80 FR 80584, December 24, 2015).
- Species listed or proposed for listing by the State of California as threatened or endangered under CESA (14 CCR 670.5).
- Species that meet the definitions of rare or endangered under CEQA (State CEQA Guidelines Section 15380).

- Plants listed as rare under the California Native Plant Protection Act (CFGF 1900 et seq.).
- Plants considered by CNPS to be “rare, threatened, or endangered in California” (2009).
- Plants listed by CNPS as plants about which more information is needed to determine their status and plants of limited distribution, which may be included as special-status species on the basis of local significance or recent biological information.
- Animal species of special concern to CDFW (California Department of Fish and Wildlife 2016a).
- Animals fully protected in California (CFGF Section 3511 [birds], 4700 [mammals], 5050 [amphibians and reptiles], and 5515 [fish]).
- Bats identified as medium or high priority on the Western Bat Working Group regional priority species matrix (Western Bat Working Group 2007).

Special-Status Plant Species

Based on the searches of the CNDDDB, the CNPS rare plant inventory, and USFWS’ website, 22 special-status plant species were identified as occurring in the vicinity of the study area (Table 3.3-1). The land cover types in the study area contain potential habitat for 9 of these 22 species. The remaining 13 species have microhabitat requirements (i.e., marsh wetland or volcanic, Josephine silt loam, gabbro, serpentine, lone, or clay soils) that are not present in the study area or occur at elevations substantially higher than the elevation of the study area, which ranges from approximately 1,300 to 1,700 feet (400 to 530 meters).

No special-status plants were observed in the study area during the 2015 reconnaissance survey or the March 30, May 11, and May 12, 2016 surveys conducted during the blooming periods of all special-status species with potential habitat in the study area, and none have been previously reported in the study area (California Department of Fish and Wildlife 2015a, 2016e). However, one special-status plant, Brandegees’ clarkia, was found along the roadside slope of Mosquito Road near, but outside of, the Mosquito-Swansboro side of the study area.

Special-Status Wildlife Species

Based on a review of the CNDDDB search results; the USFWS list of endangered, threatened, and proposed species within the Project region; and species’ distribution and habitat data, 27 special-status wildlife species were determined to have the potential to occur in the Project region (Table 3.3-2). After completion of the field survey, the biologists determined that 14 of the 27 species would not occur in the study area because the area lacks suitable habitat or is outside the species’ known range. An explanation for the absence of each of these species from the study area is provided in Table 3.3-2. Suitable habitat is present in the study area for the remaining 13 species.

- Foothill yellow-legged frog (*Rana boylei*)
- Blainville’s (Coast) horned lizard (*Phrynosoma blainvillii*)
- Bald eagle (*Haliaeetus leucocephalus*)
- California spotted owl (*Strix occidentalis occidentalis*)
- Willow flycatcher (*Empidonax traillii*)

The following tree, structure, cavity, and crevice roosting bats have suitable habitat in the study area.

- Pallid bat (*Antrozous pallidus*)
- Townsend's big-eared bat (*Corynorhinus townsendii*)
- Silver-haired bat (*Lasionycteris noctivagans*)
- Western red bat (*Lasiurus blossevillii*)
- Hoary bat (*Lasiurus cinereus*)
- Fringed Myotis (*Myotis thysanodes*)
- Long-legged Myotis (*Myotis volans*)
- Yuma Myotis (*Myotis yumanensis*)

Table 3.3-1. Special-Status Plant Species with Potential to Occur in the Vicinity of the Mosquito Road Bridge Replacement Study Area

Common Name Scientific Name	Status Federal/State/ CRPR	General Habitat Description	Blooming Period	Habitat Present/ Absent	Rationale
Jepson's onion <i>Allium jepsonii</i>	-/-/1B.2	Sierra Nevada Foothills in Butte, El Dorado, Placer, and Tuolumne Counties. Serpentine or (volcanic) basalt outcrops in oak woodland, chaparral, and lower montane coniferous forest; 300–1,320 meters.	April– August	Habitat Present	Suitable habitat in interior live oak woodland and ponderosa pine forest. Nearest recorded occurrence is ~10 miles southwest of the study area.
Nissenan manzanita <i>Arctostaphylos nissenana</i>	-/-/1B.2	Sierra Nevada Foothills, El Dorado and Tuolumne Counties. Closed-cone coniferous forest, chaparral on rocky, dry ridges; 450–1,100 meters.	February– March	Habitat Present	Suitable habitat in interior live oak woodland on south-facing slopes. Nearest recorded occurrence is ~1.5 miles south of the study area. Not observed during March 2016 survey.
Pleasant Valley mariposa lily <i>Calochortus clavatus</i> var. <i>avius</i>	-/-/1B.2	Northern and central Sierra Nevada Foothills: Amador, Calaveras, El Dorado, and Mariposa* Counties. Lower montane coniferous forest on Josephine silt loam and volcanic soils; 305–1,800 meters.	May– July	Habitat Absent	No suitable soils in the study area. Nearest recorded occurrence is ~6.6 miles southeast of the study area.
Stebbins' morning-glory <i>Calystegia stebbinsii</i>	E/E/1B.1	Northern Sierra Nevada Foothills with reported occurrences in El Dorado and Nevada Counties. Serpentine or gabbro soils in chaparral openings, cismontane woodland; 185–730 meters.	April– July	Habitat Absent	No suitable soils in the study area. Nearest recorded occurrence is ~13.5 miles southwest of the study area.
Van Zuur's morning-glory <i>Calystegia vanzuukiae</i>	-/-/1B.3	El Dorado and Placer Counties. Gabbro or serpentine substrates in chaparral and cismontane woodland; 500–1,180 meters.	May– August	Habitat Absent	No suitable soils in the study area. Nearest recorded occurrence is ~7 miles northwest of the study area.

Common Name Scientific Name	Status Federal/State/ CRPR	General Habitat Description	Blooming Period	Habitat Present/ Absent	Rationale
Sierra arching sedge <i>Carex cyrtostachya</i>	-/-/1B.2	Butte, El Dorado, and Yuba Counties. Lower montane coniferous forest, meadows and seeps, marshes and swamps, riparian forest; 610–1,360 meters.	May– August	Habitat Present	The study area is below elevation range for species. Nearest recorded occurrence is more than 15 miles from the study area.
Pine Hill ceanothus <i>Ceanothus roderickii</i>	E/R/1B.1	Endemic to El Dorado County. Serpentine or gabbro soils in chaparral or cismontane woodland; 245–630 meters.	April– June	Habitat Absent	No suitable soils in the study area. Nearest recorded occurrence is ~12 miles southwest of the study area.
Red Hills soaproot <i>Chlorogalum grandiflorum</i>	-/-/1B.2	Northern and central Sierra Nevada Foothills: Amador, Butte, Calaveras, El Dorado, Placer, and Tuolumne Counties. Serpentine or gabbro soils in chaparral, lower montane coniferous forest, and cismontane woodland; 245–1,240 meters.	May– June	Habitat Absent	No suitable soils in the study area. Nearest recorded occurrence is ~3 miles west of the study area.
Brandegee's clarkia <i>Clarkia biloba</i> ssp. <i>brandegeae</i>	-/-/4.2	Northern Sierra Nevada Foothills from Butte to El Dorado Counties. Chaparral, cismontane woodland, lower coniferous forest, often on roadcuts; 75–915 meters.	May–July	Habitat Present	Suitable habitat in interior live oak woodland and ponderosa pine forest, particularly along Mosquito Road. Nearest previously recorded occurrence is ~1.4 miles southwest of the study area. Observed on Mosquito Road within several hundred feet of study area.
Sierra clarkia <i>Clarkia virgata</i>	-/-/4.3	Northern and central Sierra Nevada, including portions of Amador, Calaveras, El Dorado, Mariposa, and Tuolumne Counties. Cismontane woodland, lower montane coniferous forest; 400–1,615 meters.	May– August	Habitat Present	Suitable habitat in interior live oak woodland and ponderosa pine forest. Nearest recorded occurrence is ~2.3 miles east of the study area.

Common Name Scientific Name	Status Federal/State/ CRPR	General Habitat Description	Blooming Period	Habitat Present/ Absent	Rationale
Bisbee Peak rush-rose <i>Crocanthemum suffrutescens</i>	-/-/3.2	Amador, Calaveras, El Dorado, Mariposa, Sacramento, and Tuolumne Counties. Chaparral openings, often on serpentine, gabbro, or Ione soils; 45–840 meters.	April– August	Habitat Absent	No suitable soils in the study area. Nearest recorded occurrence is ~12 miles southwest of the study area.
Pine Hill flannelbush <i>Fremontodendron decumbens</i>	E/R/1B.2	Pine Hill area in El Dorado County, Grass Valley vicinity in Nevada County, Yuba County. Rocky gabbro or serpentine soils in chaparral, cismontane woodland; 425–760 meters.	April– July	Habitat Absent	No suitable soils in the study area. Nearest recorded occurrence is ~12.6 miles west of the study area.
Butte County fritillary <i>Fritillaria eastwoodiae</i>	-/-/3.2	Sierra Nevada Foothills, from Shasta to El Dorado Counties. Chaparral, cismontane woodland, openings in lower montane coniferous forest, sometimes on serpentine; 50–1,500 meters.	March– June	Habitat Present	Suitable habitat in interior live oak woodland and ponderosa pine forest on non-serpentine soils. Nearest recorded occurrence is ~14 miles northwest of the study area.
El Dorado bedstraw <i>Galium californicum</i> ssp. <i>sierrae</i>	E/R/1B.2	Endemic to El Dorado County. On gabbro soils in chaparral, cismontane woodland, lower montane coniferous forest; 100–585 meters.	May– June	Habitat Absent	No suitable soils in the study area. Nearest recorded occurrence is ~12 miles southwest of the study area.
Parry's horkelia <i>parryi</i>	-/-/1B.2	Amador, Calaveras, El Dorado, and Mariposa Counties. Chaparral, or cismontane woodland openings, especially Ione formation, dry slopes; 80–1,035 meters.	April– September	Habitat Present	Suitable habitat in interior live oak woodland on non-Ione soils. Nearest recorded occurrence is ~4.5 miles northeast of the study area.
Saw-toothed lewisia <i>serrata</i>	-/-/1B.1	El Dorado and Placer Counties. Broadleaved upland forest, lower montane coniferous forest, riparian forest; 900–1,435 meters.	May– June	Habitat Absent	Study area is below elevation range for species. Nearest recorded occurrence is ~9.7 miles east of the study area.
Layne's ragwort (or Layne's butterweed)	T/R/1B.2	Northern Sierra Nevada Foothills, Butte, El Dorado, Placer, Tuolumne,	April– August	Habitat Absent	No suitable soils in the study area. Nearest recorded occurrence is

Common Name Scientific Name	Status Federal/State/ CRPR	General Habitat Description	Blooming Period	Habitat Present/ Absent	Rationale
<i>Packera layneae</i>		and Yuba Counties. Rocky serpentine or gabbro soils in chaparral and foothill woodland; 200–1,000 meters.			~7 miles northwest of the study area.
Stebbins' phacelia <i>Phacelia stebbinsii</i>	-/-/1B.2	El Dorado, Nevada, and Placer Counties. Cismontane woodland, lower montane coniferous forest, meadows and seeps; 610–2,010 meters.	May– July	Habitat Absent	Study area is below elevation range for species. Nearest recorded occurrence is ~11.5 miles northeast of the study area.
Sierra blue grass <i>Poa sierrae</i>	-/-/1B.3	Butte, El Dorado, Nevada, Plumas, and Shasta Counties. Lower montane conifer forests; 365–1,500 meters.	April– June	Habitat Present	Suitable habitat in ponderosa pine forest. Nearest recorded occurrence is ~14 miles northeast of the study area.
Brownish beaked-rush <i>Rhynchospora capitellata</i>	-/-/2B.2	Scattered occurrences in Northwestern California and northern Sierra Nevada Foothills. Wet areas in lower and upper montane coniferous forest, meadows and seeps, freshwater marshes and swamps; 45–2,000 meters.	July– August	Habitat Absent	No marsh or wetland habitat in ponderosa pine forest. Nearest recorded occurrence is ~10 miles northeast of the study area.
Oval-leaved viburnum <i>Viburnum ellipticum</i>	-/-/2B.3	Northwest California, San Francisco Bay Area, north and central Sierra Nevada Foothills: Contra Costa, El Dorado, Fresno, Glenn, Humboldt, Mendocino, Napa, Placer, Shasta, Sonoma, and Tehama Counties; also Oregon, Washington. Chaparral, cismontane woodland, and lower montane coniferous forest; 215–1,400 meters.	May– June	Habitat Present	Suitable habitat in interior live oak woodland and ponderosa pine forest. Nearest recorded occurrence is ~4.4 miles southwest of the study area.

Common Name Scientific Name	Status Federal/State/ CRPR	General Habitat Description	Blooming Period	Habitat Present/ Absent	Rationale
El Dorado County mule ears <i>Wyethia reticulata</i>	-/-/1B.2	El Dorado and Yuba Counties. On clay or gabbro soils in chaparral, cismontane woodland, and lower montane coniferous forest; 185–630 meters.	April– August	Habitat Absent	No suitable soils in the study area. Nearest recorded occurrence is ~12 miles southwest of the study area.

Sources: California Native Plant Society 2016; California Department of Fish and Wildlife 2016; Stillwater Sciences 2011.

^a Status explanations:

Federal

- E = Listed as endangered under the federal ESA.
- T = Listed as threatened under the federal ESA.
- = No listing status.

State

- E = Listed as endangered under CESA.
- R = Listed as rare under the CESA. This category is no longer used for newly listed plants, but some plants previously listed as rare retain this designation.
- = No listing status.

CRPR

- 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.
- 3 = List 3 species: more information is needed about this plant.
- 4 = List 4 species: limited distribution; species on a watch list
- .1 = Seriously endangered in California (over 80% of occurrences threatened—high degree and immediacy of threat).
- .2 = Fairly endangered in California (20–80% occurrences threatened).

Note: In March, 2010, California Department of Fish and Game (now CDFW) changed the name of “CNPS List” or “CNPS Ranks” to “California Rare Plant Ranks (CRPR).” This was done to reduce confusion over the fact that CNPS and CDFW jointly manage the Rare Plant Status Review groups (300+ botanical experts from government, academia, non-governmental organizations, and the private sector) and that the rank assignments are the product of a collaborative effort and not solely a CNPS assignment.

Table 3.3-2. Special-Status Animal Species with Potential to Occur in the Vicinity of the Mosquito Road Bridge Replacement Study Area

Common Name Scientific Name	Legal Status ^a (Federal/State/ Other)	General Habitat Description	Habitat Present/ Absent ^b	Rationale
Fish				
Delta smelt <i>Hypomesus transpacificus</i>	T/E/-	Found primarily in the Sacramento–San Joaquin Estuary, but has been found as far upstream as the mouth of the American River on the Sacramento River and Mossdale on the San Joaquin River; range extends downstream to San Pablo Bay. Occur in estuary habitat in the Delta where fresh and brackish water mix in the salinity range of 2–7 parts per thousand (Moyle 2002).	Absent	The study area is outside the known range of the species.
Central Valley steelhead <i>Oncorhynchus mykiss</i>	T/-/-	Sacramento River and tributary Central Valley rivers downstream of physical barriers, including dams. Resident, non-listed forms (rainbow trout) occur upstream and downstream of physical barriers. Occurs in well-oxygenated, cool, riverine habitat with water temperatures from 46–64°F (Moyle 2002). Habitat types are riffles, runs, and pools.	Absent	The study area is upstream of Folsom and Nimbus Dams and is therefore outside the known range of the migratory (Central Valley steelhead) form of the species. However, the study area provides suitable habitat for the non-migratory (resident rainbow trout) form of the species.
Amphibians				
California red-legged frog <i>Rana draytonii</i>	T/SSC/-	Found along the coast and coastal mountain ranges of California from Marin County to San Diego County and in the Sierra Nevada from Tehama County to Fresno County. Occur in permanent and semipermanent aquatic habitats, such as creeks and cold-water ponds, with emergent and submergent vegetation. May estivate in rodent burrows or cracks during dry periods.	Absent	High flows in South Fork American River are unsuitable for breeding and dispersal habitat.

Common Name Scientific Name	Legal Status ^a (Federal/State/ Other)	General Habitat Description	Habitat Present/ Absent ^b	Rationale
Foothill yellow-legged frog <i>Rana boylei</i>	-/SSC/BLM	Occurs in the Klamath, Cascade, north Coast, south Coast, Transverse, and Sierra Nevada Ranges up to approximately 6,000 feet. Creeks or rivers in woodland, forest, mixed chaparral, and wet meadow habitats with rock and gravel substrate and low overhanging vegetation along the edge. Usually found near riffles with rocks and sunny banks nearby.	Habitat Present	South Fork American River provides suitable breeding and dispersal habitat.
Sierra Nevada yellow-legged frog <i>Rana sierrae</i>	E/T,SSC/-	Found in the Sierra Nevada above 4,500 feet from Plumas County to southern Tulare County. Isolated populations in Butte County and near Mono Lake, Mono County. Associated with streams, lakes, and ponds in montane riparian, lodgepole pine, sub-alpine conifer, and wet meadow habitats; also includes sunny river margins, meadow streams, isolated pools, and lake borders in the Sierra Nevada.	Absent	The study area elevation is too low for the species to be present.
Reptiles				
Western pond turtle <i>Emys marmorata</i>	-/SSC/-	Occurs throughout California west of the Sierra-Cascade crest. Found from sea level to 6,000 feet. Does not occur in desert regions except for along the Mojave River and its tributaries. Occupies 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.	Absent	Because of high flows in the river channel through the study area, the South Fork American River does not provide suitable habitat for the species.
Blainville's (Coast) horned lizard <i>Phrynosoma blainvillii</i>	-/SSC/BLM	Sacramento Valley, including foothills, south to southern California; Coast Ranges south of Sonoma County; from sea level to 6,500 feet and below 4,000 feet in northern California. Requires sandy or loose soil and abundant ant colonies for foraging; habitat ranges from exposed gravelly-sandy substrate in riparian woodlands to dry uniform chamise chaparral to annual grassland or saltbrush.	Habitat Present	Low potential to occur in more open areas in or adjacent to the study area.

Common Name Scientific Name	Legal Status ^a (Federal/State/ Other)	General Habitat Description	Habitat Present/ Absent ^b	Rationale
Birds				
Bald eagle <i>Haliaeetus leucocephalus</i>	-/E/E	Nests in Siskiyou, Modoc, Trinity, Shasta, Lassen, Plumas, Butte, Tehama, Lake, and Mendocino Counties and in the Lake Tahoe Basin. Reintroduced into central coast. Winter range includes the rest of California, except the southeastern deserts, very high altitudes in the Sierra Nevada, east of the Sierra Nevada south of Mono County, and some rangelands and coastal wetlands. In western North America, nests and roosts in coniferous forests, woodlands, grasslands, and wetland habitats within 1 mile of a lake, reservoir, stream, or the ocean; nests are normally built in upper canopy of large trees, such as conifers.	Habitat Present	Because of the study area's close proximity to South Fork American River, bald eagles may nest near the study area. The closest documented nest site is located 16 miles to the west at the South Fork arm of Folsom Lake.
Swainson's hawk <i>Buteo swainsoni</i>	--/T/--	Requires large, open grasslands with suitable nest trees; nests in oaks or cottonwoods in or near riparian habitats; forages in grasslands, lightly grazed pastures/crops, irrigated pastures, and grain fields. Lower Sacramento and San Joaquin Valleys, the Klamath Basin, and Butte Valley. Highest nesting densities occur near Davis and Woodland, Yolo County.	Absent	The study area does not provide suitable nesting or foraging habitat.
Black Rail <i>Laterallus jamaicensis</i>	-/T/BLM	Permanent resident in the San Francisco Bay and eastward through the Delta into Sacramento and San Joaquin Counties; small populations in Marin, Santa Cruz, San Luis Obispo, Orange, Riverside, and Imperial Counties. Tidal salt marshes associated with heavy growth of pickleweed; also occurs in brackish marshes or freshwater marshes at low elevations.	Absent	No freshwater marsh habitat in or near the study area.
Western snowy plover <i>Charadrius alexandrinus nivosus</i> (nesting)	T/-/-	Nests along the entire coast of California from Del Norte to San Diego County adjacent to or near tidal waters, including along the mainland coast, peninsulas, offshore islands, and adjacent bays and estuaries. Nests at inland lakes throughout northeastern, central, and southern California, including Mono Lake and Salton Sea. Coastal beaches above the normal high tide limit in flat, open areas with sandy or saline substrates; vegetation and driftwood are usually sparse or absent. Inland, they require barren to sparsely vegetated ground at alkaline or saline lakes, reservoirs, ponds and riverine sand bars; also along sewage, salt-evaporation, and agricultural wastewater ponds.	Absent	South Fork American River does not provide sandbar habitat near the study area.

Common Name Scientific Name	Legal Status ^a (Federal/State/ Other)	General Habitat Description	Habitat Present/ Absent ^b	Rationale
Northern goshawk <i>Accipiter gentilis</i>	-/SSC/BLM	Permanent resident in the Klamath and Siskiyou mountains, across the Cascades, in the north Coast Ranges from Del Norte County to Mendocino County, and in the Sierra Nevada south to Kern County. Winters in Modoc, Lassen, Mono, and northern Inyo Counties. Nests and roosts in older stands of red fir, Jeffrey pine, ponderosa pine, lodgepole pine, Douglas fir, and mixed conifer forests.	Absent	The study area is below the elevation range for the species.
California spotted owl <i>Strix occidentalis occidentalis</i>	-/SSC/BLM	Sierra Nevada from Lassen County south to central Kern County; southern California mountain population is more fragmented, occurring from Monterey County south through the Transverse and Peninsular Ranges to coastal mountains and southern San Diego County. Mature mixed conifer forest with suitable nesting trees. In southern California, occurs in mixed oak-pine and oak-conifer habitats; prefers large old trees and snags.	Habitat Present	Low potential to nest in mixed oak-conifer habitat in or near the study area; few large old trees or snags. The closest sighting is located 3 miles to the east; the closest activity center is located 4 miles to the east.
Short-eared owl <i>Asio flammeus</i>	-/SSC/-	Permanent resident along the Sierra Nevada north of Nevada County, in the plains east of the Cascades, and in Modoc and Mono County; small, isolated populations occur in Great Basin region and locally in the Sacramento-San Joaquin River Delta, breeding in mainland southern California. Freshwater and salt marshes, lowland meadows, ungrazed grasslands/old pastures, and irrigated alfalfa or grain fields; needs dense tules or tall grass for nesting and daytime roosts.	Absent	The study area does not provide emergent vegetation or tall grass for nesting or roosting.
Black swift <i>Cypseloides niger</i>	-/SSC/-	Breeds very locally in the Sierra Nevada and Cascade Range, the San Gabriel, San Bernardino, and San Jacinto mountains, and in coastal bluffs from San Mateo County south to near San Luis Obispo County. Nests in moist crevices or caves on sea cliffs above the surf, or on cliffs behind, or adjacent to/behind/beside waterfalls in deep canyons or sea caves.	Absent	South Fork American River does not provide moist crevice or waterfall habitat near the study area.

Common Name Scientific Name	Legal Status ^a (Federal/State/ Other)	General Habitat Description	Habitat Present/ Absent ^b	Rationale
Willow flycatcher <i>Empidonax traillii</i>	-/E/-	Summers along the western Sierra Nevada from El Dorado to Madera County, in the Cascade and northern Sierra Nevada in Trinity, Shasta, Tehama, Butte, and Plumas Counties, and along the eastern Sierra Nevada from Lassen to Inyo County. Require deep standing or running water near dense large patches of willow for breeding. In the Sierra Nevada, successful breeding documented only in meadows that contain willows of at least 10 acres in size with 50–60% dense willow cover; usually found in riparian habitats along rivers during migration.	Habitat Present (migration only)	Could potential migrate through the study area; however, willow thickets in the study area are not within or adjacent to standing or running water and are not expected to support breeding.
Bank swallow <i>Riparia riparia</i>	-/T/BLM	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, along streams, coastal bluffs, and sand/gravel pits.	Absent	South Fork American River canyon does not provide soil conditions for bank nesting.
Tricolored blackbird <i>Agelaius tricolor</i>	-/SSC/BLM	Permanent resident in the Central Valley from Butte County to Kern County. Breeds at scattered coastal locations from Marin County south to San Diego County; and at scattered locations in Lake, Sonoma, and Solano Counties. Rare nester in Siskiyou, Modoc, and Lassen Counties. Nests in dense colonies in emergent marsh vegetation, such as tules and cattails, or upland sites with blackberries, nettles, thistles, and grain fields. Habitat must be large enough to support 50 pairs. Probably requires water at or near the nesting colony.	Absent	The study area is outside of the Central Valley and therefore outside the range for tricolored blackbird.

Common Name Scientific Name	Legal Status ^a (Federal/State/ Other)	General Habitat Description	Habitat Present/ Absent ^b	Rationale
Mammals				
Pallid bat <i>Antrozous pallidus</i>	-/SSC/BLM, WBWG High	Occurs throughout California except the high Sierra from Shasta to Kern County and the northwest coast, primarily at lower and mid elevations. Occurs in a variety of habitats from desert to coniferous forest. Most closely associated with oak, yellow pine, redwood, and giant sequoia habitats in northern California and oak woodland, grassland, and desert scrub in southern California. Relies heavily on trees for roosts.	Habitat Present	May roost in trees in the study area.
Townsend's big-eared bat <i>Corynorhinus townsendii</i>	-/CT/BLM, WBWG High	Widespread throughout California, from low desert to mid-elevation montane habitats. Roosts in caves, tunnels, mines, buildings, and other cave-like spaces. Will night roost in more open settings, including under bridges.	Habitat Present	May night roost at the existing suspension bridge.
Silver haired bat <i>Lasionycteris noctivagans</i>	-/-/WBWG Moderate	Found from the Oregon border south along the coast to San Francisco Bay and along the Sierra Nevada and Great Basin region to Inyo County. Also occurs in southern California from Ventura and San Bernardino Counties south to Mexico. Has been recorded in Sacramento, Stanislaus, Monterey and Yolo Counties. During spring and fall migrations the silver-haired bat may be found anywhere in California. Summer habitats include coastal and montane coniferous forests, valley foothill woodlands, pinyon-juniper woodlands, and valley foothill and montane riparian habitats. Roosts in hollow trees, snags, buildings, rock crevices, caves, and under bark.	Habitat Present	May roost in trees and rock crevices in the study area.
Western red bat <i>Lasiurus blossevillii</i>	-/SSC/WBWG High	Occurs throughout much of California at lower elevations. Found primarily in riparian and wooded habitats. Occurs at least seasonally in urban areas. Day roosts in trees within the foliage. Found in fruit orchards and sycamore riparian habitats in the Central Valley.	Habitat Present	May roost in foliage of trees in the study area.
Hoary bat <i>Lasiurus cinereus</i>	-/-/WBWG Moderate	Occurs throughout California from sea level to 13,200 feet. Primarily found in forested habitats. Also found in riparian areas and in park and garden settings in urban areas. Day roosts within foliage of trees.	Habitat Present	May roost in trees in the study area.

Common Name Scientific Name	Legal Status ^a (Federal/State/ Other)	General Habitat Description	Habitat Present/ Absent ^b	Rationale
Fringed Myotis <i>Myotis thysanodes</i>	-/-/BLM, WBWG High	Found the length of the state, from the coast (including Santa Cruz Island) to >5,900 feet in the Sierra Nevada. Records exist for the high desert and east of the Sierra Nevada; however, the majority of known localities are on the west side of the Sierra Nevada. Found in a wide variety of habitats from low desert scrub to high elevation coniferous forests. Day and night roosts in caves, mines, trees, buildings, and rock crevices; has been found in mixed deciduous/coniferous forest and in both redwood and giant sequoia habitat.	Habitat Present	May roost in trees and rock crevices in the study area.
Long-legged Myotis <i>Myotis volans</i>	-/WBWG High	Mountains throughout California, including ranges in the Mojave desert; found from the coast, to high elevation in the Sierra Nevada and White Mountains; central San Diego County, the Coast Range, and the transverse ranges between the Los Angeles basin and the Central Valley. Most common in woodlands and forests above 4,000 feet, but occurs from sea level to 11,000 feet; have found it in the high desert, in redwood forest along the central coast, in giant sequoia forest in the Sierra Nevada, in mixed conifer forest in the upper Sacramento River drainage, and at lower elevations in the Sierra Nevada	Habitat Present	May roost in trees in the study area.
Yuma Myotis <i>Myotis yumanensis</i>	-/BLM, WBWG- LM	Common and widespread throughout most of California except the Colorado and Mojave deserts. Found in a wide variety of habitats from sea level to 11,000 feet, but uncommon above 8,000 feet. Optimal habitat is open forests and woodlands near waterbodies	Habitat Present	May roost in trees and rock crevices in the study area.
Sierra Nevada mountain beaver <i>Aplodontia rufa californica</i>	-/SSC/-	Occurs from Mount Shasta east and south through the Sierra Nevada range. Populations scattered and local. Mono Lake Basin, Mono County. Slopes of ridges or gullies where there is abundant moisture, thick undergrowth, and soft soil for burrowing; forested areas from sea level to the timberline	Absent	The study area does not provide suitable habitat.

Common Name Scientific Name	Legal Status ^a (Federal/State/ Other)	General Habitat Description	Habitat Present/ Absent ^b	Rationale
Pacific fisher <i>Martes pennant</i> <i>(pacifica)</i> DPS	C/SSC/BLM	Coastal mountains from Del Norte County to Sonoma Counties, east through the Cascades to Lassen County, and south in the Sierra Nevada to Kern County. Late successional coniferous forests and montane riparian habitats; areas without frequent deep, fluffy snow.	Absent	Although the study area is within the historic known range of the southern population of Pacific fisher, it does not provide suitable habitat for the species.

^a Status explanations:

Federal

- E = listed as endangered under the federal ESA.
- T = listed as threatened under the federal ESA.
- = no listing.

State

- E = listed as endangered under CESA.
- T = listed as threatened under CESA.
- CT = candidate for listing as threatened under CESA.
- FP = fully protected under CFGC.
- SSC = species of special concern in California.
- = no listing.

Other

- BLM= Bureau of Land Management designated sensitive species.
- Western Bat Working Group (WBWG) Priority

^b Habitat designations:

- Absent = no habitat present and no further work needed.
- Habitat Present = habitat is, or may be present. The species may be present.
- Present = the species is present.

3.3.2 Environmental Impacts

3.3.2.1 Methods of Analysis

The impact analysis for biological resources was conducted by evaluating the potential changes to existing biological communities based on the anticipated Project activities listed below that could cause direct and indirect impacts of varying degrees on sensitive biological resources present in the study area.

- Vegetation removal
- Grading, excavating, blasting, and fill placement during construction
- Temporary stockpiling and sidecasting of soil, construction materials, or other construction wastes
- Introduction or spread of invasive plant species into adjacent natural habitats
- Runoff of herbicides, fertilizers, diesel fuel, gasoline, oil, raw concrete, or other toxic materials used for Project construction and maintenance into sensitive biological resource areas (e.g., wetlands and streams)

The following assumptions were used in assessing the magnitude of possible impacts on biological resources:

- Impacts on land cover types and associated wildlife habitat were determined by overlaying preliminary footprints for permanent Project features and temporary work areas (e.g., access roads, falsework, equipment staging) onto an aerial photograph base map with mapped habitats (Figure 3.3-1). Impact acreages presented in this chapter are intended to provide a worst-case scenario; actual impacts are expected to be less based on avoidance of trees and other vegetation within temporary work areas.
- Interior live oak woodland, willow thicket wetland, and ponderosa pine forest were generally mapped as polygons based on canopy cover and include both treed and treeless areas. Impacts within these habitats are approximate and do not account for canopy that extends outside the Project footprint from a tree that could be removed by the Project.
- Temporary construction (e.g., temporary access roads) that requires tree removal within interior live oak woodland and willow thicket wetland habitats will be mitigated at the same ratio as permanent impacts to account for the time required for habitat regeneration.
- The intermittent stream on the Placerville side of the study area will be avoided during construction activities.
- No direct impacts on the South Fork American River are anticipated. Should the existing bridge be removed, the removal process will avoid dropping any concrete, rock, or dirt into the river and includes implementing a SWPPP. CDFW could also require an LSAA for work on the banks and over the bed of the river.
- Due to the steep slopes beneath the proposed bridge, the bridge will have a high vertical clearance, i.e., from a minimum of 30 feet outside of permanent impact areas to a maximum of approximately 400 feet near the river. Bridge construction activities and shading from the

bridge structure are not expected to result in additional losses of trees that are outside of the temporary impact area.

3.3.2.2 Thresholds of Significance

In accordance with Appendix G of the State CEQA Guidelines and professional judgment, the proposed Project would be considered to have a significant effect if it would result in any of the conditions listed below.

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations or by CDFW or USFWS.
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by CDFW or USFWS.
- Have a substantial adverse effect on federally protected wetlands, as defined by Section 404 of the CWA (including, but not limited to, marshes, vernal pools, 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 the County General Plan oak canopy retention standards.
- Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan.
- Cause the introduction or spread of invasive plant species.

3.3.2.3 Impacts and Mitigation Measures

Figure 3.3-1 illustrates the impact areas in relation to biological resources in the study area. Impact findings, including significance and available mitigation, are discussed below.

Impact BIO-1: Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations or by CDFW or USFWS (less than significant with mitigation)

Special-status Plants

Project construction could result in the removal of special-status plants if any occur within the permanent or temporary impact areas. No special-status plants were found in the study area during blooming-period surveys; therefore, no direct impacts on special-status plants would occur due to construction.

The Brandegees' clarkia population observed outside of the study area but along the roadside slope of Mosquito Road could be indirectly affected by construction traffic using the road. However, this area is currently subject to potential impacts of passing vehicles using Mosquito Road, and the construction use of the road would not cause additional deterioration of these conditions. Therefore,

no indirect impacts on the Brandegee's clarkia as a result of Project construction activities are anticipated. In addition, the closure of this section of Mosquito Road after bridge completion would reduce the potential impacts of passing vehicles on the plants and could be beneficial to the population.

Foothill Yellow-legged Frog

Because no in-water work is anticipated to complete the potential removal of the existing bridge over the South Fork American River, no loss of foothill yellow-legged frog adults, dispersing young, eggs, or larvae are expected. The Project would not result in permanent loss or temporary disturbance of suitable aquatic habitat for foothill yellow-legged frog. However, Project construction could result in indirect effects on aquatic habitat downstream from the construction area as a result of sediment or pollutant runoff.

Because foothill yellow-legged frog is designated as a California species of special concern, mortality or disturbance of these frogs would be considered significant impacts. With implementation of Mitigation Measures BIO-1, BIO-2, BIO-3, and BIO-4, potential indirect impacts on foothill yellow-legged frog aquatic habitat would be avoided and would reduce this impact to a less-than-significant level.

Mitigation Measure BIO-1: Install Construction Barrier Fencing around the Construction Area to Protect Sensitive Biological Resources to Be Avoided

El Dorado County's contractor will install orange construction barrier fencing between the construction area and adjacent sensitive biological resource areas as one of the first orders of work. Sensitive biological resources that occur adjacent to the construction area include sensitive natural communities and habitats for special-status wildlife such as foothill yellow-legged frog, Blainville's horned lizard, bald eagle, California spotted owl, willow flycatcher, other migratory birds, and roosting bats.

The area that would be required for construction, including staging and access, is shown in Figure 3.3-1. Before construction begins, the construction contractor will work with the Project engineer and a resource specialist to identify the locations for the orange construction fencing, and will place stakes to indicate these locations. The fencing will be installed before construction activities are initiated, maintained throughout the construction period, and removed when construction is completed. The protected areas will be designated as environmentally sensitive areas and clearly identified on the construction plans. To minimize the potential for snakes and other ground-dwelling animals being caught in the orange construction fencing, the fencing will be placed with at least a 1-foot gap between the ground and the bottom of the fencing. The exception to this condition is where construction barrier fencing overlaps with erosion control fencing and must be secured to prevent sediment runoff.

Mitigation Measure BIO-2: Conduct Environmental Awareness Training for Construction and Mitigation Planting Area Personnel

El Dorado County will retain a qualified biologist to develop and conduct environmental awareness training for construction employees and personnel who will prepare the site and/or maintain the mitigation planting area on the importance of on-site biological resources, including sensitive natural communities; mature trees to be retained; special-status wildlife habitats; potential nests of special-status birds, and other migratory bird species including

swallows; and roosting habitat for special-status bats, as applicable. In addition, construction employees will be educated about the importance of controlling and preventing the spread of invasive plant infestations.

The environmental awareness program will be provided to all construction and mitigation planting area personnel to brief them on the life history of special-status species in or adjacent to the Project area, the need to avoid impacts on sensitive biological resources, any terms and conditions required by state and federal agencies, and the penalties for not complying with biological mitigation requirements. If new construction or mitigation area personnel are added to the Project, the contractor's superintendent or El Dorado County will ensure that the personnel receive the mandatory training before starting work. An environmental awareness handout that describes and illustrates sensitive resources to be avoided during Project construction and work/maintenance at the mitigation area, and identifies all relevant permit conditions, will be provided to each person.

Mitigation Measure BIO-3: Retain a Qualified Biologist to Conduct Periodic Monitoring during Construction

El Dorado County will retain a qualified biologist to conduct periodic construction monitoring in and adjacent to all sensitive habitats (i.e., interior live oak woodland, willow thickets, and streams) in the construction area. The frequency of monitoring will range from daily to weekly depending on the biological resource. The monitor, as part of the overall monitoring duties, will inspect the fencing once a week to ensure that fencing around environmentally sensitive areas is intact. The biological monitor will assist the construction crew as needed to comply with all Project implementation restrictions and guidelines. The biological monitor also will be responsible for ensuring that the contractor maintains the staked and flagged perimeters of the construction area and staging areas adjacent to sensitive biological resources. The monitor will provide El Dorado County with a monitoring log for each site visit, which will be provided to interested agencies upon request.

Certain activities will require a biological monitor to be present for the duration of the activity or during the initial disturbance of an area to ensure that impacts on special-status species are avoided. The activities that require specific monitoring are identified below in Mitigation Measures BIO-9, BIO-10, BIO-11, and BIO-12.

Mitigation Measure BIO-4: Protect Water Quality and Prevent Erosion and Sedimentation in Wetlands and Drainages

El Dorado County will ensure the construction specifications include the following water quality protection and erosion and sediment control BMPs, based on standard County/Caltrans requirements, to minimize construction-related contaminants and mobilization of sediment in wetlands and streams, including South Fork American River, in and adjacent to the study area.

The BMPs will be selected to achieve maximum sediment removal and represent the best available technology that is economically achievable and are subject to review and approval by the County. The County will perform routine inspections of the construction area to verify the BMPs are properly implemented and maintained. The County will notify contractors immediately if there is a noncompliance issue and will require compliance.

The BMPs will include, but are not limited to, the following:

- Ensure that equipment used in and around streams is in good working order and free of dripping or leaking engine fluids. All vehicle maintenance will be performed at least 300 feet from all streams. Any necessary equipment washing will be carried out where the water cannot flow into streams.
- Prepare and implement a hazardous material spill prevention, control, and countermeasure plan before construction begins that will minimize the potential for, and the effects of, spills of hazardous or toxic substances during construction. The plan will include storage and containment procedures to prevent and respond to spills, and will identify the parties responsible for monitoring the spill response. The plan will include the following:
 - Prevent raw cement, concrete or concrete washings, asphalt, paint or other coating material, oil or other petroleum products, or any other substances that could be hazardous to aquatic life from contaminating the soil or entering watercourses.
 - Clean up all spills immediately according to the spill prevention, control, and countermeasure plan.
 - Avoid operation of vehicles and equipment in flowing water.
 - Provide areas located outside all stream OHWMs for staging and storing equipment, materials, fuels, lubricants, solvents, and other possible contaminants.
 - Ensure that areas where equipment is refueled or lubricated are storm-proofed to prevent contaminants from being discharged to the streams. Pump contaminated water to a holding tank for proper disposal.
- El Dorado County will review and approve the contractor's hazardous materials spill prevention, control, and countermeasure plan before allowing construction to begin.
- Prohibit the following types of materials from being rinsed or washed into the roads, shoulder areas, or gutters: concrete; solvents and adhesives; thinners; paints; fuels; sawdust; dirt; gasoline; asphalt and concrete saw slurry; heavily chlorinated water.
- Dispose of any surplus concrete rubble, asphalt, or other rubble from construction at a local landfill.
- Prepare and implement an erosion and sediment control plan for the proposed Project. The plan will include the following provisions and protocols.
 - Runoff from disturbed areas will be made to conform to the water quality requirements of the waste discharge permit issued by the RWQCB.
 - Temporary erosion control measures, such as sandbagged silt fences, will be applied throughout construction of the proposed Project and will be removed after the working area is stabilized or as directed by the engineer. Soil exposure will be minimized through use of temporary BMPs, groundcover, and stabilization measures. Exposed dust-producing surfaces will be sprinkled daily, if necessary, until wet; this measure will be controlled to avoid producing runoff. Paved roads will be swept daily following construction activities.
 - The contractor will conduct periodic maintenance of erosion and sediment control measures.

- An appropriate seed mix of native species will be planted on disturbed areas upon completion of construction.
- Cover or apply nontoxic soil stabilizers to inactive construction areas (previously graded areas inactive for 10 days or more) that could contribute sediment to waterways.
- Enclose and cover exposed stockpiles of dirt or other loose, granular construction materials that could contribute sediment to waterways. Material stockpiles will be located in non-traffic areas only. Side slopes will not be steeper than 2:1. All stockpile areas will be surrounded by a filter fabric fence and interceptor dike.
- Contain soil and filter runoff from disturbed areas by berms, vegetated filters, silt fencing, straw wattle, plastic sheeting, catch basins, or other means necessary to prevent the escape of sediment from the disturbed area.
- Use other temporary erosion control measures (such as silt fences, staked straw bales/wattles, silt/sediment basins and traps, check dams, geofabric, sandbag dikes, and temporary revegetation or other ground cover) to control erosion from disturbed areas as necessary.
- Avoid earth or organic material from being deposited or placed where it may be directly carried into streams.
- Minimize the extent of all areas requiring clearing, grading, revegetation, and recontouring.
- Grade areas following construction to minimize surface erosion.
- Cover bare areas with mulch and revegetate all cleared areas.

El Dorado County also will obtain a CWA Section 404 permit from USACE and a Section 401 Water Quality Certification from the Central Valley RWQCB, which may contain additional BMPs and measures to ensure the protection of water quality.

Blainville's horned lizard

Although Blainville's horned lizard has a low potential to be present in the study area, activities associated with construction still have the potential to result in disturbance or loss of horned lizard adults, dispersing young or eggs. The Project would result in the permanent net loss of 0.37 acre of suitable annual grassland habitat and 0.01 acre of Kentucky blue grass turf. The Project would also result in the temporary net loss of 0.49 acre of suitable annual grassland, 0.20 acre of Kentucky blue grass turf, and 0.45 acre of yellow star-thistle habitat.

Because Blainville's horned lizard is designated as a California species of special concern, mortality or disturbance of these lizards would be considered significant impacts. Implementation of Mitigation Measures BIO-1, BIO-2, BIO-3, and BIO-5 would reduce the potential for impacts on Blainville's horned lizard to a less-than-significant level.

Mitigation Measure BIO-1: Install Construction Barrier Fencing around the Construction Area to Protect Sensitive Biological Resources to Be Avoided

Mitigation Measure BIO-2: Conduct Environmental Awareness Training for Construction and Mitigation Planting Area Personnel

Mitigation Measure BIO-3: Retain a Qualified Biologist to Conduct Periodic Monitoring during Construction**Mitigation Measure BIO-5: Conduct Preconstruction Surveys for Blainville's Horned Lizard and Monitor Initial Ground Disturbance Work in Staging Areas**

To avoid potential injury or mortality of Blainville's horned lizard, El Dorado County will retain a qualified wildlife biologist to conduct a preconstruction survey within 24 hours of the start of construction activities. The biologist will survey the areas designated for staging activities (yellow star-thistle field, annual grassland, and Kentucky blue grass turf) for Blainville's horned lizard. The biologist will have had his or her CDFW scientific collecting permit amended to include capture and relocation of Blainville's horned lizard.

For the remainder of construction, the biologist will remain on call in case a Blainville's horned lizard is discovered. The construction crew will be instructed to notify the crew supervisor who will contact the biologist if this species is found dead or trapped within the construction area. Work in the area where the lizard is found dead or trapped will stop until the biologist arrives and removes and relocates the lizard. The biologist will report activities to the County and CDFW within 24 hours of relocating or finding any dead Blainville's horned lizard.

Nesting bald eagles

Construction activities would occur during the bald eagle nesting season (February 1 through August 1) and could result in the disturbance of a nesting bald eagle pair. Removal of a nest or construction disturbance (noise and/or activity) during the breeding season could result in the incidental loss of fertile eggs or nestlings or otherwise lead to nest abandonment. The removal of up to 6.56 acres of oak woodland trees in the study area may reduce the amount of available nesting habitat for bald eagle; however, many of these trees are less than 1 foot in diameter and are unlikely to support a bald eagle nest.

Because bald eagle is fully protected, removal of trees with active nests and activities that result in loss of bald eagles are prohibited by the CFGC and the BGEPA. Potential impacts on active nests or bald eagles would be considered significant. Implementation of Mitigation Measures BIO-1, BIO-2, BIO-3, and BIO-6 would reduce the potential for impacts on bald eagles and nests; implementation of Mitigation Measure BIO-7 would compensate for the loss of potential bald eagle nesting habitat; and implementation of Mitigation Measure BIO-8 would avoid impacts on active bald eagle nests. Implementation of these measures would reduce potential impacts on bald eagles to a less-than-significant level.

Mitigation Measure BIO-1: Install Construction Barrier Fencing around the Construction Area to Protect Sensitive Biological Resources to Be Avoided**Mitigation Measure BIO-2: Conduct Environmental Awareness Training for Construction and Mitigation Planting Area Personnel****Mitigation Measure BIO-3: Retain a Qualified Biologist to Conduct Periodic Monitoring during Construction****Mitigation Measure BIO-6: Avoid and Minimize Potential Disturbance of Woody Vegetation**

The potential for long-term loss of woody vegetation will be minimized by trimming vegetation rather than removing entire trees or shrubs in areas where complete removal is not required. However, complete removal of shrubs (grubbing) may be necessary in parts of the temporarily affected staging areas. Trees or shrubs that only need to be trimmed will be cut at least 1 foot above ground level to leave the root systems intact and allow for more rapid regeneration. Cutting will be limited to the minimum area necessary within the construction zone. To protect nesting birds, Caltrans will not allow pruning or removal of woody vegetation between February 1 and September 30 without preconstruction surveys. A certified arborist will be retained to perform any necessary pruning or root cutting of retained trees.

Mitigation Measure BIO-7: Compensate for Temporary and Permanent Impacts on Interior Live Oak Woodland

El Dorado County will compensate for the temporary and permanent impacts on interior live oak woodland. Mitigation will be implemented through the El Dorado County Oak Resources Management Plan (ORMP), if it is approved prior to Project construction, or by replanting oak woodland vegetation onsite to the maximum extent practicable, supplementing with offsite planting, if necessary. Both of these options are discussed below.

1. **Mitigation through the ORMP.** Based on the costs of acquisition of land and conservation easements, management, monitoring, and administrative costs, the County will pay into an in-lieu fee fund for replacement of oak woodlands. Replacement will be based on the acreage of impacts at a ratio of 2:1 (2 acres purchased for every 1 acre impacted), according to the ORMP requirements for 75.1 – 100% oak woodland impact level. Total cost per acre, based on the June, 2016 DEIR, is \$7,954.00; however costs may change over time resulting in a fee adjustment.
2. **Onsite and/or Offsite Replacement.** If this option is implemented, the oak woodland replacement ratio for temporary and permanent impacts will be at a minimum of 2:1 (2 acres replacement for each 1 acre removed), and the final required ratio will be coordinated with CDFW. The location of the oak woodland planting site will be determined prior to Project permitting. Temporarily disturbed areas will be replanted after construction. However, due to the limited area of on-site El Dorado County right-of-way available for planting trees, the oak woodland compensation for some of the temporary and most or all of the permanent impacts will likely require a supplementary off-site planting location. The County will prepare an oak woodland mitigation plan when the woodland replacement ratio and planting locations have been determined. Details of the number and species of trees and understory shrubs to be planted, based on the replacement ratio, as well as the specific planting locations, maintenance and irrigation needs, and annual monitoring requirements will be included in the oak woodland mitigation plan. The success criterion will be a minimum of 60 percent survival of all plantings in 5 years after planting, with annual survival goals to be met prior to the final monitoring. If planting survival does not meet the criterion in any year, the potential reasons for failure will be analyzed and addressed in remedial measures, and additional plantings will be installed and monitored for the full 5 years. Monitoring, remedial measures, and replanting will continue until the final success criterion is met.

Mitigation Measure BIO-8: Remove Vegetation during the Non-Breeding Season and Conduct Preconstruction Surveys for Nesting Migratory Birds

To the maximum extent feasible, tree removal will occur during the non-breeding season for most migratory birds (generally between October 1 and January 31). This is highly preferred because if an active nest is found in a tree (or other vegetation) to be removed during preconstruction nest surveys (described below), the tree cannot be removed until the end of the nesting season, which could delay construction. If trees cannot be removed between October 1 and January 31, the area where vegetation will be removed and a buffer around this area must be surveyed for nesting birds.

If construction activities are expected to begin during the nesting season for migratory birds and raptors (generally February 1 through September 30), El Dorado County will retain a qualified wildlife biologist with knowledge of the relevant species to conduct nesting surveys before the start of construction. A survey will be conducted for migratory birds, including raptors. The survey will include a search of all trees and shrubs that provide suitable nesting habitat in the construction area and within a minimum 300-foot buffer from construction activities. The survey buffer for bald eagle will extend a minimum of 0.5 mile around the construction area. The survey will occur within 1 week of the start of construction. With regard to California spotted owl surveys, the survey method will follow the U.S. Forest Service 1993 protocol for California spotted owl, which is intended to determine presence/absence, occupancy and nesting status. If no active nests are detected during these surveys, no additional measures are required.

If an active nest is found in the survey area, a no-disturbance buffer will be established around the site to avoid disturbance or destruction of the nest site until the end of the breeding season (September 30) or until after a qualified wildlife biologist determines that the young have fledged and moved out of the Project area (this date varies by species). The extent of these buffers will be determined by the biologist in coordination with USFWS and CDFW and will depend on the level of noise or construction disturbance, line-of-sight between the nest and the disturbance, ambient levels of noise and other disturbances, and other topographical or artificial barriers. Suitable buffer distances may vary between species.

Nesting California spotted owls

Construction activities would occur during the California spotted owl nesting season (February 1 through August 1) and could result in the disturbance of nesting California spotted owl. Removal of nests or construction disturbance (noise and/or activity) during the breeding season could result in the incidental loss of fertile eggs or nestlings or otherwise lead to nest abandonment. The removal of up to 6.56 acres of oak woodland trees in the study area may reduce the amount of available nesting habitat for California spotted owl; however, many of these trees are less than 1 foot in diameter and are unlikely to support a California spotted owl nest.

Because California spotted owl is a species of special concern, and removal of trees with active nests and activities that result in loss of California spotted owl nests are prohibited by the MBTA and CFGC, this would be a potentially significant impact.

Implementation of Mitigation Measures BIO-1, BIO-2, BIO-3, and BIO-6 would reduce the potential for impacts on California spotted owl and nests; implementation of Mitigation Measure BIO-7 would

compensate for the loss of potential California spotted owl nesting habitat; and implementation of Mitigation Measure BIO-8 would avoid impacts on active California spotted owl nests. Implementation of these measures would reduce potential impacts on California spotted owl to a less-than-significant level.

Mitigation Measure BIO-1: Install Construction Barrier Fencing around the Construction Area to Protect Sensitive Biological Resources to Be Avoided

Mitigation Measure BIO-2: Conduct Environmental Awareness Training for Construction and Mitigation Planting Area Personnel

Mitigation Measure BIO-3: Retain a Qualified Biologist to Conduct Periodic Monitoring during Construction

Mitigation Measure BIO-6: Avoid and Minimize Potential Disturbance of Woody Vegetation

Mitigation Measure BIO-7: Compensate for Temporary and Permanent Impacts on Interior Live Oak Woodland

Mitigation Measure BIO-8: Remove Vegetation during the Non-Breeding Season and Conduct Preconstruction Surveys for Nesting Migratory Birds

Willow flycatcher foraging habitat

Construction activities would occur during the willow flycatcher nesting season (February 1 through August 1); however, suitable nesting habitat (flowing or ponded water around the willow thicket wetland) is not present in the study area. No disturbance or loss of fertile eggs or nestlings would occur. However, removal of willow thicket wetland for grading or road construction would result in a permanent net loss of approximately 0.06 acre of available foraging habitat for migrating willow flycatcher. This loss may result in a more substantial impact since this habitat type may be less common in the vicinity of the study area. Trimming of willow thicket vegetation or disturbance within the dripline of trees to be retained would result in the temporary loss of available foraging habitat for this species.

Because willow flycatcher is a state endangered species, impacts on flycatcher habitat would be regulated by CDFW and would be considered significant. Implementation of Mitigation Measures BIO-1, BIO-2, BIO-3, BIO-4, and BIO-6 would reduce the potential for impacts on willow flycatcher foraging habitat to a less-than-significant level.

Mitigation Measure BIO-1: Install Construction Barrier Fencing around the Construction Area to Protect Sensitive Biological Resources to Be Avoided

Mitigation Measure BIO-2: Conduct Environmental Awareness Training for Construction and Mitigation Planting Area Personnel

Mitigation Measure BIO-3: Retain a Qualified Biologist to Conduct Periodic Monitoring during Construction

Mitigation Measure BIO-4: Protect Water Quality and Prevent Erosion and Sedimentation in Wetlands and Drainages**Mitigation Measure BIO-6: Avoid and Minimize Potential Disturbance of Woody Vegetation****Nesting migratory birds**

Construction activities would occur during the nesting season of migratory birds (generally February 1 through September 30) and could result in the possible loss of nesting birds, including swallows or black phoebes that could nest on the existing Mosquito Road Bridge structure. Removal of nests or construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings or otherwise lead to nest abandonment. The removal of up to approximately 6.56 acres of oak woodland trees in the study area, if not replaced, would reduce the amount of available nesting habitat for migratory birds.

Because disturbance or loss of a migratory bird nest with eggs or young would violate the MBTA and CFGC, this would be a significant impact. Implementation of Mitigation Measures BIO-1, BIO-2, BIO-3, BIO-6, BIO-7, and BIO-8 would reduce the potential for impacts on nesting migratory birds and their habitat to a less-than-significant level. Implementation of Mitigation Measure BIO-9 would reduce the potential for impacts on bridge-nesting migratory birds to a less-than-significant level.

Mitigation Measure BIO-1: Install Construction Barrier Fencing around the Construction Area to Protect Sensitive Biological Resources to Be Avoided**Mitigation Measure BIO-2: Conduct Environmental Awareness Training for Construction and Mitigation Planting Area Personnel****Mitigation Measure BIO-3: Retain a Qualified Biologist to Conduct Periodic Monitoring during Construction****Mitigation Measure BIO-6: Avoid and Minimize Potential Disturbance of Woody Vegetation****Mitigation Measure BIO-7: Compensate for Temporary and Permanent Impacts on Interior Live Oak Woodland****Mitigation Measure BIO-8: Remove Vegetation during the Non-Breeding Season and Conduct Preconstruction Surveys for Nesting Migratory Birds****Mitigation Measure BIO-9: Conduct Preconstruction Survey for Mud Nests on the Bridge and Implement Protective Measures for Bridge-Nesting Birds**

Should the existing bridge be removed, to avoid impacts on nesting swallows and other bridge-nesting migratory birds that are protected under the MBTA and CFGC, El Dorado County will implement the following measures:

- The County will hire a qualified wildlife biologist to inspect the bridge during the swallows' non-breeding season (September 1 through February 28). If nests are found and are

abandoned, they may be removed. To avoid damaging active nests adjacent to new bridge construction, nests must be removed before the breeding season begins (March 1).

- After nests are removed, the undersides of the bridge will be covered with 0.5- to 0.75-inch mesh net by a qualified contractor. All net installation will occur before March 1 and will be monitored by a qualified biologist throughout the breeding season (monitoring would depend on the existing level of human disturbance and could vary from several times a week to once every other week). The netting will be anchored so that swallows and other birds cannot attach their nests to the bridge through gaps in the net.
- As an alternative to netting the underside of a bridge, the County may hire a qualified biologist to remove nests as the birds construct them and before any eggs are laid. Visits to the site would need to occur daily throughout the breeding season (March 1 through August 31) as swallows can complete a nest in a 24-hour period.
- If netting of the bridges does not occur by March 1 and swallows colonize the bridge, removal of the existing span will not begin before August 31 of that year or until a qualified biologist has determined that the young have fledged and all nest use has been completed.

If appropriate steps are taken to prevent swallows and other birds from constructing new nests, work can proceed at any time of the year.

Special-status bats and their habitat

Construction is anticipated to occur during the maternity season for bats (April 1 through September 15). The Project would result in the loss of trees, which provide suitable roosting habitat (cavities, crevices, furrowed bark, and foliage) for special-status bats (western red bat and pallid bat) and bats for which conservation actions are warranted (silver-haired bat and hoary bat) (Western Bat Working Group 2007). Although there are abundant trees with foliage in the surrounding area that bats may roost in, the loss of trees with suitable cavities or crevices may result in a more substantial impact because this habitat is less common. Tree removal or trimming and noise or other construction activities could result in the injury, mortality, or disturbance of roosting bats, if present in suitable tree habitat.

Areas that provide potentially suitable rock and structure habitat (cracks, crevices, cavities, etc.) would be removed or disturbed during construction. This could impact day-roosting bats, including maternity roosts, Townsend's big-eared bat, and species for which conservation actions are warranted (silver-haired bat, fringed Myotis, long-legged Myotis and Yuma Myotis) (Western Bat Working Group 2007). Impacts on maternity roosts or day-roosting colonies could result in the injury or mortality of a large number of individuals. Rock blasting, vibration, changes in lighting conditions due to tree removal, and noise or other construction activities could result in the injury, mortality, or disturbance of roosting bats, if present in cavities, crevices, and cracks.

Because the existing span does not have suitable cracks or crevices for bats, removal of the span would not result in injury or mortality of roosting bats or the removal of day-roost habitat. If the abutments or cable anchors will be removed, and bats are present, then this activity would result in the loss of available roosting habitat and may result in the injury, mortality, or disturbance of roosting bats. The existing span may provide suitable night-roosting habitat; construction of the Project would result in the loss of this habitat.

Design features such as weepholes, expansion joints, and chambers in the cast-in-place concrete design of the new bridge have the potential to provide some suitable roosting habitat for crack, crevice, and cavity roosting bats. Bats would likely compete with cavity and bridge nesting birds for roost space, but it could result in an increase in available roost space for Townsend's big-eared bat, silver-haired bat, fringed Myotis, long-legged Myotis and Yuma Myotis. Though these bridge design features could provide some new habitat for bat species, it would not compensate for the loss of cavity, crack, and crevice roost habitat.

Because bats that are species of special concern in California, the potential for bat mortality or disturbance during construction would be a significant impact. Implementation of Mitigation Measures BIO-1, BIO-2, BIO-3, BIO-6, and BIO-10 would reduce the potential for impacts on special-status bats to a less-than-significant level; and implementation of Mitigation Measure BIO-5 would compensate for the loss of potential bat roosting habitat.

Mitigation Measure BIO-1: Install Construction Barrier Fencing around the Construction Area to Protect Sensitive Biological Resources to Be Avoided

Mitigation Measure BIO-2: Conduct Environmental Awareness Training for Construction and Mitigation Planting Area Personnel

Mitigation Measure BIO-3: Retain a Qualified Biologist to Conduct Periodic Monitoring during Construction

Mitigation Measure BIO-6: Avoid and Minimize Potential Disturbance of Woody Vegetation

Mitigation Measure BIO-7: Compensate for Temporary and Permanent Impacts on Interior Live Oak Woodland

Mitigation Measure BIO-10: Identify Suitable Roosting Habitat for Bats and Implement Avoidance and Protective Measures

To avoid potential impacts on breeding and hibernating bats, tree removal or trimming should occur between September 16 and October 31. If tree removal or trimming cannot be conducted between September 16 and October 31, qualified biologists will examine trees to be removed or trimmed for suitable bat roosting habitat before removal or trimming. High-quality habitat features (tree cavities, basal hollows, loose or peeling bark, larger snags, conifers with broken limbs and needle accumulations providing additional cover, etc.) will be identified and the area around these features searched for bats and bat signs (guano, culled insect parts, staining, etc.). Passive monitoring using bat detectors may be needed if identification of bat species is required. Survey methods should be discussed with CDFW prior to the start of surveys.

Measures to avoid and minimize impacts on sensitive bats species will be determined in coordination with CDFW and may include the following:

- Tree removal will be avoided between April 1 and September 15 (the maternity period) to avoid effects on pregnant females and active maternity roosts (whether colonial or solitary).

- All tree removal will be conducted between September 16 and October 31, which corresponds to a time period when bats have not yet entered torpor or would be caring for nonvolant young.
- Trees with high-quality roosting habitat will be removed in pieces rather than felling an entire tree.
- If a maternity roost is located, whether solitary or colonial, that roost will remain undisturbed until September 16 or until a qualified biologist has determined the roost is no longer active.
- If avoidance of nonmaternity roost trees is not possible, and tree removal or trimming cannot occur between September 16 and October 31, qualified biologists will monitor tree trimming or removal that occurs before September 16 or after October 31. If possible, tree trimming and removal should occur in the late afternoon or evening when it is closer to the time that bats would normally arouse. Prior to removal or trimming, each tree will be shaken gently multiple times (at least three times) and several minutes (a minimum of 5 minutes) should pass between shakes before felling trees or limbs to allow bats time to arouse and leave the tree. The biologist should search downed vegetation for dead and injured bats. The presence of dead or injured bats will be reported to CDFW. The biologist will prepare a biological monitoring report, which will be provided to the Project lead and CDFW.
- The biologist will conduct a preconstruction survey of crack, crevice, and cavity habitat including boulder and bedrock outcrops, human-made structures (existing Mosquito bridge span, associated rock stack wall, cable anchors and abutment, other wood-framed structures, etc.) for suitable bat roosting habitat before rock blasting or removal. High-quality habitat features will be identified and the area around these features searched for bats and bat sign (guano, culled insect parts, urine staining, etc.). Passive monitoring using bat detectors may be needed if identification of bat species is required. Survey methods should be discussed with CDFW prior to the start of surveys.

If a roost is located, the biologist will determine the species, the level of occupancy (solitary or colonial), and the status of the roost (maternity or nonmaternity) if possible. If a maternity roost is located, whether solitary or colonial, that roost will remain undisturbed until September 16 or a qualified biologist has determined the roost is no longer active. If the roost is not a maternity roost, CDFW will be consulted to determine if the roost can be disturbed, and, if so, the approach to removing the habitat and compensatory mitigation for its loss. Implementation of the approach will be conducted by the biologist in coordination with the contractor, and construction activities to occur before, during and/or after implementation will be monitored, documented, and reported to the Project lead and CDFW.

- The removal of oak woodland will be compensated for by replanting oak trees at a 2:1 ratio in the study area or at the designated off-site planting area, or as required by CDFW, as discussed in Mitigation Measure BIO-5. Any additional compensation for loss of tree-roosting habitat, if required by CDFW, will be developed in coordination with CDFW.

Impact BIO-2: Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by CDFW or USFWS (less than significant with mitigation)

Table 3.3-3 summarizes the impacts on sensitive land cover types in the study area.

Table 3.3-3. Impacts on Sensitive Land Cover Types in the Study Area

	Interior Live Oak Woodland (acres)	Willow Thicket Wetland (acres)	Intermittent Stream (acres)	Perennial Stream (acres)
Permanent Impacts	6.56	0.06	0	0
Temporary Impacts	7.46	0	0.03	0
<i>Total Impacts</i>	<i>14.02 acres</i>	<i>0.06 acre</i>	<i>0.03 acre</i>	<i>0 acre</i>

Interior live oak woodland

The proposed Project would result in direct permanent and temporary impacts on interior live oak woodland in the study area (Table 3.3-3).

Permanent impacts on interior live oak woodland (Figure 3.3-1) would occur in the areas proposed for the roadway realignment of bridge approaches, construction of the bridge supports (approximately 0.004 acre) and abutments with wingwalls (approximately 0.013 acre), construction equipment turnaround/staging areas contiguous with the sharp hairpin turns in Mosquito Road, and access roads required for construction and maintenance of the bridge abutments and supports. Up to 6.56 acres of vegetation, including trees, would be permanently removed within these Project footprint areas.

Temporary impacts on interior live oak woodland would occur in areas needed for temporary shoring towers adjacent to the supports, falsework during construction on both ends of the bridge, temporary road realignments, and staging on the Placerville side of the river. Temporary impacts could include trimming of woody vegetation and trees that are to be retained, disturbance of the area within the dripline of trees to be retained, and removal of shrubs (grubbing).

The County obtained federal funding from the Federal Highway Bridge Program to provide improvements that result in a functional bridge that meets current design standards and satisfies the regional transportation needs of the facility. The purpose of the Project is to improve safety and to replace the existing bridge with one based on good design practice that meets current design standards. The Project design currently incorporates all means to limit tree removal while remaining within the necessary safety standards set forth in Caltrans Standard Specifications. Efforts to minimize impact on oak woodlands are incorporated into the design of the Project. Therefore, in accordance with the limited public safety exemption for certain road projects, as set forth in the July 10, 2012 Peremptory Writ of Mandate, the proposed Project would be exempt from the General Plan Policy 7.4.4.4 oak woodland canopy retention and replacement standards for reasons outlined in the regulatory discussion in Section 3.3.1.1. Because this Project would be exempt, and there are no other local regulatory requirements for oak woodland replacement, no compensatory mitigation would be required by the County for the trees removed in the live oak woodland habitat.

Because CDFW considers oak woodland a sensitive natural community that provides an important food source for wildlife, and nesting and roosting habitat for birds and bats, temporary and permanent impacts on interior live oak woodland would be considered significant. Compensation would be required by CDFW for the temporary impacts on up to approximately 7.46 acres and permanent loss of up to approximately 6.56 acres of interior live oak woodland. With implementation of Mitigation Measures BIO-1, BIO-2, BIO-3, and BIO-6, temporary impacts would be reduced outside of the Project footprint. Implementation of Mitigation Measure BIO-7 would compensate for the temporary and permanent loss of oak woodland and reduce these impacts to a less-than-significant level.

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Mitigation Measure BIO-3: Retain a Qualified Biologist to Conduct Periodic Monitoring during Construction

Mitigation Measure BIO-6: Avoid and Minimize Potential Disturbance of Woody Vegetation

Mitigation Measure BIO-7: Compensate for Temporary and Permanent Impacts on Interior Live Oak Woodland

Willow thicket wetland

The proposed Project would result in direct permanent and temporary impacts on willow thicket wetland in the study area (Table 3.3-3).

Permanent impacts on willow thicket wetland would occur in the area for the bridge approach roadway on the Placerville side of the river. Grading and road construction would require removal of trees and understory vegetation in the willow thicket wetland. These construction activities would result in a permanent loss of approximately 0.06 acre of willow thicket wetland, pending verification of the wetland extent by USACE.

Temporary impacts on the remaining willow thicket wetland habitat could occur during construction of the bridge and use of the proposed staging area on the Placerville side of the river. Temporary impacts could include cutting of woody vegetation and trees or disturbance of the area within the dripline of trees to be retained.

Potential indirect impacts on willow thicket wetland could occur during construction as a result of sedimentation and erosion into the part of the wetland located outside of the construction footprint.

Because the willow thicket wetland would be regulated as a water of the United States by the USACE and waters of the State by CDFW and Central Valley RWQCB, the temporary and permanent loss of wetland and indirect impacts on the wetland would be significant impacts. El Dorado County will comply with any regulatory requirements identified as part of the CWA Sections 401 and 404 permits for the work that occurs in the willow thicket wetland. With implementation of Mitigation Measures BIO-1, BIO-2, BIO-3, BIO-4, and BIO-6, potential temporary and indirect impacts on the

willow thicket wetland would be avoided. Implementation of Mitigation Measure BIO-11 would compensate for the permanent loss of willow thicket wetland and reduce permanent impacts to a less-than-significant level.

Mitigation Measure BIO-1: Install Construction Barrier Fencing around the Construction Area to Protect Sensitive Biological Resources to Be Avoided

Mitigation Measure BIO-2: Conduct Environmental Awareness Training for Construction and Mitigation Planting Area Personnel

Mitigation Measure BIO-3: Retain a Qualified Biologist to Conduct Periodic Monitoring during Construction

Mitigation Measure BIO-4 Protect Water Quality and Prevent Erosion and Sedimentation in Wetlands and Drainages

Mitigation Measure BIO-6: Avoid and Minimize Potential Disturbance of Woody Vegetation

Mitigation Measure BIO-11: Compensate for Permanent Impacts on Willow Thicket Wetland

El Dorado County will compensate for the loss of up to 0.06 acre of riparian willow thicket wetland either by purchasing mitigation bank credits, which can be in the form of preservation and/or creation credits, or by paying into the National Fish and Wildlife Foundation Sacramento District In-Lieu Fee program. The mitigation ratio will be a minimum of 2:1 (2 acres of mitigation for 1 acre of wetland filled) if credits are for preservation of wetland habitat, or 1:1 (1 acre of mitigation for 1 acre of wetland removed) if credits are for creation of wetland habitat. The final ratio will be as required under the Section 404 permit in order to result in no net loss of wetland habitat. If mitigation bank credits are used for mitigation, the County will purchase willow wetland credits from an approved mitigation bank that has a service area that covers the project site. .

Impact BIO-3: Have a substantial adverse effect on federally protected wetlands, as defined by Section 404 of the CWA (including, but not limited to, marshes, vernal pools, coastal wetlands, etc.), through direct removal, filling, hydrological interruption, or other means (less than significant with mitigation)

The proposed Project would avoid temporary and permanent impacts, but could result in indirect impacts, on the intermittent stream. The clear-span design of either the minor bridge or the large arch culvert for the bridge approach road would avoid placement of fill within the OHWM of the stream. The construction access/maintenance road on the Placerville side of the river would use an existing dirt road alignment that was built upslope of the beginning of the stream. Therefore, no permanent fill would be placed in the stream.

Temporary impacts on the intermittent stream could occur during construction of the bridge and use of the proposed staging area on the Placerville side of the river. However, the ravine in which the intermittent stream is located will be avoided during construction.

Indirect impacts on the intermittent stream could occur during construction as a result of siltation and erosion from slopes above the stream.

Because the intermittent stream would be regulated as a water of the United States by the USACE and RWQCB, indirect impacts on the intermittent stream would be considered significant. With implementation of Mitigation Measures BIO-1, BIO-2, BIO-3, BIO-4, and BIO-6, potential indirect impacts on the intermittent stream would be avoided.

Mitigation Measure BIO-1: Install Construction Barrier Fencing around the Construction Area to Protect Sensitive Biological Resources to Be Avoided

Mitigation Measure BIO-2: Conduct Environmental Awareness Training for Construction and Mitigation Planting Area Personnel

Mitigation Measure BIO-3: Retain a Qualified Biologist to Conduct Periodic Monitoring during Construction

Mitigation Measure BIO-4: Protect Water Quality and Prevent Erosion and Sedimentation in Wetlands and Drainages

Mitigation Measure BIO-6: Avoid and Minimize Potential Disturbance of Woody Vegetation

Impact BIO-4: Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites (less than significant)

Construction of the proposed Mosquito Road Bridge would span the river channel horizontally by approximately 1,000 feet and would result bridge supports, including abutments, placed within the canyon. Therefore, the new bridge structure is not expected to create a substantial movement barrier to wildlife. Raptors soaring through the canyon would need to fly above or below the bridge structure but generally would not be impeded by the structure. Native fish may be present and disperse through the river channel in the study area; however, there are no proposed modification to the river channel and therefore, native fish movements would not be impeded by proposed Project features. This would be a less-than-significant impact, and no mitigation is required.

Impact BIO-5: Conflict with any local policies or ordinances protecting biological resources, such as the County General Plan oak canopy retention standards (no impact)

Because there is no regulatory requirement for oak tree or other native tree replacement for public road safety projects in El Dorado County, and no compensation for the loss of oak trees in the interior oak woodland habitat is required under the local regulations, the Project would not conflict with the County General Plan oak protection policies, and there would be no impact.

Impact BIO-6: Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan (no impact)

No adopted or approved conservation plans are in effect in El Dorado County, therefore, the proposed Project would not conflict with any conservation plans.

Impact BIO-7: Potential for construction activities to introduce or spread invasive plant species (less than significant with mitigation)

The proposed Project has the potential to create additional disturbed areas for a temporary period and to introduce and spread invasive plant species to uninfected areas within and adjacent to the study area. This would be of particular concern for natural communities of special concern, where nonnative invasive plants could outcompete and replace native vegetation.

Introduction or spread of invasive plant species is of concern to CDFW. Therefore, this would be a significant impact. Implementation of Mitigation Measures BIO-1, BIO-2, BIO-3, and BIO-12 would reduce this impact to a less-than-significant level. Because the proposed Project would avoid the introduction and minimize the spread of invasive plants, it would not substantially reduce the habitat of a wildlife species or threaten to eliminate a plant or animal community.

Mitigation Measure BIO-1: Install Construction Barrier Fencing around the Construction Area to Protect Sensitive Biological Resources to Be Avoided**Mitigation Measure BIO-2: Conduct Environmental Awareness Training for Construction and Mitigation Planting Area Personnel****Mitigation Measure BIO-3: Retain a Qualified Biologist to Conduct Periodic Monitoring during Construction****Mitigation Measure BIO-12: Avoid the Introduction and Spread of Invasive Plants**

El Dorado County or its contractor will be responsible for avoiding the introduction of new invasive plants and the spread of invasive plants previously documented in the study area. Accordingly, the following measures will be implemented during construction:

- Educate construction supervisors and managers on weed identification and the importance of controlling and preventing the spread of invasive weeds.
- Dispose of invasive species material removed during Project construction off-site at an appropriate disposal facility to avoid the spread of invasive plants into natural areas.
- Minimize surface disturbance to the greatest extent feasible to complete the work.
- Use weed-free imported erosion-control materials (or rice straw in upland areas).
- Use locally grown native plant stock and native or naturalized (noninvasive) grass seed during revegetation.

3.3.3 References

3.3.3.1 Printed References

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3.3.3.2 Personal Communications

Fellow, Alyssa. Wildlife biologist. U.S. Forest Service, Georgetown Ranger District, El Dorado National Forest. October 7, 2015—email to Aundrea Asbell, ICF International.

Owings, David. Landowner, Mosquito Road, Placerville. October 22, 2015—discussion with Lisa Webber and Joel Butterworth, ICF International, in field regarding staging area vegetation.

3.4 Cultural Resources

This section identifies the regulatory and environmental setting for cultural resources. For the purposes of this section, *cultural resources* consist of historic-period and prehistoric archaeological sites, traditional cultural properties, and built environment resources.

Archaeological resources consist of the physical remains of past human activity that have been preserved in the ground but no longer take the form of a standing structure (e.g., a house or building) and can date to the prehistoric or historic period. Archaeological remains may occur in the same place as standing structures but are considered a distinct element (called a *component*) of the larger resource.

Traditional cultural properties consist of resources that are associated with the practices or beliefs of a living community and are (a) rooted in that community's history for at least 50 years, and (b) important in maintaining the continuing cultural identity of the community (Parker and King 1998:1).

Built environment resources consist of buildings, structures, objects, sites, or districts. Typically, built environment resources must be 50 years of age or older to qualify as cultural resources. Where these resources form a landscape unified by a coherent historical or design theme, they may qualify as a rural historic landscape (U.S. Department of the Interior 1999:1).

3.4.1 Existing Conditions

3.4.1.1 Regulatory Setting

Federal

National Historic Preservation Act

Archaeological and built environment resources (buildings and structures) are protected through the NHPA of 1966, as amended (54 USC § 300101 et seq.) and its implementing regulations: Protection of Historic Properties (36 CFR § 800).

Prior to implementing an *undertaking* (e.g., issuing a federal permit), federal agencies (e.g., USACE) are required by Section 106 of the NHPA to consider the effects of the undertaking on historic properties and to afford the Advisory Council on Historic Preservation (ACHP) and the State Historic Preservation Officer (SHPO) a reasonable opportunity to comment on any undertaking that would adversely affect properties eligible for listing in the NRHP. NHPA Section 101(d)(6)(A) allows properties of traditional religious and cultural importance to a tribe to be determined eligible for inclusion in the NRHP. Under the NHPA, a find is significant if it meets the NRHP listing criteria under 36 CFR Part 60.4, as stated below.

The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and:

- a) that are associated with events that have made a significant contribution to the broad patterns of our history, or

- b) that are associated with the lives of persons significant in our past, or
- c) that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction, or
- d) that have yielded, or may be likely to yield, information important in prehistory or history.

Federal review of projects is normally referred to as the Section 106 process. The Section 106 process involves step-by-step procedures that are described in detail in the implementing regulations (36 CFR § 800) and summarized here.

- Establish a federal undertaking.
- Delineate the Area of Potential Effects (APE).
- Identify and evaluate historic properties in consultation with the SHPO and interested parties.
- Assess the effects of the undertaking on properties that are eligible for inclusion in the NRHP.
- Consult with the SHPO, other agencies, and interested parties to develop an agreement that addresses the treatment of historic properties and notify ACHP.
- Proceed with the project according to the conditions of the agreement.

The proposed Project would use federal HBP funds from the FHWA. Therefore, the proposed Project is subject to Section 106 of NHPA as described above. In addition, because the proposed Project would likely affect waters of the United States, the Applicant will be required to meet the requirements of Section 404 of the CWA by obtaining a permit from USACE.

State

The State of California implements the NHPA through its statewide comprehensive cultural resource preservation programs. The California Office of Historic Preservation (OHP), an office of the California Department of Parks and Recreation, implements the policies of the NHPA on a statewide level. The OHP also maintains the California Historical Resources Inventory. The SHPO is an appointed official who implements historic preservation programs within the state's jurisdiction.

California Environmental Quality Act

CEQA, as codified in PRC Sections 21000 et seq. and implemented via the State CEQA Guidelines (14 CCR § 15000 et seq.), is the principal statute governing the environmental review of projects in the state. To be considered a historical resource, a resource must be at least 50 years old. In addition, the State CEQA Guidelines define a *historical resource* as listed below.

- a. A resource listed in the CRHR.
- b. A resource included in a local register of historical resources, as defined in PRC Section 5020.1(k) or identified as significant in a historical resource survey meeting the requirements of PRC Section 5024.1(g).
- c. Any object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California, provided the lead agency's determination is supported by substantial evidence in light of the whole record. The CRHR is "an authoritative listing and guide to be used by state and local

agencies, private groups, and citizens in identifying the existing historical resources of the state and to indicate which resources deserve to be protected, to the extent prudent and feasible, from substantial adverse change” (PRC § 5024.1[a]). The CRHR criteria are based on NRHP criteria (PRC § 5024.1[b]). Certain resources are determined by CEQA to be automatically included in the CRHR, including California properties formally eligible for or listed in the NRHP. To be eligible for listing in the CRHR as a historical resource, a prehistoric or historic-period resource must be significant at the local, state, and/or federal level under one or more of the following criteria.

- 1) Is associated with events that have made a significant contribution to the broad patterns of California’s history and cultural heritage.
- 2) Is associated with the lives of persons important in our past.
- 3) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or,
- 4) Has yielded, or may be likely to yield, information important in prehistory or history [14 CCR § 4852(b)].

For a resource to be eligible for the CRHR, it must also retain enough integrity to be recognizable as a historical resource and to convey its significance. A resource that does not retain sufficient integrity to meet the NRHP criteria may still be eligible for listing in the CRHR.

CEQA requires lead agencies to determine if a proposed project would have a significant effect on important historical resources or unique archaeological resources. If a lead agency determines that an archaeological site is a historical resource, the provisions of PRC Section 21084.1 and State CEQA Guidelines Section 15064.5 would apply. If an archaeological site does not meet the State CEQA Guidelines criteria for a historical resource, then the site may meet the threshold of PRC Section 21083.2 regarding unique archaeological resources. A *unique archaeological resource* is an archaeological artifact, object, or site that meets any of the following criteria.

- Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
- Has a special and particular quality such as being the oldest of its type or the best available example of its type.
- Is directly associated with a scientifically recognized important prehistoric or historic event or person (PRC § 21083.2[g]).

The State CEQA Guidelines note that if a resource is neither a unique archaeological resource nor a historical resource, the effects of the project on that resource shall not be considered a significant effect on the environment (14 CCR § 15064[c][4]).

Madera Oversight Coalition, Inc. v. County of Madera and Tesoro Viejo, Inc. (2011)

In the past, it was common practice for many CEQA practitioners to provide performance-based mitigation for cultural resources, stipulating that further evaluation and treatment of resources would be performed in the future. The 2011 decision from the *Madera Oversight Coalition, Inc. v. County of Madera and Tesoro Viejo, Inc.* (2011 [199 Cal. App.4th 48, 81]) case determined this practice to be unacceptable under CEQA and required evaluation of cultural resources subject to

CEQA to be performed at a level sufficient to characterize the resources prior to EIR certification, instead of waiting until preconstruction or construction stages of a project. Additionally, the case determined that if preservation of the resource in the place it is located, the preferred mitigation under CEQA (14 CCR § 15126.4[b][3]) is not employed, the EIR should disclose why that is not feasible. Cultural resources evaluations in this EIR have been completed consistent with the *Madera Oversight* decision.

Discovery of Human Remains

Section 7050.5 of the California Health and Safety Code states the following.

- (a) Every person who knowingly mutilates or disinters, wantonly disturbs, or willfully removes any human remains in or from any location other than a dedicated cemetery without authority of law is guilty of a misdemeanor, except as provided in Section 5097.99 of the [California Public Resources Code (CPRC)]. The provisions of this subdivision shall not apply to any person carrying out an agreement developed pursuant to subdivision (l) of Section 5097.94 of the [CPRC] or to any person authorized to implement Section 5097.98 of the [CPRC].
- (b) In the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the human remains are discovered has determined, in accordance with Chapter 10 (commencing with Section 27460) of Part 3 of Division 2 of Title 3 of the [California] Government Code [CGC], that the remains are not subject to the provisions of Section 27491 of the [CGC] or any other related provisions of law concerning investigation of the circumstances, manner and cause of any death, and the recommendations concerning the treatment and disposition of the human remains have been made to the person responsible for the excavation, or to his or her authorized representative, in the manner provided in Section 5097.98 of the [CPRC]. The coroner shall make his or her determination within two working days from the time the person responsible for the excavation, or his or her authorized representative, notifies the coroner of the discovery or recognition of the human remains.
- (c) If the coroner determines that the remains are not subject to his or her authority and if the coroner recognizes the human remains to be those of a Native American, or has reason to believe that they are those of a Native American, he or she shall contact, by telephone within 24 hours, the [Native American Heritage Commission (NAHC)] (California Health and Safety Code Section 7050.5).

Of particular note to cultural resources is subsection (c), requiring the coroner to contact the Native American Heritage Commission (NAHC) within 24 hours if discovered human remains are determined to be Native American in origin. After notification, NAHC will follow the procedures outlined in PRC Section 5097.98, which include notification of the most likely descendant (MLD), if possible, and recommendations for treatment of the remains. The MLD will have 24 hours after notification by the NAHC to make recommendations (PRC § 5097.98). In addition, knowing or willful possession of Native American human remains or artifacts taken from a grave or cairn is a felony under State law (PRC § 5097.99).

Local

El Dorado County General Plan

To protect cultural resources, the Conservation and Open Space Element of the County General Plan (El Dorado County 2004) includes the following goal and policies to protect cultural resources. The full text of this goal and policies can be found in Appendix C, which provides an analysis of the

Project's consistency with County General Plan policies as required under State CEQA Guidelines Section 15125.

- Goal 7.5, *Cultural Resources*, addresses preservation of the County's important resources through protection of cultural heritage, and includes implementing Policies 7.5.1.1, 7.5.1.3, and 7.5.1.6.

3.4.1.2 Environmental Setting

The following prehistoric, ethnographic, and historic contexts have been summarized from the Archaeological Survey Report (ICF International 2016a) and the Historic Resources Evaluation Report (ICF International 2016b). The APE includes the area of direct impact such as areas of demolition, new construction, and staging. The APE also includes an area of indirect impact which takes into consideration the maximum extent of visual and noise-related effects that the Project could have on historic architectural and built resources.

Prehistoric Background

Until relatively recently, the study of archaeology in the foothills and the Sierra lagged behind the Central Valley and California coast areas in terms of developing regional chronologies and other systemic studies of the prehistory of the area. The first effective synthesis of Sierran archaeology was that of Heizer and Elsasser in 1953, who further refined it in 1960. After 1960, archaeological work in the Sierra has proliferated, largely due to water projects and other cultural resources management activities.

At the end of the Pleistocene (roughly the beginning of the Paleoindian Period), circa 13,500–10,500 years before present (BP), parts of the Sierra Nevada adjacent to the Central Valley were covered with large glaciers (West et al. 2007:27), precluding permanent habitation. The Central Valley provided a major transportation route for animals and people, and this transportation corridor was undoubtedly used heavily by early Californians. However, evidence for human occupation of the Central Valley during this period is scarce, the result of sites and artifacts being buried by deep alluvial sediments that accumulated rapidly during the late Holocene (Westwood 2005:17).

Occupation of the Sierra is thought to date to at least 8000 BP. The first cultural phase defined in the region is known as the Tahoe Reach Phase (Elston et al. 1977), characterized by a temporal artifact known as the Parman projectile point. This point is found along the Tahoe Reach of the Truckee River, and in the Tahoe, Lassen, and Eldorado National forests in the Project region (Supernowicz 1997). The Spooner Phase succeeds this phase, dating from circa 7000 BP to 4000 BP. This phase is characterized by Pinto and Humboldt dart points (Elston et al. 1977:171).

The next phase defined in the Sierra is the Martis Phase, dating from circa 4000 BP to 500 A.D (1450 BP). The Martis Phase is characterized by the widespread use of basalt stone tools, including Martis projectile points. Commonly found tool types include manos, millingstones, pestles, bowl mortars, and numerous flake scrapers (Moratto 1984:295). Martis culture may have originated in the Great Basin, and its expanse roughly coincides with the ethnographic territory of the Maidu and Washo peoples (Moratto 1984:302–303). The Kings Beach Phase, dating from circa 500 A.D. to 1200 A.D., succeeds the Martis Phase. An important cultural development during this phase is the introduction of the bow and arrow, replacing atlatl and dart technology. Bedrock mortars also become more abundant (Moratto 1984:294-295).

Generalizing for the northern Sierra, Moratto (1984) has postulated that by 3000 BP the region was occupied by people of an unknown origin who possessed characteristics of both Martis and Central Valley cultures. By 1 A.D., permanent villages were established, and a growing population resulted in increased sedentism. A shift from a foraging to a collections strategy during this time resulted in intensification of resource exploitation. The bow and arrow were introduced during this period, during approximately 600 A.D. to 800 A.D. Use of the mortar and pestle became more intense after 1400 A.D. By 1500 A.D. large permanent villages had become political, social, and ceremonial centers. This pattern of permanent settlements surrounded by secondary villages and seasonal camps closely resembles the settlement system of the Nisenan, the ethnographically known population of the region. Patterns in the activities, social relationships, belief systems, and material culture continued to develop during this period and took forms similar to those described by the first Europeans who entered the area.

Ethnographic Background

The Project lies within the territory of the Nisenan or Southern Maidu Native American group. Nisenan territory was the drainages of the Yuba, Bear, and American Rivers, and the lower portion of the Feather River. The western boundary of Nisenan territory was the western bank of the Sacramento River, and the eastern boundary was the crest of the Sierra Nevada. The southern boundary is to the south of the American River, while the northern boundary is north of the Yuba River (Wilson and Towne 1978). The language of the Nisenan, which includes several dialects, is classified in the Maiduan family of the Penutian linguistic stock (Kroeber 1925; Shipley 1978).

The Project area is within the territory of the Hill Nisenan, as distinguished from the Nisenan people who lived on the Valley floor. Nisenan settlement locations depended primarily on elevation, exposure, and proximity to water and other resources. Villages for the Hill Nisenan were located on gentle slopes with southern exposure and flats and low rises along the major streams and rivers, while satellite encampments were located on smaller water courses near a major village (Wilson and Towne 1978). Village size ranged from three houses to 40 or 50. Houses were domed structures covered with earth and tule or grass and measured 3.0–4.6 meters (9.8–15 feet) in diameter. Brush shelters were used in summer and at temporary camps during food-gathering rounds. Larger villages often had semi-subterranean dance houses that were covered in earth and tule or brush, with a central smoke hole at the top and an east-facing entrance. Another common village structure was a granary used for storing acorns (Wilson and Towne 1978).

Nisenan villages known to have existed near the Project area include *Tumeli*, *Indak*, and *Ekelepakan* (Kroeber 1925:394; Wilson and Towne 1978:388). *Tumeli* is the settlement nearest to the Project area, reportedly located about 2.5 miles east on flat uplands north of the South Fork of the American River and east of Mosquito/Swansboro. *Indak* was located where Placerville is now, about 4 miles southwest of the APE; *Ekelepakan* was located northwest of Placer, about 5 miles west of the APE.

The Nisenan occupied permanent settlements from which specific task groups set out to harvest the seasonal bounty of flora and fauna. The resource base of the Hill Nisenan consisted primarily of acorn and game procurement. The only domestic plant was native tobacco (*Nicotiana* sp.), but many wild species were closely husbanded. The acorn crop from the blue oak (*Quercus douglasii*) and black oak (*Q. kelloggii*) was so carefully managed that its management served as the equivalent of agriculture. Acorns could be stored in anticipation of winter shortfalls in resource abundance. Deer, rabbit, and salmon were the chief sources of animal protein in the aboriginal diet, but many other insect and animal species were taken when available.

Religion played an important role in Nisenan life. The Nisenan believe that all natural objects were endowed with supernatural powers. Two kinds of shamans existed: curing shamans and religious shamans. Curing shamans had limited contact with the spirit world and diagnosed and healed illnesses. Religious shamans gained control over the spirits through dreams and esoteric experiences (Wilson and Towne 1978). The usual mode of burial was cremation (Faye 1923).

As with other California Native American groups, the gold rush of 1849 had a devastating effect on the Hill Nisenan. The flood of miners that came to the area in search of gold brought diseases with them that decimated the Nisenan population. Those who survived were subjected to violence and prejudice at the hands of the miners, and the Nisenan eventually were pushed out of their ancestral territory. Although this contact with settlers had a profound negative impact on the Nisenan population through disease and violent actions, the Nisenan people survive and maintain strong communities and action-oriented organizations.

Historical Background

White settlement did not begin in El Dorado County until after the California Gold Rush. Although the Spanish had established missions, presidios, and ranchos along the California coast, they did not settle in the El Dorado County area. The primary impetus for white immigration into the area was James Marshall's discovery of gold on January 24, 1848, at John Sutter's mill, which became the site of the mining town of Coloma. Most of the prospectors, however, were unsuccessful and left the area disillusioned with little to show for their efforts (Kyle et al. 1970). Some, however, remained to establish farms.

El Dorado County was established on February 18, 1850, when California's first governor, Peter Burnett, signed into law the establishment of California's original 27 counties. Coloma served as the first county seat, but it was replaced in 1857 by Placerville (Bean 1968). In the Mosquito Valley, fruit orchards were established as early as 1853. Over the next 3 decades, farmers continued to settle in the area (Sioli 1883).

The early history of the land in the Project area has an association with the initial period of gold mining in El Dorado County that gave way to an era of increased agricultural activity and the development of small farms. An 1871 map produced for the General Land Office indicates that there were several mining sites in the vicinity just south of the South Fork of the American River. Among these sites were the White Rock Surface Gold Mines and three other unnamed surface mines, in addition to two hydraulic gold mining operations. To facilitate these mining operations, water conveyance systems such as the American River Flume and the Mining Brook Ditch were constructed throughout the area. These water systems were later appropriated for agricultural purposes. These mining sites are outside the Project APE.

The 1871 map also indicates that an early alignment of Mosquito Road (known then as the Placerville and Mosquito Road) had been built on the north side of the American River. A portion of the current alignment of Mosquito Road (known then as the Old Trail Road) was also present on the south side of the river. Planning for this wagon road began in 1859, when the County Board of Supervisors authorized the construction of a new road between Placerville and Mosquito (Pearson n.d.). The two road segments were connected by a suspension bridge, built in 1867, which spanned the South Fork of the American River at the present crossing of the Mosquito Road Bridge.

By 1895, land in the APE had been subdivided, and the current alignment of Mosquito Road south of the South Fork of the American River had been completed to Placerville. The vernacular-style

residence and a wood-frame storage building at 8061 Mosquito Road were both built in 1910. Over the course of the twentieth century, land in the APE remained largely undeveloped with few improvements except those involving the bridge, roadway, and the property at 8061 Mosquito Road. In 1939, the original bridge across the South Fork of the American River was replaced with the current suspension bridge at the same site.

Despite improvements to Mosquito Road, the bridge received minimal traffic until 1967, when Richard Dyer developed a 3,000-acre ranch in Mosquito Valley into a 400-home planned community known as Swansboro Country. The housing development increased traffic over the bridge and forced the County to rehabilitate the structure in 1990 (McMorris and Toffelmier 2003). Although the bridge has received continuous and substantial maintenance, it has remained in a structurally deficient condition.

Development on the south side of the American River in the vicinity of the bridge has proceeded at a far slower pace. As late as 1950, there were only two properties along Mosquito Road in Section 28 with buildings on them. Even today, the area as a whole remains largely rural and undeveloped.

3.4.1.3 Existing Cultural Resources

Efforts to locate cultural resources consisted of archival research, a records search, consultation with the NAHC and Native American representatives, as well as historical societies and other interested parties, and a pedestrian survey.

Records Search and Additional Research

A records search was conducted at the North Central Information Center (NCIC) of the California Historical Resources Information System (CHRIS) located at California State University, Sacramento in August 2015. The records search was specific to the APE and included a 1-mile radius to identify any adjacent cultural resources or cultural resources studies. Sources consulted by the NCIC staff researchers during the records search included maps of previous cultural resources studies and known cultural resource locations. NCIC staff also consulted the OHP Historic Property Data File (California Office of Historic Preservation 2012), Determination of Eligibility (2012), NRHP/CRHR listings (2008 and updates), California Inventory of Historic Resources (California Department of Parks and Recreation 1976), California Historical Landmarks (California Department of Parks and Recreation 1996), and California Points of Historical Interest (May 1992 and updates), Caltrans Bridge Inventory, and historic maps.

The records search results indicate that three previous cultural resources surveys have been conducted within the APE (Peak & Associates 1992; Hope 2004; Barnes 2006). Except for the existing Mosquito Road Bridge, no cultural resources were located as a result of those studies. Collectively, these previous studies cover approximately 50 percent of the APE.

Additionally, the NCIC has record of 16 additional cultural resources surveys conducted within 1 mile of, but outside, the APE. None of these studies encompassed areas adjacent to or near the APE.

The records search identified 10 cultural resources, nine historic-period and one prehistoric, within 1 mile of the APE. All of these resources are located 0.5 mile to 1 mile distant from the APE, on the flat upland areas north and south of South Fork Canyon. Six of the historic-period resources are sections of abandoned ditches, one is a sawmill site, one a cabin site, and one a mining site. The

single prehistoric resource is a midden site located on level land near the town of Mosquito, about 1 mile north of the APE.

The records search identified one architectural/built environment resource, the existing Mosquito Road Bridge, P-09-3308-H (Bridge #25C0061), within the APE. Due to questions raised during the consultation process about the history of the Mosquito Road Bridge and its previous eligibility finding in 2004, additional research was conducted on April 22, 2016 at the El Dorado County Museum.

Correspondence

Native American Consultation

The NAHC was contacted via email on September 10, 2015, requesting the NAHC to identify any areas of concern within the APE that may be listed in the NAHC's Sacred Lands File and to provide a list of Native American representatives who may have interest in the Project. The NAHC responded via email on September 15, 2015, stating that the Sacred Lands File contains no record of any cultural resources within or near the APE. The response also listed 12 Native American representatives who may be interested in the Project and could provide further information. One Native American group, the Wilton Rancheria, requested consultation and was added to the contact list, and a Native American individual known to the County was also contacted. A total of 14 consultation letters requesting information about the Project area from these Native Americans were sent on November 4, 2015. These letters also included an invitation to an informational meeting for Native Americans, to be held on December 11, 2015.

One response was received to these letters—the Washoe Tribe of Nevada and California deferred to the Shingle Springs Rancheria and requested they not be contacted further about the Project. Follow up phone calls were made on December 8, 2015; no responses were received.

The first Native American informational meeting was held on December 11, 2015. A second informational meeting for Native Americans was planned for January 19, 2016, and letters were sent to 13 Native American contacts, with the Washoe now dropped out. Kara Perry of the Shingle Springs Rancheria was informed of the meeting via email due to problems receiving mail at her physical address.

Follow up phone calls were made on January 5 and January 11, 2016. The T'si-Akim Maidu indicated that they would defer to Shingle Springs Rancheria, but would like to continue to receive Project information. It was also determined that one of the Native American individuals being contacted had passed away.

The second informational meeting for Native Americans was held on January 19, 2016, and attended by representatives of Shingle Springs Rancheria and Wilton Rancheria. To date, no cultural resources information has been received from the Native American contacts. A follow-up email was sent on January 25, 2016 and included the presentation and maps given by the Mosquito Bridge Design team to Tribal members who attended January 19, 2016 meeting.

Other Interested Parties

Letters were sent to interested parties on September 21, 2015 requesting information on any potential cultural resources in the APE. The letters were sent to the El Dorado County Historical Society, El Dorado Research Society, and the Heritage Association of El Dorado County. Letters were

also sent to the El Dorado County Historical Museum and the El Dorado County Library on October 20, 2015.

The El Dorado County Historical Society replied in a letter dated October 13, 2015 with a few concerns about the potential historical significance of the existing Mosquito Road Bridge. Follow-up phone calls and emails were sent to the El Dorado County Historical Society, El Dorado Research Society, and the Heritage Association of El Dorado County on October 19, 2015, as well as the El Dorado Cemetery Advisory Committee on October 7, 2015. As a result of consultation efforts, additional research was undertaken on April 22, 2016 at the El Dorado County Museum. Information gathered as in the course of conducting research was utilized in preparation of the Historic Resources Evaluation Report (ICF International 2016b). All entities were again contacted and April and May of 2016. No further comments were received at that time.

Fieldwork

An architectural survey of the APE was conducted on February 12, 2013. The survey effort included formal recordation of built-environment cultural resources in the architectural APE with digital photographs and handwritten notes. Two built environment resources were identified during the survey. These include the newly recorded Owings Residence (MR-1), built in 1910 located at 8061 Mosquito Road (APN 084-030-015) and the previously recorded Mosquito Road Bridge (P-09-3308-H), built in 1939.

An archaeological survey was conducted on October 6, 2015 for accessible portions of the APE; an additional survey was conducted on January 30, 2016 of a small portion of the APE managed by the BLM. Pedestrian survey methods were used in portions of the APE that were not extremely steep or not overgrown to the point of being impassable. Both staging areas, being nearly level, were surveyed at 15-meter intervals, as was the Owings Residence house and barn area, and the work areas at each curve of the existing road and near the bridge. Average ground visibility in these areas was 10 to 20 percent, due to grass and other vegetation. Decayed vegetation was removed from the upper surface of bedrock outcrops to look for milling features; none were found.

Reconnaissance methods were used for the steep slopes of the APE where access was limited, or in areas of dense vegetation. In these areas, air photo coverage was examined, followed by an on-the-ground inspection for accessible areas or for indications of cultural resources in these parts of the APE. Digital photographs were taken to document ground conditions, and all observations were recorded in the field.

No previously unidentified archaeological resources were identified within the APE as a result of the survey. No archaeological resources except for the old bridge abutments were observed in the area of the existing bridge. The Owings Residence at 8061 Mosquito Road (APN 084-030-015) was surveyed; however, no indications of historical archaeological resources were observed. Due to the shallow depth to bedrock on this property, there is no potential for buried deposits associated with this property.

Findings

Archaeological Resources

No archaeological resources were identified within the APE.

The setting and geology of the APE suggests that the APE has low potential for buried archaeological deposits, from either the prehistoric or historic period. Buried sites are unlikely to be present, because soil in the APE is all derived from decay of bedrock, as well as being mostly very shallow. This geologic setting is unlikely to bury and preserve prehistoric materials.

Traditional Cultural Properties

No traditional cultural properties were identified within the APE through survey or consultation efforts.

Built Environment Resources

Two built environment resources over the age of 50 years were identified in the APE and required evaluation under NRHP and CRHR criteria; a rural residential property located at 8061 Mosquito Road and Mosquito Road Bridge. Brief summaries of the findings for these two resources are presented below. Detailed evaluations of these properties can be found in the Historic Resources Evaluation Report prepared for this Project (ICF International 2016b).

The property located at 8061 Mosquito Road contains a Vernacular-style residence and a wood frame storage building. The El Dorado County Assessor records list the construction date for the house and storage building as 1910. The Assessor records also show an “effective year built” of 1926, indicating that a major remodeling or alteration of the property occurred at that time. According to the current owner, a rear addition was added to the residence in the 1940s, a wooden deck was installed along the second story of the front (west) elevation in the 1950s, and a second wooden deck was added to the north elevation in 2012. Other alterations (e.g., replacement windows and new doors) were noted during the survey. The property does not appear to be eligible for listing in the NRHP or the CRHR, either individually or as a contributing element to an existing or historic district, because it lacks sufficient historical and architectural significance.

The Mosquito Road Bridge (P-09-3308-H) was previously recorded and evaluated in 2004 (JRP Historical Consulting 2004). The bridge is well known in the area and some members of the public believe it to be a historic bridge with ties to the gold-rush history of the region. Consequently, the earlier bridge evaluation was revisited for this Project. The history of the bridge as written in the previous evaluation was re-examined and subsequent research was conducted at the El Dorado County Historical Museum to examine photographs of the bridge to see if the existing 1939 bridge was “re-built in kind” to the original gold-rush era bridge at this location in the mid-to-late 1800s. Research revealed that at least four bridges have likely existed at this remote canyon site within the Sierra Nevada Foothills. The original Mosquito Road Bridge, built around 1867, was likely first rebuilt or replaced in 1890. By 1913, the bridge was reconstructed or replaced again (El Dorado County Historical Museum n.d.; JRP Consulting 2004). In 1939, the existing Mosquito Road Bridge was constructed at this location.

Based on analysis of the historic-era photographs on file at the El Dorado County Historical Museum, each of the four Mosquito Road Bridges have in common only two things: their location and bridge type (single-span suspension). The existing 1939 bridge appears to be an updated design in comparison to its predecessors, which featured structural materials including rock and mortar tower piers and abutments, along with simple wooden beams for the deck and railings (El Dorado County Historical Museum n.d.).

The results of the re-examination of the 2004 evaluation of the bridge agree with the 2004 finding. The structure does not appear to be significant for its association with significant historic events or trends in local, state, or national history such as gold mining or farming development in the Mosquito Valley and surrounding canyons (NRHP Criterion A/CRHR Criterion 1), nor does it appear to be associated with any known historic person (NRHP Criterion B/CRHR Criterion 2). The bridge is not associated with the period of innovation in design or construction of suspension bridges. As such, the bridge does not embody distinctive engineering characteristics (NRHP Criterion C/CRHR Criterion 3), and it has not yielded, nor will likely yield, important information for history (NRHP Criterion D/CRHR Criterion 4) (JRP Consulting 2004).

In addition, the bridge does not appear significant either individually or as contributing element to an existing historic district under NRHP or CRHR at the local level of significance because it lacks sufficient historical and architectural significance. Consequently, the Mosquito Road Bridge (P-09-3308-H) does not appear meet the criteria for listing in the NRHP or CRHR, nor does it appear to be a historical resource for the purposes of CEQA.

3.4.2 Environmental Impacts

3.4.2.1 Methods of Analysis

This Draft EIR analyzes whether the Project would have the potential to adversely affect existing cultural resources. The identified resources within the APE have been examined for their significance and the potential for the proposed Project to result in impacts on that significance. CEQA requires an assessment of a project's potential effects on significant historical resources (i.e., those that are listed or eligible for listing in the CRHR or in a local register or survey that meets the requirements of PRC Sections 5020.1[k] and 5024.1[g]). This assessment entails the following steps.

- Identify potential historical resources.
- Evaluate the significance of identified historical resources.
- Evaluate the anticipated effects of a project on all significant historical resources.

Under CEQA, only effects on significant resources are considered potentially significant, so only those impacts require detailed analysis.

3.4.2.2 Thresholds of Significance

In accordance with Appendix G of the State CEQA Guidelines, the proposed Project would be considered to have a significant effect if it would result in any of the conditions listed below.

- Cause a substantial adverse change in the significance of an archaeological resource that is an historical resource as defined in Section 15064.5.
- Cause a substantial adverse change in the significance of a built environment resource that is an historical resource pursuant to Section 15064.5.
- Disturb any human remains, including those interred outside of formal cemeteries.

3.4.2.3 Impacts and Mitigation Measures

Impact CUL-1: Potential to cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5 (no impact)

One residential complex in the APE (MR-1-Owings Residence) was formally evaluated under NRHP and CRHR criteria. The property includes a Vernacular-style residence and a wood frame storage building, both built in 1910. The property was found not eligible for listing in the NRHP or the CRHR.

The Mosquito Road Bridge (P-09-3308-H) was previously determined not eligible for listing in the NRHP or the CRHR (JRP Historical Consulting 2004). Additional research was conducted and the bridge reevaluated in 2016. As a result, P-09-3308-H the property was found not eligible for listing in the NRHP or the CRHR.

Because neither resource is eligible for listing in the NRHP or CRHR there are no historical resources for the purposes of CEQA in the Project area. Consequently, there is no impact and no mitigation is required.

Impact CUL-2: Potential to cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5 (less than significant)

No archaeological resources were found in the APE and the archaeological sensitivity assessment indicates the area is not sensitive for buried archaeological resources (ICF International 2016a). However, because ground disturbance is required, there is still a chance for accidental archaeological discoveries. The Project would implement County policies and state laws to protect any buried archaeological resources discovered during Project construction. As described in Chapter 2, *Project Description*, the contractor would be required to stop all work in the vicinity of discovered resources and have a qualified archaeologist evaluate the nature and significance of the find prior to resuming any work in the area of the discovery.

Implementation of the Construction Contract provisions and adherence to laws and regulations would reduce this impact to a less-than-significant level. No mitigation is required.

Impact CUL-3: Disturbance of any human remains, including those interred outside of formal cemeteries (less than significant)

No known human remains are present within the proposed Project area. However, it is possible that construction activities would result in the discovery of human remains. If human remains are discovered during Project construction, the proposed Project would adhere to the construction contract provisions as described in Chapter 2, *Project Description* and would require immediate County notification and compliance with California Health and Safety Code Section 7050.5 and PRC Sections 5097.5, 5097.9 et seq., regarding the discovery and disturbance of cultural materials or human remains.

Implementation of the construction contract provisions and adherence to laws and regulations would reduce this impact to a less-than-significant level. No mitigation is required.

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3.5 Geology, Soils, Minerals, and Paleontological Resources

This section identifies existing conditions and discusses the regulatory setting for geology, soils, minerals, and paleontological resources in the Project area and analyzes the potential for the proposed Project to affect these resources.

3.5.1 Existing Conditions

3.5.1.1 Regulatory Setting

Geology and Soils

Federal

Clean Water Act Section 402/National Pollutant Discharge Elimination System

The 1972 amendments to the federal CWA established the NPDES permit program to control discharges of pollutants from point-source discharges (discharges originating from one known source of pollutants including storm drains and pipes) and non-point sources (runoff or precipitation). NPDES is the primary federal program that regulates point-source and nonpoint-source discharges to waters of the United States.

The 1987 amendments to the CWA created a new section of the CWA devoted to stormwater permitting (Section 402), which is directly relevant to excavation and soil erosion. Section 402 mandates that certain types of construction activity comply with the requirements of EPA's NPDES program. EPA has granted the State of California primacy in administering and enforcing the provisions of the CWA and NPDES within the borders of the state. NPDES permits are issued by one of the nine RWQCBs. Construction activity disturbing 1 acre or more must obtain coverage under the state's General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (see *Construction Activities Storm Water Construction General Permit*, below).

U.S. Geological Survey National Landslide Hazard Program

To fulfill the requirements of Public Law 106-113, USGS created the National Landslide Hazards Program to reduce long-term losses from landslide hazards by improving understanding of the causes of ground failure and suggesting mitigation strategies. The Federal Emergency Management Agency (FEMA) is the responsible agency for the long-term management of natural hazards.

State

Alquist-Priolo Earthquake Fault Zoning Act

California's Alquist-Priolo Earthquake Fault Zoning Act (Alquist-Priolo Act) (PRC 2621 et seq.), originally enacted in 1972 as the Alquist-Priolo Special Studies Zones Act and renamed in 1994, 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.

Under the Alquist-Priolo Act, faults are zoned and construction along or across them is strictly regulated if they are *sufficiently active* and *well defined*. A fault is considered sufficiently active if one or more of its segments or strands show evidence of surface displacement during the Holocene time (defined for purposes of the Alquist-Priolo Act as referring to approximately the last 11,000 years). A fault is considered well defined if its trace can be clearly identified by a trained geologist at the ground surface or in the shallow subsurface, using standard professional techniques, criteria, and judgment (Bryant and Hart 2007).

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 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 the Seismic Hazards Mapping 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 117a, *Guidelines for Evaluating and Mitigating Seismic Hazards* (California Geological Survey 2008).

Construction Activities Storm Water Construction General Permit (Order No. 2009-0009-DWQ, as amended by 2010-0014-DWQ and 2012-006-DWQ)

The General NPDES Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order 2009-0009-DWQ, NPDES No. CAS000002) (Construction General Permit) regulates stormwater discharges for construction activities under CWA Section 402. Dischargers whose projects disturb 1 or more acres of soil, or whose projects disturb less than 1 acre but are part of a larger common plan of development that in total disturbs 1 or more acres, are required to obtain coverage under the Construction General Permit. Construction activity subject to this permit includes clearing, grading, and disturbances to the ground such as stockpiling or excavation, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility.

The Construction General Permit requires the development and implementation of a SWPPP. The SWPPP must list BMPs that the discharger will use to protect stormwater runoff and document the placement and maintenance of those BMPs. Additionally, the SWPPP must contain a visual monitoring program; a chemical monitoring program for “non-visible” pollutants, to be implemented in case of a BMP failure; and a monitoring plan for turbidity and pH for projects that

meet defined risk criteria. The requirements of the SWPPP are based on the construction design specifications detailed in the final design plans of a project and the hydrology and geology of the site expected to be encountered during construction. The local or lead agency requires proof of coverage under the Construction General Permit prior to building permit issuance. The Central Valley RWQCB administers the NPDES stormwater permit program in El Dorado County. The Project would involve more than 1 acre of land disturbance, and therefore a Construction General Permit would be required.

Municipal Separate Storm Sewer System Program

EPA defines a Municipal Separate Storm Sewer System (MS4) as any conveyance or system of conveyances (roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, human-made channels, and storm drains) owned or operated by a state, city, town, country, or other public body having jurisdiction over stormwater, that is designed or used for collecting or conveying stormwater. As part of the NPDES program, EPA initiated a program requiring that entities having MS4s apply to their local RWQCB for stormwater discharge permits. The program proceeded through two phases. Under Phase I, the program initiated permit requirements for designated municipalities with populations of 100,000 or more to obtain NPDES permit coverage for their stormwater discharges. Phase II expanded the program to municipalities with populations less than 100,000 as well as small MS4s outside the urbanized areas that are designated by the permitting authority to obtain NPDES permit coverage for their stormwater discharges.

Generally, Phase I MS4s are covered by individual permits and Phase II MS4s are covered by a general permit. El Dorado County is a Phase II Small MS4 Traditional Renewal Permittee under MS4 Order No. 2013-0001-DWQ. The Phase II General Permit requires that cities and counties develop and implement programs and measures, such as a Construction Site Storm Water Runoff Control Program and a Post Construction Storm Water Management Program, to reduce the discharge of pollutants in stormwater discharges to the maximum extent possible. These programs and measures include implementation of BMPs, 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 (SWMPs) 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 SWMPs as defined by the permit holder in that location.

Caltrans holds a General NPDES Permit that covers statewide Caltrans municipal stormwater discharges. The proposed Project will primarily comply with the Caltrans NPDES permit rather than the El Dorado County MS4 Permit.

2013 California Building Standards Code

The State's minimum standards for structural design and construction are given in the California Building Standards Code (CBSC) (24 CCR). The CBSC is based on the International Building Code (IBC), which is used widely throughout United States (generally adopted on a state-by-state or district-by-district basis) and 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 Project would be required to comply with all provisions of the CBSC.

Local

Geotechnical Investigations

Local jurisdictions typically regulate construction activities through a multistage permitting process that may require a site-specific geotechnical investigation. The purpose of the investigation is to provide a basis for the development of appropriate construction design. The site-specific geotechnical investigation is to be based on adequate test borings or excavations in the area where construction would occur and prepared by a civil engineer who is registered with the State.

El Dorado County's (2004a) *Design and Improvement Standards Manual* (specifically, Volume III: Grading, Erosion, and Sediment Control, Section D: Grading Permit Application Submittal Requirements) describes when geotechnical and other similar reports are required. El Dorado County also requires investigation of the soils underlying proposed areas of grading in conformance with the mandates of the IBC and CSBC.

Grading, Erosion, and Sediment Control Ordinances

The County Grading, Erosion, and Sediment Control Ordinance (Grading Ordinance) (Chapter 110.14 of the County Code) establishes provisions for public safety and environmental protection associated with grading activities on private property. Section 110.14.090 of the Grading Ordinance, which has incorporated the recommended standards for drainage BMPs from the High Sierra Resource Conservation and Development Council BMP guidelines handbook, prohibits grading activities that would cause flooding where it would not otherwise occur or would aggravate existing flooding conditions. The Grading Ordinance also requires all drainage facilities, aside from those in subdivisions that are regulated by the County's Subdivision Ordinance, be approved by the County Department of Transportation. Pursuant to the ordinance, the design of the drainage facilities in the county must comply with the *County of El Dorado Drainage Manual* (Drainage Manual) (El Dorado County 1995).

El Dorado County Design and Improvement Standards Manual

The County's *Design and Improvement Standards Manual* was adopted in 1990 and provides required erosion and sediment control measures that are applicable to subdivisions, roadways, and other types of developments. Specifically, Volume III: Grading, Erosion and Sediment Control, describes the criteria for when an erosion and sediment control plan is required. When required, erosion and sediment control plans must comply with the adopted County SWMP (El Dorado County 2004a) and the NPDES MS4 Order.

El Dorado County Drainage Manual

The El Dorado County Drainage Manual (El Dorado County 1995) provides standard procedures for future designs of drainage improvements. The Drainage Manual supersedes the stormwater drainage system design standards in the County's *Design Improvements Standards Manual*. The

Drainage Manual requires that a hydrologic and hydraulic analysis be submitted for all proposed drainage facilities. The analysis must include an introduction/background, location map/description, catchment description/delineation, hydrologic analysis, hydraulic and structural analysis, risk assessment/impacts discussion, unusual or special conditions, conclusions, and technical appendices. This analysis is usually required on projects undergoing discretionary review. However, under the Building Code and Grading Ordinance, the County also reviews ministerial development, including required drainage plans, to ensure that appropriate runoff design and controls are in place.

El Dorado County General Plan

To protect public health and the environment from geologic and seismic hazards, the Public Health, Safety, and Noise Element of the County General Plan (El Dorado County 2004b) includes the following goal, objectives and policies

- Goal 6.3, *Geologic and Seismic Hazards*, addresses minimizing threats to life and property from seismic and geologic hazards through development regulations and building and site standards and on-going evaluation of seismic hazards and includes Objective 6.3.1, *Building and Site Standards*, and implementing Policy 6.3.3.1; and Objective 6.3.2, *County-Wide Seismic Hazards*, and implementing Policy 6.3.2.5.

In addition, the Conservation and Open Space Element includes the following relevant goal, objectives, and policies, the full text of which can be found in Appendix B.

- Goal 7.1, *Soil Conservation*, addresses conservation and protection of the County's soil resources and protection of natural drainage patterns and includes Objective 7.1.2, *Erosion/Sedimentation*, and implementing Policies 7.1.2.1 and 7.1.2.2; and Objective 7.3.4, *Drainage*, and implementing Policies 7.3.4.1 and 7.3.4.2.

Compliance with El Dorado County Code of Ordinances Chapter 110.16, Uniform Building Code, would ensure the Project would be consistent with County General Plan policies related to geology.

El Dorado County Code of Ordinances

The County has adopted the 2010 CBSC as the basis for the County Building Code (El Dorado County Code of Ordinances Section 110.16.010). The County's enforcement of its Building Code ensures the Project would be consistent with the CBSC.

Minerals

Federal

General Mining Act of 1872

The General Mining Act of 1872 governs prospecting and mining of locatable economic minerals on federal public lands. Locatable minerals include metallic minerals, such as gold, silver, lead, copper, zinc, and nickel, and nonmetallic minerals, such as mica, gypsum, and gemstones. Not covered by the act are common varieties of sand, gravel, stone, pumice, and cinders, which are governed by the Materials Act of 1947.

The General Mining Act allows citizens to stake a mining claim on federal land. The mining claim right is restricted to the development and extraction of a mineral deposit, and the unpatented¹ mining claim is not private property (i.e., the property is still federal land). The BLM has the right to manage the surface and surface resources on an unpatented mining claim. This includes public access across an unpatented mining claim.

Materials Act of 1947

The Materials Act of 1947 authorizes the BLM to sell mineral materials at fair market value and to grant free use permits for mineral materials to Government agencies and, for a limited amount, to nonprofit organizations. Mineral materials include materials used in construction, agriculture, and decorative applications, such as crushed stone, dimension stone, and sand and gravel.

Federal Land Policy and Management Act

The Federal Land Policy and Management Act (FLPMA) of 1976 establishes an approach to managing and preserving public lands to protect "the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archeological values." The FLPMA is administered by the Bureau of Land Management (BLM), which is required to establish a planning process that accommodates multiple land uses. Uses of public lands that the BLM manages include commercial, recreational, and conservation uses.

State

Surface Mining and Reclamation Act of 1975

The Surface Mining and Reclamation Act of 1975 (SMARA) (PRC 2710–2719) is the principal legislation addressing mineral resources in California. SMARA was enacted in response to land use conflicts between urban growth and essential mineral production. The stated purpose of SMARA is to provide a comprehensive surface mining and reclamation policy that will encourage the production and conservation of mineral resources while ensuring that adverse environmental effects of mining are prevented or minimized; that mined lands are reclaimed and residual hazards to public health and safety are eliminated; and that consideration is given to recreation, watershed, wildlife, aesthetic, and other related values.

SMARA provides for the evaluation of an area's mineral resources using a system of mineral resource zone (MRZ) classifications that reflect the known or inferred presence and significance of a given mineral resource. MRZ classifications are based on available geologic information, including geologic mapping and other information on surface exposures, drilling records, and mine data, and socioeconomic factors such as market conditions and urban development patterns.

SMARA governs the use and conservation of a wide variety of mineral resources. However, certain resources and activities are exempt from the provisions of SMARA. Subject to certain conditions, exempted activities include excavation and grading conducted for farming, on-site construction, or recovery from flooding or other natural disaster.

¹ An *unpatented mining claim* remains the property of the federal government and requirements and restrictions are placed on the claimant. A *patent claim* is the property of the claimant because the federal government has conveyed title to the claimant, making it private land; however, there has been a moratorium on issuing patent claims since 1994.

Local

The County Surface Mining and Reclamation Ordinance (Chapter 8.36 of the County Code) recognizes the SMARA MRZ designations and identifies requirements related to mining and mine reclamation. Additionally, the County has designated general plan land uses and zoning on sites with previous or potential mines. The Project area is not identified as an Important Mineral Resource Area in the General Plan, and there is no mineral resources (MR) overlay.

There are no designated MRZs in the Project area.

Paleontological Resources

Federal

No federal regulations related to paleontological resources apply to the proposed Project because there are no federally owned lands in the Project area. There is one National Natural Landmarks Program site in El Dorado County, but it is at Lake Tahoe, outside the Project area.

State

California Public Resources Code

Several sections of the PRC protect paleontological resources. Section 5097.5 prohibits “knowing and willful” excavation, removal, destruction, injury, and defacement of any paleontological feature on public lands (lands under state, county, city, district, or public authority jurisdiction, or the jurisdiction of a public corporation), except where the agency with jurisdiction has granted express permission. Section 30244 requires reasonable mitigation for impacts on paleontological resources that occur as a result of development on public lands.

Local

El Dorado County General Plan

To protect paleontological resources, the Conservation and Open Space Element of the County General Plan (El Dorado County 2004b) includes the following goal and policies to protect cultural resources, which also address paleontological resources. The full text of the goal and policies can be found in Appendix B.

- Goal 7.5, *Cultural Resources*, addresses preservation of the County’s important resources through protection of cultural heritage, and includes implementing Policies 7.5.1.3 and 7.5.1.6.

3.5.1.2 Environmental Setting

Geology and Soils

Regional Geologic Framework

The Project area is in the western portion of the Sierra Nevada geomorphic province, which is a linear, tilted fault block almost 400 miles long that extends from northern Butte County to the Mojave Desert. In stark contrast to its steep eastern slope, its western slope is gentle. This western slope is deeply incised by rivers and disappears beneath the sediments of the Central Valley. The upper elevation Sierra Nevada is comprised of massive granites shaped by glaciation, such as is seen

in Yosemite. Lower in the Sierra Nevada is the northwest-trending Mother Lode, which is made up of metamorphic rock containing gold-bearing veins. The Sierra Nevada disappears to the north beneath the Cenozoic volcanic rock of the Cascade Ranges (California Geological Survey 2002:2).

Geologic Setting of Western El Dorado County

A north–northwest-trending belt of metamorphic rocks—the Western Sierra Nevada Metamorphic Belt which extends from Mariposa northward to Lake Almanor—underlies the western slope of the Sierra Nevada, including western El Dorado County. This belt consists of accumulations of seafloor rocks and marine sedimentary and volcanic rocks (formed by crystallization of magma at or near the Earth’s surface) of various types. These rocks have been buried and recrystallized at depth under elevated temperatures and pressures to produce the belt and range in age from about 160 to 300 million years old. Within the County, the belt is intruded by numerous small to moderately large bodies of igneous rock (the 165-million-year-old Pine Hill Intrusive Complex and the slightly younger granitic intrusions of the Sierra Nevada batholith and small dikes) (California Geological Survey 2000:4).

The structural framework of the Western Sierra Nevada Metamorphic Belt is dominated by a group of north–northwest-trending faults, also referred to as *fault zones*, which mark the boundaries of different packages of rocks along the length of the belt. These packages of rocks, called *terrane*s, are believed to have been emplaced along the western margin of the North American continent at various times when a convergent plate tectonic setting existed (when the oceanic plate was sliding under the continental plate). Throughout the metamorphic belt, including western El Dorado County, the faults are locally characterized by long bands and isolated lenses of serpentinite, schist containing the minerals talc and chlorite, quartz vein complexes, and highly sheared country rock. The faults cut across western El Dorado County from north to south and include segments of the Bear Mountains and Melones fault zones, a probable segment of the Calaveras-Shoo Fly Thrust, and several other unnamed structures (California Geological Survey 2000:4).

Project Area Topography

The Project area exists on the lower slopes of the American River Canyon on northwest- and southeast-facing slopes. The American River has and continues to downcut to form the canyon. Numerous tributaries have cut ravines and smaller canyons feeding into the main canyon (Youngdahl Consulting Group 2015). The erosion has resulted in very steep (approximately 1.5:1 [horizontal:vertical] and steeper) slopes that extend several hundred feet upslope where the slopes generally flatten to 2:1 and flatter. The slopes are generally steeper to the west of the existing bridge on the south slope (Taber Consultants 2015). Elevations within the Project area range from approximately 1,300 to 1,800 feet above sea level (Youngdahl Consulting Group 2015).

Project Area Geology

The Project area is underlain by Mesozoic age granitic rocks, predominantly granite to granodiorite. Geologic mapping performed for the nearby White Rock Tunnel shows the Project area rocks to be intrusive granitic rocks composed of granite, diorite, and granodiorite. That mapping identified steeply dipping shear zones along the tunnel alignment (Taber Consultants 2015).

Based on Taber Consultants’ (2015) site observations, the granitic rocks weather to residual soil that is predominantly sand with varying quantities of silt and clay, and commonly with cobble- to boulder-size core stones (i.e., less weathered to fresh rock within more weathered rock) observed in

road cuts and on the slopes. The residual soil thickness was observed to range from zero near the river channel to more than 100 feet near the top of the slope, as interpreted from seismic profiles. Isolated large (greater than 15 feet width) rock outcrops were noted on both the north and south slopes. The majority of these outcrops had rounded profiles. Individual hard rock bodies were separated by decomposed rock and likely represent large core stones that have been uncovered by erosion.

Intact rock (i.e., that which is moderately weathered to unweathered) is generally restricted to areas near the river channel (at approximate 1,385 feet elevation and below). In road cuts and fresh rock outcrops, three predominate joint sets were observed, one striking² southeast and dipping steeply northwest, one striking northeast and dipping steeply southeast, and one striking east dipping gently to the north. Naturally exposed rock had typical exfoliation jointing which is generally subparallel to the local slope face (i.e., “exfoliation sheets”) up to 100 or more feet in length; these tended to be steeper near the river (Taber Consultants 2015).

Landslides and Other Slope Failures

The Taber Consultants (2015) report noted numerous features within the Project area that indicate the presence of slope instability or features indicating that slope failures have occurred in the past. Figure 3.5-1 shows the mapped features; however, the map is not exhaustive and additional areas of slope instability are likely to exist. Recent slope failures include fresh landslides and slumps, debris flows, wedge failures, block failures, and rock falls. Included among the features is a slope failure that occurred in 1995 along the roadway above the northern abutment, which resulted in closure of the road. Geomorphic features typical of slope movement in the past included steep channels with extensive rock debris (debris chutes), hummocky terrain, missing portions of older roads and aqueduct, and large boulder debris at the base of slopes. The roadway also exhibits cracking along the outboard edge, typical of settlement and/or slope “creep” of outboard fill material.

During Taber Consultants’ site evaluations in 2014 and 2015, slope failures were generally found to be confined to the steeper slopes (greater than approximately 60 to 85 percent). The currently active failures that Taber Consultants observed included shallow slumps and debris flows within residual soil and several deeper, likely rotational, failures within residual soil and likely decomposed to partially decomposed rock. Older slope failures have deposited significant quantities of rounded boulders within drainages and on the slopes.

Soils

Surface Soils

The surface soils (i.e., the upper approximately 5 feet) in the Project area have been mapped by the U.S. Department of Agriculture, Soil Conservation Service (now the NRCS) and are described in both the *Soil Survey of El Dorado Area, California* (Rogers 1974) and NRCS’s Web Soil Survey online soil map database (U.S. Department of Agriculture, Natural Resources Conservation Service 2016).

Table 3.5-1 summarizes the soil characteristics for the Project area. The majority of the Project area is underlain by Acidic rock land (on the slope north of the river) and Chaix very rocky coarse sandy loam, 50 to 60 percent slopes (on the slope south of the river). Where present (i.e., in areas of Chaix, Holland, and Shaver soils), the “topsoil” is 8 to 15 inches thick.

² The “strike” line of a bed, fault, or other planar feature is a line representing the intersection of that feature with a horizontal plane.

Table 3.5-1. Summary of Soil Characteristics

Soil Map Unit Name (Map Symbol)	Generalized Profile	Drainage Class	Water Erosion Hazard	Wind Erosion Hazard ^a	Expansion Potential in Upper 60 Inches ^b
Acidic rock land (AaF)	Little soil material over granitic and rhyolitic rocks	Excessive	Very high	Not rated	Low
Chaix very rocky coarse sandy loam, 50 to 60% slopes (CcF)	Coarse sandy loam over weathered granitic rock	Well	Very high	3	Low
Holland very rocky coarse sandy loam, 15 to 50% slopes (HkE)	Coarse sandy loam over sandy clay loam over weathered granitic rock	Well	High	3	Moderate
Shaver coarse sandy loam, 15 to 30% slopes (SbD)	Coarse sandy loam over sandy clay loam over weathered granitic rock	Well	Moderate	3	Low

Sources: Rogers 1974; Natural Resources Conservation Service 2016.

^a Wind erosion hazard represented by wind erodibility group (WEG) A WEG consists of soils that have similar properties affecting their susceptibility in cultivated areas. The soils assigned to Group 1 are the most susceptible to wind erosion, and this assigned to Group 8 are the least susceptible.

^b Expansion potential as represented by shrink-swell potential.

Soil Corrosion Potential

The surface soils' corrosivity to concrete is moderate and their corrosivity to uncoated steel is low or moderate (Natural Resources Conservation Service 2016). Below the depth that the surface soils have been rated by the NRCS, Taber Consultants (2015) reports that the decomposed and unweathered granitic rocks will have a low corrosivity to concrete and uncoated steel.

Naturally Occurring Asbestos

NOA has been identified in several areas in the general vicinity of the Project area. NOA is addressed in Section 3.2, *Air Quality*.

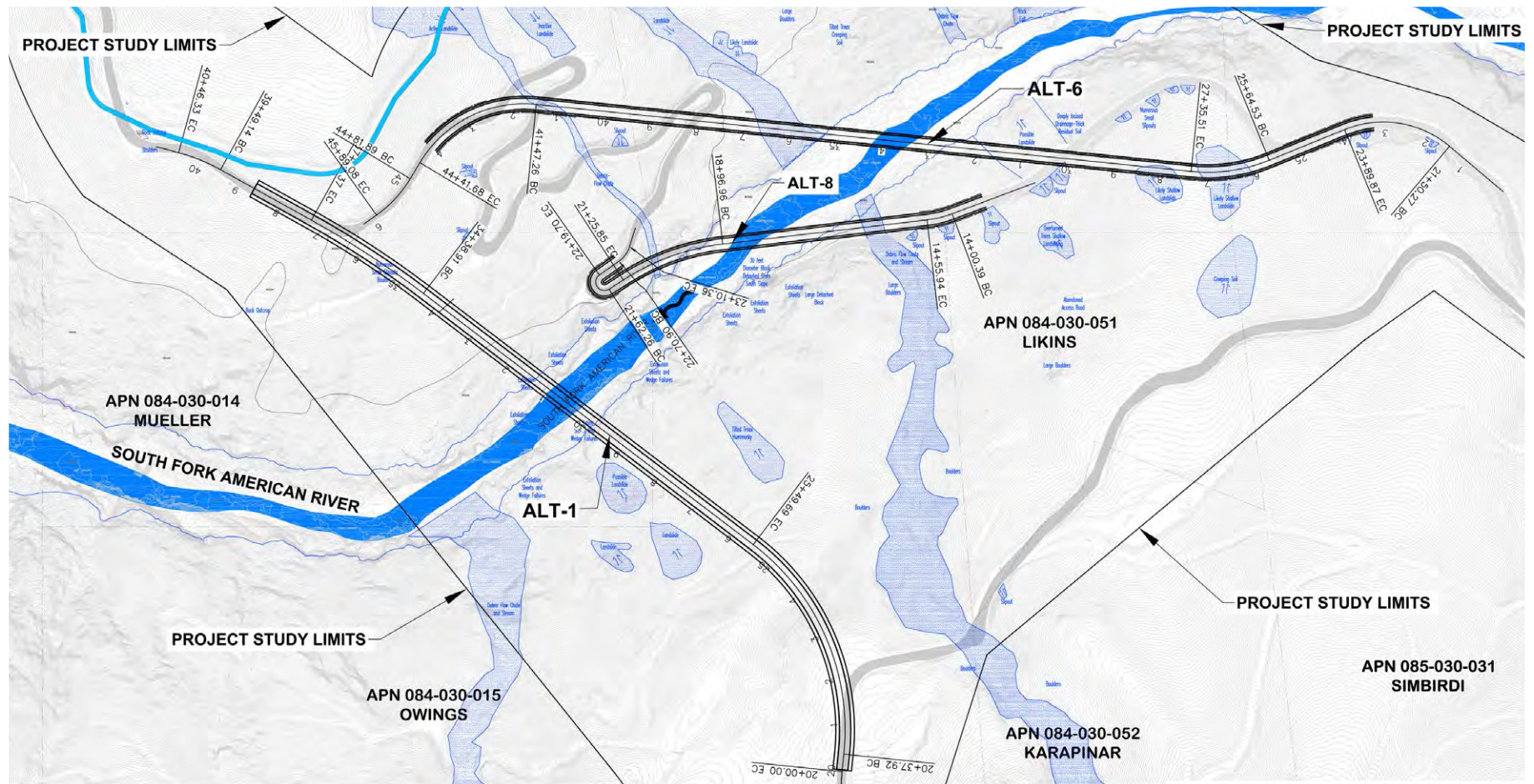
Seismicity and Faults

Primary Seismic Hazards

Surface Rupture and Faulting

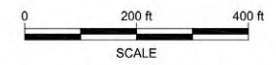
The purpose of the Alquist-Priolo Act is to regulate development near active faults to mitigate the hazard of surface rupture. Faults in an Alquist-Priolo Earthquake Fault Zone are typically active faults. As defined under the Alquist-Priolo Act, an *active fault*³ is one that has had surface

³ Two types of active faults are recognized—active faults along which historic (last 200 years) displacement has occurred, and active faults exhibiting Holocene fault displacement (during past 11,700 years) without historic record.



LEGEND:

-  ALT-8 ALTERNATIVE ALIGNMENT
-  100-YEAR WATER SURFACE ELEVATION
-  LANDSLIDE/ SLUMP/ SLIPOUT
DEBRIS FLOW/ SOIL CREEP
-  PROPERTY LINE
-  PROJECT STUDY LIMITS



NOTE: All locations are approximate and are referenced from existing site features. Topographic provided electronically by Quincy Engineering, Inc.

Source: Taber, 2013

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**Figure 3.5-1
Geological Map**

displacement within the Holocene epoch (the last 11,000 years); a *late Quaternary fault* is a fault that has undergone displacement during the past 700,000 years; a *Quaternary fault (age undifferentiated)* is one that has had surface displacement at some point during Quaternary time (the last 1.6 million years); and a *pre-Quaternary fault* is one that has had surface displacement before the Quaternary period.

No active fault traces are shown on published mapping to cross the Project area and the Project area is not within or adjacent to an Alquist–Priolo Earthquake Fault Zone for fault rupture hazard (California Geological Survey 2016a). No evidence of surface fault rupture was observed from Taber Consultants' (2015) geologic reconnaissance at the bridge site.

As described in the preliminary geotechnical report (Youngdahl Consulting Group 2015), in earlier work, Youngdahl identified a lineament visible in aerial photography crossing the American River in a northwesterly direction, dipping steeply upstream as it crosses the river. They indicated that the lineament may be a shear zone or prominent joint system.

Table 3.5-2. Active/Early Quaternary Faults in Greater Vicinity of the Project Area

Fault Name	Status	Distance/Direction
Dunnigan Hills Fault	Late Quaternary	56 miles W
North Tahoe Fault	Active	46 miles E
West Tahoe Fault	Active	39 miles E
Bear Mountains Fault Zone	Late Quaternary	9 miles W
Maidu Fault	Quaternary (age undifferentiated)	10 miles W
Melones Fault–West	Late Quaternary	2 miles W
Melones Fault–East	Late Quaternary	10 mile N

Source: California Geological Survey 2010.

W = west

E = east

N = north

Seven faults and/or fault zones were identified as potential seismic sources in the greater vicinity of the Project area. Those expected to have the greatest impact due to their proximity to the Project area are faults associated with the Foothills fault system (i.e., Bear Mountains Fault Zone, Maidu Fault, and Melones Fault). The Foothills fault system is located along the western flank of the Sierra Nevada. Many areas of late Cenozoic faulting and some areas of Quaternary faulting have been identified along this system. The most recent event on the Foothills fault system was the 1975 Oroville earthquake (magnitude 5.6 on the Richter Magnitude Scale, described under *Ground-Shaking Hazard*).

Ground-Shaking Hazard

The intensity of ground shaking that occurs as a result of an earthquake is partly related to the size of the earthquake, its distance from the subject location, and the response of the geologic materials in the area. As a rule, the greater the energy released from the fault rupture (the earthquake *magnitude*) and the closer the fault rupture (*epicenter*) to the site, the greater the intensity of ground shaking. 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 such soils (see *Liquefaction and Associated Hazards*). When various earthquake scenarios are considered, ground-shaking intensities will reflect both the effects of strong ground accelerations and the consequences of ground failure.

Earthquake magnitude is generally expressed in the Richter Magnitude Scale or as moment magnitude. The scale used in the Richter Magnitude Scale is logarithmic so that 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, which is a measure of an earthquake size utilizing rock rigidity, amount of slip, and area of rupture. Earthquake energy is most intense at the fault epicenter; the farther an area from an earthquake epicenter, the less likely that ground shaking will occur there.

Ground shaking is described using two methods: ground acceleration as a fraction of the acceleration of gravity, expressed in units of “g” (where one g is equal to the force of gravity), and the Modified Mercalli scale, which is 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).

The Project area is in a region of California characterized by low historical seismic activity and low ground-shaking hazard. The California Geological Survey (2016b) Ground Motion Interpolator shows the Project area as being subject to a peak ground acceleration with a return period of 2 percent probability in 50 years of 0.245g. This represents a low severity zone for shaking intensity.

Secondary Seismic Hazards

Liquefaction and Associated 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 having low plasticity and, when located within 40 feet of the ground surface, are typically considered to be 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. Geologic age also influences the potential for liquefaction. Sediments deposited within the most recent millennium are generally more susceptible to liquefaction than older Holocene sediments; Pleistocene sediments are even more resistant; and pre-Pleistocene sediments are generally immune to liquefaction (California Geological Survey 2008).

Two potential secondary ground failure types associated with liquefaction in the region 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. Differential settlement (also called ground settlement and, in extreme cases, ground collapse) occurs as soil compacts and consolidates after the ground shaking ceases, when the layers that liquefy are not of uniform thickness, which is a common problem when the liquefaction occurs in artificial fills. Settlement can range from 1 to 5 percent, depending on the cohesiveness of the sediments (Tokimatsu and Seed 1984).

The Taber Consultants (2015) report determined, based on observed site conditions, that the residual soils and weathered rock underlying the site are not anticipated to be liquefiable at the

likely bridge foundation locations or along potential roadway alignments. Taber Consultants also determined significant densification of the soils during a seismic event is not expected.

Other Hazards

Several other geologic and seismic hazards (land subsidence, volcanic activity, tsunami, and seiche) that could be experienced in the larger region are unlikely to affect the Project area. These hazards are not likely to affect the Project area and therefore are not discussed in this EIR. NOA is discussed in Section 3.2, *Air Quality*.

Paleontological Resources

Paleontological Sensitivity

Paleontological sensitivity is a qualitative assessment that takes into account the paleontological potential of the stratigraphic units present, the local geology and geomorphology, and any other local factors that may be germane to fossil preservation and potential yield. According to the Society of Vertebrate Paleontology (2010:2), paleontological sensitivity is based on two factors: (1) the potential for a geological unit to yield abundant or significant vertebrate fossils or to yield significant invertebrate, plant, or trace fossils; and (2) the potential importance of the data to contribute to further understanding of paleontology. Table 3.5-3 defines paleontological sensitivity ratings.

Table 3.5-3. Paleontological Sensitivity Ratings

Potential	Definition
High	Rock units from which vertebrate or significant invertebrate, plant, or trace fossils have been recovered are considered to have a high potential for containing additional significant paleontological resources...Paleontological potential consists of both (a) the potential for yielding abundant or significant vertebrate fossils or for yielding a few significant fossils, large or small, vertebrate, invertebrate, plant, or trace fossils and (b) the importance of recovered evidence for new and significant taxonomic, phylogenetic, paleoecologic, taphonomic, biochronologic, or stratigraphic data.
Undetermined	Rock units for which little information is available concerning their paleontological content, geologic age, and depositional environment are considered to have undetermined potential. Further study is necessary to determine if these rock units have high or low potential to contain significant paleontological resources.
Low	Reports in the paleontological literature or field surveys by a qualified professional paleontologist may allow determination that some rock units have low potential for yielding significant fossils. Such rock units will be poorly represented by fossil specimens in institutional collections, or based on general scientific consensus only preserve fossils in rare circumstances and the presence of fossils is the exception not the rule.
No	Some rock units have no potential to contain significant paleontological resources, for instance high-grade metamorphic rocks (such as gneisses and schists) and plutonic igneous rocks (such as granites and diorites). Rock units with no potential require neither protection nor impact mitigation measures relative to paleontological resources.

Source: Society of Vertebrate Paleontology 2010.

Paleontological Sensitivity of Potentially Affected Geologic Units

Although El Dorado County is well known for abundant fossils found at two limestone cave localities (Hawver Cave and Cool Cave) (University of California Museum of Paleontology 2013), the geologic unit that underlies the Project area is of igneous origin (see Table 3.5-3). Therefore, the Project area has no potential to contain paleontological resources.

Based on the El Dorado County General Plan Conservation and Open Space Element (El Dorado County 2004b), no important mineral resource areas as defined by the California Geological Survey occur in the Project area. Additionally, the California Division of Mines and Geology (2001) *Mineral Land Classification of El Dorado County, California* does not show any MRZs in the Project area.

3.5.2 Environmental Impacts

3.5.2.1 Methods of Analysis

Impacts related to geology, soils, seismicity, and mineral and paleontological resources were assessed based on geotechnical and foundation reports prepared for the proposed Project, seismic hazard mapping and data available online from the California Geological Survey, and other available data (soil survey maps). This analysis focuses on the proposed Project's potential to result in the risk of personal injury, loss of life, and damage to property as a result of existing geologic conditions within the Project area.

The geology, soils, and seismicity impact analysis assumes that the Project applicant would conform to the latest NPDES requirements, County and other plan policies, standards, and ordinances. The analysis also assumes that, per direction of El Dorado County, site-specific, design-level geotechnical investigations will be performed to evaluate the potential for the presence of soft or loose soils, unstable slopes, surface fault rupture, ground shaking, liquefaction hazard, slope stability, and expansive soils. These investigations would be conducted prior to final design.

3.5.2.2 Thresholds of Significance

In accordance with Appendix G of the State CEQA Guidelines, the proposed Project would be considered to have a significant effect if it would result in any of the conditions listed below.

- Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:
 - Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault. Refer to Division of Mines and Geology Special Publication 42
 - Strong seismic ground shaking
 - Seismic-related ground failure, including liquefaction
 - Landslides
- Result in substantial soil erosion or the loss of topsoil.

- Be located on a geologic unit or soil that is unstable or that would become unstable as a result of the Project and potentially result in an on-site or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse.
- Result in fracturing and/or erosion from special construction methods that could result in unstable geologic or soil conditions.
- Be located on expansive soil, as defined in Section 1803.5.3 of the 2013 CBSC, creating substantial risks to life or property.
- Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems in areas where sewers are not available for the disposal of wastewater.
- Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state.
- Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan.

3.5.2.3 Impacts and Mitigation Measures

Impact GEO-1: Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving: (1) 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; (2) strong seismic ground shaking; (3) seismic-related ground failure, including liquefaction; and (4) landslides (less than significant)

No active fault traces are shown on published mapping to cross the Project area and the Project area is not within or adjacent to an Alquist–Priolo Earthquake Fault Zone for fault rupture hazard (California Geological Survey 2016a). No evidence of surface fault rupture was observed from Taber Consultants’ (2015) geologic reconnaissance at the bridge site.

As described in the preliminary geotechnical report (Youngdahl Consulting Group 2015), in earlier work, Youngdahl identified a lineament visible in aerial photography crossing the American River in a northwesterly direction, dipping steeply upstream as it crosses the river. They indicated that the lineament may be a shear zone or prominent joint system.

The ground-shaking hazard in the Project area is low. Nonetheless, a large earthquake on a nearby fault could cause minor ground shaking in the vicinity of the Project area, potentially resulting in an increased risk of structural loss, injury, or death.

In addition to the low hazard of surface fault rupture and ground shaking and related hazards, these impacts would be less than significant because the Project applicant would be required to implement IBC and CBSC standards into the Project design for applicable features to minimize the potential fault rupture and ground-shaking hazards on associated Project features. Structures must be designed to meet the regulations and standards associated with the IBC and the CBSC. Detailed geotechnical investigations will be conducted prior to construction activities to support detailed Project design and the seismic design parameters will be based on the building codes in effect at that time.

Because of the low potential for strong seismic shaking and the absence of saturated, unconsolidated sandy sediments, the hazard of liquefaction in the Project area is low. Because of the low potential for strong seismic shaking, the hazard of seismically-induced landslides in the Project area is low. (See Impact GEO-4 for a discussion of landsliding in the absence of seismic shaking.)

These impacts would be less than significant. No mitigation is required.

Impact GEO-2: Potential to result in substantial soil erosion or the loss of topsoil (less than significant)

Grading, excavation, removal of vegetation cover, stockpiling, and loading activities associated with construction could temporarily increase water and wind erosion rates compared to pre-construction conditions. The decomposed granitic soils in the Project area are highly erodible when the vegetative cover is removed or disturbed.

Construction activities also could result in permanent overcovering and therefore loss of topsoil.

However, as required by the construction General Permit, a SWPPP would be prepared by a Qualified SWPPP Developer and implemented before and during construction. The SWPPP would identify pollutant sources that may affect the quality of stormwater associated with construction activities and identify stormwater and non-stormwater pollution prevention measures to reduce pollutants in stormwater discharges during and after construction. The SWPPP also would include details of how the sediment and erosion control practices (i.e., BMPs) would be implemented and maintained during construction. Implementation of the SWPPP would comply with state and federal water quality regulations.

In addition to the SWPPP, adherence to the NPDES MS4 Order and applicable El Dorado County Grading Ordinance, Subdivision Ordinance, Design and Improvement Standards Manual, and Drainage Manual would all minimize any effects from erosion, runoff, and sedimentation. Accordingly, this impact would be less than significant. No mitigation is required.

Impact GEO-3: Location on a geologic unit or soil that is unstable or that would become unstable as a result of the project and potentially result in an on-site or off-site landslide or subsidence (less than significant with mitigation)

As shown in Figure 3.5-1, numerous slope failures of different types and indications of slope instability exist in the Project area. Project excavation, grading, and changes in the routing of overland and subsurface flow may reactivate existing failures and initiate failures where none do not presently exist. Such failures could expose people and structures, including the risk of loss, injury, or death. The impact would be significant.

Proper implementation of the recommended measures in the design-level geotechnical report described in Mitigation Measure GEO-1 would reduce the impact to a less-than-significant level.

Mitigation Measure GEO-1: Design and Implement Slope Stabilization Measures.

Detailed, site-specific geotechnical report(s) will be prepared to identify the type of slope stabilization measures that should be constructed at those existing failures and areas otherwise subject to instability that could be affected by Project construction and operation. Such measures may include but are not limited to installation of slope drains, buttressing of cuts and fills, proper design of roadways, construction of soil nail walls, monitoring of groundwater

levels, driving piles below loose soil into competent material, and construction of retaining walls. The recommendations contained in the reports will be reflected in the Project construction plans and specifications.

Impact GEO-4: Location on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property (less than significant)

The soils in the Project area are rated by the NRCS as having a low or moderate expansion potential and therefore probably would not meet the Uniform Building Code criteria for an expansive soil. Additionally, per County and Caltrans requirements, the Project applicant's engineers will be responsible for conducting a final geotechnical evaluation of unconsolidated materials in the Project area to determine whether they are susceptible to high shrink-swell behavior prior to grading and construction activities. Subsurface borings at regular intervals within the Project footprint or other methods determined by a geotechnical engineer are recommended. Based on subsurface conditions, the Project applicant's engineers will design the specific Project elements to accommodate the effects of expansive soils. If expansive soils are determined to be present at any location where Project activities would occur, corrective actions will be taken. Such actions may include excavation of potentially expansive soils during construction and replacement with engineered backfill, ground treatment processes, and direction of surface water and drainage away from foundation soils. The Project applicant will select one or more of these measures in consultation with a qualified engineer before construction activities begin. The impact would be less than significant. No mitigation is required.

Impact GEO-5: Presence of soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems in areas where sewers are not available for the disposal of wastewater (no impact)

Because no septic tanks or alternative wastewater disposal systems are proposed as part of the Project, there would be no impact. No mitigation is required.

Impact GEO-6: Loss of availability of a known mineral resource that would be of value to the region and the residents of the state (no impact)

Because there are no known mineral resources within the Project area, there would be no impact. No mitigation is required.

Impact GEO-7: Loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan (no impact)

Because there are no locally important mineral resource recovery sites delineated on a local general plan, specific plan, or other land use plan within the Project area, there would be no impact. No mitigation is required.

Impact GEO-8: Direct or indirect destruction of a unique paleontological resource or site or unique geologic feature (no impact)

Because the Project site is underlain by igneous rocks (which have no potential to contain paleontological resources), there would be no impact. No mitigation is required.

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3.6 Greenhouse Gas Emissions

This section describes the environmental and regulatory setting for greenhouse gases (GHG) and climate change. It also describes impacts on climate change that would result from implementation of the proposed Project. Impacts related to air quality are described in Section 3.2, *Air Quality*.

3.6.1 Existing Conditions

3.6.1.1 Regulatory Setting

This section summarizes federal, state, and local regulations related to GHG emissions and climate change that are applicable to the proposed Project.

Federal

Although there is currently no federal overarching law specifically related to climate change or the reduction of GHGs, EPA is developing regulations under the federal CAA that may be adopted in the next 2 years. Foremost among recent developments have been the settlement agreements between the EPA, several states, and nongovernmental organizations to address GHG emissions from electric generating units and refineries; the U.S. Supreme Court's decision in *Massachusetts v. EPA*; and the EPA's Endangerment Finding, Cause or Contribute Finding, and Mandatory Reporting Rule. In *Coalition for Responsible Regulation, Inc., et al. v. EPA*, the United States Court of Appeals upheld the EPA's authority to regulate GHG emissions under the CAA.

State

California has adopted statewide legislation addressing various aspects of climate change and GHG emissions mitigation. Much of this legislation establishes a broad framework for the state's long-term GHG reduction and climate change adaptation program. In the absence of federal regulations, control of GHGs is generally regulated at the state level and is typically approached by setting emission reduction targets for existing sources of GHGs, setting policies to promote renewable energy and increase energy efficiency, and developing statewide action plans. Summaries of key policies, regulations, and legislation at the state level that are relevant to the Project are described below in chronological order.

Assembly Bill 1493—Pavley Rules (2002, Amendments 2009, 2012 Rule-Making)

Known as *Pavley I*, Assembly Bill (AB) 1493 (California Health and Safety Code § 42823) standards are the state's first GHG standards for automobiles. AB 1493 requires the ARB to adopt vehicle standards that will lower GHG emissions from new light duty autos to the maximum extent feasible beginning in 2009. Additional strengthening of the Pavley standards (referred to previously as *Pavley II* and now referred to as the *Advanced Clean Cars* measure) has been proposed for vehicle model years 2017–2025. Together, the two standards are expected to increase average fuel economy to roughly 43 miles per gallon by 2020 and reduce GHG emissions from the transportation sector in California by approximately 14%. In June 2009, the EPA granted California's waiver request enabling the state to enforce its GHG emissions standards for new motor vehicles beginning with the current model year.

Executive Order S-03-05 (2005)

EO S-03-05 is designed to reduce California's GHG emissions to: (1) 2000 levels by 2010, (2) 1990 levels by 2020, and (3) 80% below 1990 levels by 2050.

Assembly Bill 32—California Global Warming Solutions Act (2006)

AB 32 (California Health and Safety Code § 38500 et seq.) codified the state's GHG emissions target by requiring that the state's global warming emissions be reduced to 1990 levels by 2020. Since adoption of the act, ARB, California Energy Commission, California Public Utilities Commission, and the Building Standards Commission have been developing regulations that will help meet the goals of AB 32 and EO S-03-05. The 2008 *Climate Change Scoping Plan* for AB 32 (2008 Scoping Plan) identifies specific measures to reduce GHG emissions to 1990 levels by 2020 and requires ARB and other state agencies to develop and enforce regulations and other initiatives for reducing GHGs. Specifically, the 2008 Scoping Plan articulates a key role for local governments, recommending they establish GHG reduction goals for both their municipal operations and the community consistent with those of the state (California Air Resources Board 2008). The first update to the 2008 Scoping Plan, the *First Update to the Climate Change Scoping Plan* was released in February 2014 and includes revised GHG reduction estimates based on updated statewide GHG inventories. The update also discusses the need for continued GHG reduction progress post-2020 (California Air Resources Board 2014).

Executive Order S-01-07—Low Carbon Fuel Standard (2007, 2015)

EO S-01-07 mandates that a statewide goal be established to reduce the carbon intensity of California's transportation fuels by at least 10% by 2020 and that a Low Carbon Fuel Standard (LCFS) for transportation fuels be established in California. The EO initiates a research and regulatory process at ARB. Based on an implementation plan developed by the California Energy Commission, ARB will be responsible for implementing the LCFS. On December 29, 2011, a federal judge issued a preliminary injunction blocking enforcement of the LCFS, ruling that the LCFS violates the interstate commerce clause (Georgetown Climate Center 2012). ARB appealed this ruling in 2012, and on September 18, 2013, a 9th U.S. Circuit Court of Appeals panel upheld the LCFS, ruling that the program does not violate the Commerce Clause. The ARB re-adopted the LCFS on September 15, 2015 in response to stakeholder feedback received during the legal challenges. The re-adopted regulation includes additional cost containment measures, streamlines the application process for alternative fuels, and improves the process for earning credits for electric vehicles.

Senate Bill 375—Sustainable Communities Strategy (2008)

SB 375 provides for a new planning process that coordinates land use planning, regional transportation plans (RTPs), and funding priorities to help California meet the GHG reduction goals established in AB 32. SB 375 requires that the RTPs developed by metropolitan planning organizations include an SCS. The goal of the SCS is to reduce regional vehicle miles traveled (VMT) through land use planning and consequent transportation patterns. ARB released the regional targets in September 2010. SACOG is the metropolitan planning organization for the Sacramento region, including the western slope of El Dorado County. SACOG adopted its SB 375-compliant MTP/SCS in February 2016.

California Environmental Quality Act Guidelines (2010)

The State CEQA Guidelines (Section 15064.4) require lead agencies to describe, calculate, or estimate the amount of GHG emissions that would result from a project. Moreover, the State CEQA Guidelines emphasize the necessity to determine potential climate change effects of a project and propose mitigation as necessary. The State CEQA 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).

State CEQA Guidelines Section 15126.4 includes considerations for lead agencies related to feasible mitigation measures to reduce GHG emissions, which may include the following, among others.

- Measures in an existing plan or mitigation program for the reduction of emissions that are required as part of the lead agency’s decision.
- Implementation of project features, project design, or other measures that are incorporated into the project to substantially reduce energy consumption or GHG emissions.
- Off-site measures, including offsets that are not otherwise required, to mitigate a project’s emissions.
- Measures that sequester carbon dioxide (CO₂) or CO₂ equivalent (CO₂e) emissions.

Executive Order B-30-15 (2015)

EO B-30-15 established a medium-term goal for 2030 of reducing GHG emissions by 40% below 1990 levels and requires ARB to update its current AB 32 Scoping Plan to identify the measures to meet the 2030 target. The EO supports EO S-03-05, described above, but is currently only binding on state agencies. However, there are current (2015/2016) proposals (SB 32) at the state legislature to establish a statutory target for 2030 that would apply to more than just state agencies.

Local

El Dorado County Air Quality Management District Draft Greenhouse Gas Emissions Thresholds

EDCAQMD administers the California and federal CAAs according to guidelines set forth by state and federal agencies. Currently EDCAQMD has not adopted significance thresholds for GHGs in accordance with the State CEQA Guidelines. At present, the Sacramento Metropolitan Air Quality Management District (SMAQMD) along with a committee of EDCAQMD and other regional air districts¹ use guidance from the California Air Pollution Control Officers Association to develop draft threshold concepts for evaluating project-level GHG emissions. The goal of the thresholds is to capture at least 90% of GHG emissions from new stationary sources and land development projects. These thresholds are discussed further under Section 3.6.2, *Environmental Impacts*.

¹ Air districts in the region include SMAQMD, EDCAQMD, Placer County Air Pollution Control District, Feather River Air Quality Management District, and the Yolo-Solano Air Quality Management District.

3.6.1.2 Environmental Setting

The unique chemical properties of GHGs enable them to become well-mixed in the atmosphere and transported over long distances. Consequently, unlike other resource areas that are primarily concerned with localized project impacts (e.g., within 1,000 feet of the project site), the global nature of climate change requires a broader analysis approach. The following subsections provide background information on global climate change and principal GHGs associated with implementation of the Project. Potential impacts of climate change on the study area are also identified.

Climate Change

The phenomenon known as the *greenhouse effect* keeps the atmosphere near Earth's surface warm enough for the successful habitation of humans and other life forms. The greenhouse effect is created by sunlight that passes through the atmosphere. Some of the sunlight striking Earth is absorbed and converted to heat, which warms the surface. The surface emits a portion of this heat as infrared radiation, some of which is re-emitted toward the surface by GHGs. Human activities that generate GHGs increase the amount of infrared radiation absorbed by the atmosphere, thus enhancing the greenhouse effect and amplifying the warming of Earth (Center for Climate and Energy Solutions n.d.).

Increases in fossil fuel combustion and deforestation have exponentially increased concentrations of GHGs in the atmosphere since the Industrial Revolution. Rising atmospheric concentrations of GHGs in excess of natural levels result in increasing global surface temperatures—a phenomenon commonly referred to as *global warming*. Higher global surface temperatures, in turn, result in changes to Earth's climate system, including increased ocean temperature and acidity, reduced sea ice, variable precipitation, and increased frequency and intensity of extreme weather events (Intergovernmental Panel on Climate Change 2007). Large-scale changes to Earth's system are collectively referred to as *climate change*.

The Intergovernmental Panel on Climate Change (IPCC) was established by the World Meteorological Organization and United Nations Environment Programme to assess scientific, technical, and socioeconomic information relevant to the understanding of climate change, its potential impacts, and options for adaptation and mitigation. The IPCC estimates that the average global temperature will rise by 0.3–4.8° Celsius (0.5–8.6° Fahrenheit [F]) during the twenty-first century (Intergovernmental Panel on Climate Change 2013). Large increases in global temperatures could have substantial adverse effects on the natural and human environments on the planet and in California.

Greenhouse Gas Emissions and Reporting

The primary GHG emissions associated with the proposed Project would be CO₂, methane (CH₄), and nitrous oxide (N₂O). CO₂ is the most important anthropogenic (i.e., human-made) GHG and accounts for more than 75% of all GHG emissions caused by humans. The primary sources of anthropogenic CO₂ in the atmosphere include the burning of fossil fuels, gas flaring, cement production, and land use changes. CH₄ and N₂O are not as abundant as CO₂, but are significantly more powerful. Sources of CH₄ include growing rice, raising cattle, using natural gas, landfill outgassing, and mining coal. Sources of N₂O include agricultural processes, nylon production, fuel-fired power plants, nitric acid production, and vehicle emissions.

Methods have been set forth to describe emissions of GHGs in terms of a single gas to simplify reporting and analysis. The most commonly accepted method to compare GHG emissions is the global warming potential methodology defined in the IPCC reference documents. The IPCC defines the global warming potential of various GHG emissions on a normalized scale that recasts all GHG emissions in terms of the CO₂e metric, which compares the gas in question to that of the same mass of CO₂ (CO₂ has a global warming potential of 1 by definition).

Table 3.6-1 lists the global warming potential of CO₂, CH₄, and N₂O, their lifetimes, and abundances in the atmosphere.

Table 3.6-1. Lifetimes and Global Warming Potentials of Key Greenhouse Gases

Greenhouse Gases	Global Warming Potential (100 years)	Lifetime (years)	Current Atmospheric Abundance
CO ₂	1	50–200	391 ppm
CH ₄	28	9–15	1,871 ppb
N ₂ O	265	120	323 ppb

Source: Myhre et al. 2013.

CH₄ = methane.

CO₂ = carbon dioxide.

N₂O = nitrous oxide.

ppm = parts per million.

ppb = parts per billion.

Potential Effects of Climate Change in California and in the Project Area

Even with the efforts of municipalities throughout the state, a certain amount of climate change is inevitable because of existing and unavoidable future GHG emissions. With respect to the greater Sacramento region, including the Project area, climate change effects are expected to result in the following.

- A hotter and drier climate, with average annual temperatures increasing by 3.7–6.5° F in El Dorado County by 2090, relative to baseline conditions (1961–1990) (California Energy Commission 2014).
- More frequent and intense wildfires, with the area burned projected to increase by an estimated 58–69% in El Dorado County by 2050 (California Energy Commission 2014).
- Decreased winter snowpack with April snow water equivalences declining by 88–97% in El Dorado County by 2050, relative to baseline conditions (1961–1990) (California Energy Commission 2014).
- Changes in growing season conditions and species distribution (PRBO Conservation Science 2011).
- Increased heat and decreased air quality, with the result that public health will be placed at risk, and native plant and animal species may be lost (PRBO Conservation Science 2011).

3.6.2 Environmental Impacts

3.6.2.1 Methods of Analysis

As discussed in Chapter 3.2, *Air Quality*, construction emissions were estimated using the RCEM (Version 7.1.5.1). The methodologies and assumptions used in RCEM are appropriate for road construction projects, including new road construction, road widening and bridge or overpass construction. Since operation of the new bridge would result in a negligible increase in traffic volumes, potential changes in operational GHG emissions are assessed qualitatively.

3.6.2.2 Thresholds of Significance

In accordance with Appendix G of the State CEQA Guidelines, the proposed Project would have a significant impact related to GHG emissions if it would:

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

The State CEQA Guidelines do not indicate what amount of GHG emissions would constitute a significant impact on the environment. Instead, they authorize the lead agency to consider thresholds of significance previously adopted or recommended by other public agencies or recommended by experts, provided the decision of the lead agency to adopt such thresholds is supported by substantial evidence (State CEQA Guidelines §§ 15064.4(a) and 15064.7(c)). The California Supreme Court decision² in the *Centers for Biological Diversity et al. vs. California Department of Fish and Wildlife, the Newhall Land and Farming Company* (November 30, 2015, Case No. S217763) (hereafter Newhall Ranch) confirmed that there are multiple potential pathways for evaluating project-level GHG emissions consistent with CEQA, depending on the circumstances of a given project. These potential pathways include reliance on business-as-usual model³, numeric thresholds, and compliance with regulatory programs.

As discussed above, SMAQMD, along with a committee of EDCAQMD and other regional air districts, have issued draft guidance for addressing GHG emissions in CEQA documents. The guidance outlines a numeric threshold for construction activities of 1,100 metric tons CO₂e, which has been adopted by SMAQMD and is recommended by EDCAQMD staff. Accordingly, annual construction emissions would be considered significant if they exceeded 1,100 metric tons CO₂e.

The draft regional guidance does not identify thresholds relevant to the analysis of GHG emissions from transportation projects. Accordingly, the operational analysis relies on compliance with regulatory programs to analyze operational GHG impacts.

² It should be noted that the defendants in the Newhall Ranch case have requested a rehearing from the California Supreme Court on a number of grounds. If the Supreme Court decides to rehear the case, it is possible that the ruling may change.

³ Only if “an examination of the data behind the Scoping Plan’s business-as-usual model allowed the lead agency to determine what level of reduction from business as usual a new land use development at the proposed location must contribute in order to comply with statewide goals.”

3.6.2.3 Impacts and Mitigation Measures

Impact GHG-1: Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment (less than significant)

Construction

Construction GHG emissions include emissions produced by on-site construction equipment, including heavy-duty equipment and haul trucks. The RCEM (Version 7.1.5.1) was used to estimate GHG emissions from these sources. As estimated by the RCEM, construction activities would generate 2,005 metric tons of GHG emissions. This would include 67 metric tons per month over the 30-month construction period, or 802 metric tons in a 12-month period (Terry A. Hayes Associates Inc. 2016). These emissions would be less than the regional draft threshold of 1,100 metric tons CO₂e per year. During construction, occasional short-term closures of the bridge of up to approximately 2 to 4 weeks would occur. As discussed in Chapter 2, *Project Description*, and Chapter 3, *Impact Analysis*, Section 3.2.2, this duration is consistent with the duration of the closures that occur for existing annual bridge maintenance. Because under the no build condition a 20-mile detour via Rock Creek Road is implemented each year, no increase in GHG emissions would result from Project implementation of a short-term closure and detour during construction of the new bridge. Accordingly, construction emissions would result in a less-than-significant impact related to GHGs. No mitigation is required.

Operation

As shown in Table 3.2-7 in Chapter 3.2, *Air Quality*, the new bridge would result in a negligible increase in traffic volumes under the build conditions compared to the no build conditions. While the implementation of the new bridge would increase the truck volumes by approximately 1%, the net decrease in overall emissions due to a shorter travel path (approximately 1 mile shorter compared to using the old bridge) and speed gains would offset the increase in emissions due to addition of 13 daily truck trips in 2015 and 26 daily trips in 2034. Based on the roadway design and anticipated volumes, it is anticipated that the new Mosquito Bridge would result in a negligible change to emissions. Therefore, operational emissions would not result in a significant impact on GHGs. No mitigation is required.

Impact GHG-2: Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases (less than significant)

The most applicable GHG regulation to transportation projects, including the proposed Project, is SB 375. SB 375 was enacted to reduce GHG emissions from automobiles and light trucks through integrated transportation, land use, housing, and environmental planning. Under this law, SACOG is tasked with developing an SCS that provides a plan for meeting per capita CO₂ emissions levels allocated to SACOG by ARB. For the SACOG region, the targets set by ARB are 7% below 2005 emissions levels by 2020 and 16% below 2005 levels by 2035. Accordingly, the targets established by SB 375 not only address near-term (2020) emissions, but also long-term (2035) emissions

consistent with statewide executive orders⁴, judicial attention⁵, and recommendations made by the Association of Environmental Professionals' Climate Change Committee.⁶

The Final EIR for the 2016 MTP/SCS demonstrates that projects identified in the MTP/SCS meet the ARB's issued SB 375 GHG targets for the SACOG region in 2020 and 2035. GHG emissions associated with the MTP/SCS, including those projects identified in the MTP/SCS, would therefore be less than significant (Sacramento Area Council of Governments 2016).

As discussed in Chapter 3.2, *Air Quality*, the proposed Project is listed in the 2016 MTP/SCS. The design concept and scope of the proposed Project are described in Chapter 2, *Project Description*. Because the proposed Project is identified and consistent with SACOG's 2016 MTP/SCS, which was found to have a less-than-significant GHG impact, project-level GHG emissions would be consistent with SB 375. Accordingly, this impact would be less than significant and no mitigation is required.

3.6.3 References

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⁴ EO B-30-15 has set forth an interim reduction target to reduce GHG emissions by 40% below 1990 levels by 2030 and EO S-03-05 has set forth an interim reduction target to reduce GHG emissions by 80% below 1990 levels by 2050.

⁵ See the California Appellate Court, 4th District 2014 rulings in the *Cleveland National Forest Foundation et al. v. SANDAG* and *Sierra Club vs. County of San Diego* cases.

⁶ The Association of Environmental Professionals' *Beyond 2020: The Challenge of Greenhouse Gas Reduction Planning by Local Governments in California* white paper states that long-term projects should consider "post-2020 emissions consistent with 'substantial progress' along a post-2020 reduction trajectory toward meeting the 2050 target."

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3.7 Hazards and Hazardous Materials

Hazardous materials are substances that are dangerous to the public's health and safety, particularly if they are improperly used, stored, transported, or disposed. Hazardous materials include substances known to be toxic, flammable, explosive, corrosive, infectious, carcinogenic, or radioactive. The primary concerns pertaining to hazardous materials in the Project area is their use, transportation, storage, and handling (i.e., potential accidents or spills).

3.7.1 Existing Conditions

3.7.1.1 Regulatory Setting

Federal

Comprehensive Environmental Response, Compensation, and Liability Act

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), commonly known as *Superfund*, is a federal act establishing a national trust for hazardous-waste-related industries to be able to fund and coordinate large cleanup activities for hazardous waste spills and accidents and to clean up older abandoned waste sites. Amended in 1986, the act establishes two primary actions: (1) to coordinate short-term removal of hazardous materials; and (2) to coordinate and manage the long-term removal of hazardous materials identified on the EPA's National Priorities List (NPL). The NPL is a record of known or threatened releases of hazardous substances, pollutants, or contaminants. A national database and management system, known as the Comprehensive Environmental Response, Compensation, and Liability Information System, is used by EPA to track activities at hazardous waste sites considered for cleanup under CERCLA. CERCLA also maintains provisions and guidelines dealing with closed and abandoned waste sites and tracks amounts of liquid and solid media treated at sites on the NPL or sites that are under consideration for the NPL.

Occupational Safety and Health Standards

Occupational safety standards exist in federal and state laws to minimize worker safety risks from both physical and chemical hazards in the workplace. The Occupational Safety and Health Administration (OSHA) is responsible for ensuring worker safety in the workplace.

OSHA assumes primary responsibility for developing and enforcing standards for safe workplaces and work practices within the state. At sites known to be contaminated, a site safety plan must be prepared to protect workers. The site safety plan establishes policies and procedures to protect workers and the public from exposure to potential hazards at the contaminated site.

Resource Conservation and Recovery Act of 1976 (42 United States Code Sections 6901–6987)

The Resource Conservation and Recovery Act of 1976 (RCRA), including the Hazardous and Solid Waste Amendments of 1984 (HSWA), protects human health and the environment, and imposes regulations on hazardous waste generators, transporters, and operators of treatment, storage, and disposal facilities. The HSWA also requires EPA to establish a comprehensive regulatory program for underground storage tanks. The corresponding regulations in 40 CFR Parts 260–299 provide the

general framework for managing hazardous waste, including requirements for entities that generate, store, transport, treat, and dispose of hazardous waste.

State

Asbestos Regulations

Title 8 CCR Section 1529 regulates asbestos exposure in all construction work and defines permissible exposure limits and work practices. Typically, removal or disturbance of more than 100 square feet of material containing more than 0.1% asbestos must be performed by a registered asbestos abatement contractor, but associated waste labeling is not required if the material contains 1% or less asbestos. When the asbestos content of materials exceeds 1%, virtually all requirements of the standard become effective. With respect to potential worker exposure, notification, and registration requirements, the California Division of Occupational Safety and Health (Cal/OSHA) defines asbestos-containing construction material as construction material that contains more than 0.1% asbestos (8 CCR 341.6).

Hazardous Waste Control Act

The state equivalent of RCRA is the Hazardous Waste Control Act (HWCA). HWCA created the State Hazardous Waste Management Program, which is similar to the RCRA program but generally more stringent. HWCA establishes requirements for the proper management of hazardous substances and wastes with regard to criteria for: (1) identification and classification of hazardous wastes; (2) generation and transportation of hazardous wastes; (3) design and permitting of facilities that recycle, treat, store, and dispose of hazardous wastes; (4) treatment standards; (5) operation of facilities; (6) staff training; (7) closure of facilities; and (8) liability requirements.

Emergency Services Act

Under the California Emergency Services Act, the State developed an emergency response plan to coordinate emergency services provided by all governmental agencies. The plan is administered by the California Office of Emergency Services (OES). OES coordinates the responses of other agencies, including EPA, the Federal Emergency Management Agency, the California Highway Patrol, water quality control boards, air quality management districts, and county disaster response offices. Local emergency response teams, including fire, police, and sheriff's departments, provide most of the services to protect public health.

California Health and Safety Codes

The California Environmental Protection Agency (Cal-EPA) has been granted primary responsibility by EPA for administering and enforcing hazardous materials management plans within California. Cal-EPA defines a hazardous material more generally than EPA as a material that, because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released (26 CCR 25501).

State regulations include detailed planning and management requirements to ensure that hazardous materials are properly handled, stored, and disposed of to reduce human health risks. In particular, the State has acted to regulate the transfer and disposal of hazardous waste. Hazardous waste haulers are required to comply with regulations that establish numerous standards, including

criteria for handling, documenting, and labeling the shipment of hazardous waste (26 CCR 25160 et seq.).

Cortese List

Cal-EPA maintains the Hazardous Wastes and Substances Site (Cortese) List, a planning document used by state and local agencies and developers to comply with CEQA requirements in providing information about the location of hazardous materials release sites. The list must be updated at least once per year, per Government Code Section 65962.5. The California Department of Toxic Substances Control (DTSC), State Water Resources Control Board, and California Department of Resources Recycling and Recovery all contribute to the site listings.

California Public Resources Code Sections 4201–4204

This section of the California Public Resources Code was amended in 1982 to require the California Department of Forestry and Fire Protection (CAL FIRE) to classify Fire Hazard Severity Zones within State Responsibility Areas (SRAs). CAL FIRE classifies lands within SRAs by severity of fire hazard present to identify measures to retard the rate of spreading and reduce the potential intensity of uncontrolled fires that threaten to destroy resources, life, or property.

Local

El Dorado County General Plan

To ensure provision of adequate public human health and safety services in the county, the Public Health, Safety, and Noise Element of the County General Plan (County of El Dorado 2009) includes the following goals and policies.

- Goal 5.7, *Emergency Services*, addresses provision of adequate and comprehensive emergency services, including fire protection, law enforcement, and emergency medical services, and includes implementing Policy 5.7.1.1.
- Goal 6.2, *Fire Hazards*, addresses protection of life and property through minimization of fire hazards and risks in wildland and developed areas and includes implementing Policies 6.2.2.1, 6.2.2.2, 6.2.3.1, 6.2.3.2, 6.2.3.4, 6.2.4.1, and 6.2.4.2.
- Goal 6.6, *Management of Hazardous Materials*, requires measures to reduce the threats to public health and the environment posed by the use, storage, manufacture, transport, release, and disposal of hazardous materials, and includes implementing Policy 6.6.1.2

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. This program was established under the amendments to the California Health and Safety Code made by Senate Bill 1082 in 1994. California Health and Safety Code 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 joint powers authority that demonstrates its ability to administer the program. The local CUPA for the proposed Project is the Hazardous Materials Division of El Dorado County Environmental Management Department.

El Dorado County Airport Land Use Compatibility Plan

The *El Dorado County Airport Land Use Compatibility Plan* (Mead & Hunt 2012) presents policies and maps specific to Cameron Airpark Airport, Georgetown Airport, and Placerville Airport to maintain safe operating conditions for the airports. The Project area is not within the planning areas for these airports.

Hazardous Materials Ordinance of 1990

The Hazardous Materials Ordinance (County Code Chapter 8.38) regulates the handling, storage, use, transport, processing, or disposal of hazardous materials. This ordinance requires reporting of the use of hazardous materials. It also requires disclosure of accidental release of hazardous materials, as well as preventive and mitigative efforts for impacts of hazardous materials. The ordinance is enforced locally by trained staff of fire protection districts and the Solid Waste & Hazardous Materials Division of the El Dorado County Environmental Management Department.

El Dorado County Air Quality Management District

EDCAQMD administers the state and federal CAAs in accordance with state and federal guidelines. The EDCAQMD regulates air quality through its district rules and permit authority. It also participates in planning review of discretionary project applications and provides recommendations. Rule 223 regulates fugitive dust, including that potentially containing NOA, which is described in more detail in Section 3.2, *Air Quality*.

Solid Waste Management Ordinance (1994)

The Solid Waste Management Ordinance (County Code Chapter 8.42) prohibits the disposal, depositing, or otherwise disposing of any hazardous or biomedical waste onto land, into soil, rock, air, or water or at unauthorized disposal sites, transfer stations, resource recovery facilities, transformation facilities, buy-back centers, drop-off recycling centers, or any container to be collected and ultimately deposited, unless otherwise approved by the County. Penalties may be assessed on acts of illegal disposal.

3.7.1.2 Environmental Setting

Airports

Airport-related hazards are generally associated with aircraft accidents, particularly during takeoff and landing. Airport operation hazards include incompatible land uses, power transmission lines, wildlife hazards (e.g., bird strikes), and tall structures that penetrate imaginary airspace control surfaces (e.g., clearance required for immediate vicinity of the landing area) surrounding an airport.

The closest public airport is the county-owned Placerville Airport, located approximately 3.30 miles south of the Project area at 3501 Airport Road in Placerville. The airport covers an area of 243 acres and has one asphalt paved runway measuring 4,201 by 75 feet (County of El Dorado n.d.).

The closest private airport is the Swansboro Country Airport located approximately 1.6 miles north of the Project area at 6770 Sluice Street in Placerville. This airport covers 9 acres and has one asphalt runway (AirNav n.d.). Night operations are prohibited and use is restricted to property owners and their guests. A total of 25 aircraft are registered at this airport (AirNav n.d.)

Schools

State CEQA Guidelines Section 15186 requires consideration of projects within 0.25 mile of a school to ensure that potential health impacts resulting from exposure to hazardous materials, wastes, and substances are evaluated. Hazardous emissions and accidental release or combustion of hazardous materials near existing schools could result in health risks or other dangers to students. The closest schools to the Project area include the Louisiana Schnell Elementary School (6767 Garden Valley Road, Placerville) and the Montessori Christian Day School (1139 Bush Court, Placerville) both located approximately 3 miles south and southwest, respectively.

Records Review

A database search, compiled pursuant to Government Code Section 65962.5, was conducted for the Project area. No evidence of the potential for recognized environmental conditions or activity and use limitations was found as a result of review of this information. No sites of concern listed in federal, state, or local database listings within the Project area were identified. (California Department of Toxic Substances Control 2016, State Water Resources Control Board 2016).

Lead-Based Paint, Asbestos-Containing Materials, and Treated Wood Waste

Lead-based paint (LBP) and asbestos-containing materials (ACM) may be present in materials used to construct the existing bridge, such as bridge railings, rail shim sheet packing, bearing pads, support piers, and expansion joint material of bridges. Treated wood waste (TWW) comes from old wood that has been treated with chemical preservatives. These chemicals help protect the wood from insect attack and fungal decay while it's being used. Fence posts, sill plates, landscape timbers, pilings, guardrails, and decking, are all examples of chemically treated wood. The existing bridge wood deck may contain TWW.

Naturally Occurring Asbestos and Structural Asbestos

NOA can be released from serpentine and ultramafic rocks when the rock is broken or crushed. The County has prepared a map of asbestos areas, which does not indicate that the proposed Project is in an area containing NOA (Churchill et al. 2000). Although it is not anticipated that construction activity would encounter NOA, the proposed Project would be required to comply with EDCAQMD Rule 223-2 requiring activities to reduce asbestos dust created from earth-moving activities. Standard dust control measures such as watering would effectively control unanticipated NOA exposure.

Fire-Related Hazards

The long, hot, dry summers in El Dorado County, combined with inadequate clearance between structures and vegetation, flammable vegetation, and steep topography, result in conditions conducive to wildfires.

Topography is a central factor when considering the fire hazard of an area. As slopes increase, fires spread faster and can create a *chimney effect*, in which drafts of hot air and gases blow upward from steep ravines, resulting in sudden flashes of fire. Steep terrain also restricts accessibility to wildland fires by fire suppression crews and allows fires to spread into additional areas. Because of these physical conditions, CAL FIRE has designated the majority of the Project area as a High Fire Hazard Severity Zone in a SRA (California Department of Forestry and Fire Protection 2007). A very small

portion to the north is designated as a Local Responsibility Area. In designated SRAs, CAL FIRE has financial responsibility for wildland fire protection.

3.7.2 Environmental Impacts

3.7.2.1 Methods of Analysis

The analysis of hazards and hazardous materials is based on a review of the County General Plan (El Dorado County 2009); database research prepared in compliance with federal, state, and local ordinances and regulations; and professional standards pertaining to hazards and hazardous materials. The environmental baseline for the analysis consists of the hazards and hazardous materials that are known to occur in the Project area.

3.7.2.2 Thresholds of Significance

In accordance with Appendix G of the State CEQA Guidelines, the proposed Project would be considered to have a significant effect if it would result in any of the conditions listed below.

- Creation of a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.
- Creation of 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.
- Release of hazardous emissions or handling of hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school.
- Location on a site that is on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and the resultant creation of a significant hazard to the public or the environment.
- Location within an airport land use plan area or, where such a plan has not been adopted, location within 2 miles of a public airport or public use airport, resulting in a safety hazard for people residing or working in the Project area.
- Location within the vicinity of a private airstrip, resulting in a safety hazard for people residing or working in the planning area.
- Impairment of or physical interference with implementation of an adopted emergency response plan or emergency evacuation plan.
- Exposure of people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

3.7.2.3 Impacts and Mitigation Measures

Impact HAZ-1: Creation of a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials (less than significant)

Construction of the proposed Project would involve small quantities of commonly used materials, such as fuels and oils, to operate construction equipment. However, because standard best

management practices (BMPs) would be implemented to reduce the emissions of pollutants during construction of the proposed Project, this impact would be less than significant. Once construction is complete, there would be no further use of hazardous materials or potential exposure associated with the Project.

Some of the structures within the Project area may pose a risk related to hazardous materials. The existing bridge could contain LBP, ACM, or TWW. These chemicals are known to be toxic or carcinogenic. Construction workers could be exposed to these hazardous wastes or materials during demolition and removal of the bridge components. Harmful exposure to these chemicals may result from dermal contact, or from inhalation or ingestion of particulate (e.g., sawdust and smoke). The potential exposure of construction workers to hazardous materials or wastes is considered to be a significant impact because of the possible threat to human health from the handling of these materials. However, implementation of the following specifications and adherence to laws and regulations would reduce this impact to a less-than-significant level.

Construction contract specifications will provide that the County or its contractors will arrange for sampling and testing of bridge paint in areas scheduled for removal to determine the presence of lead chromate, other metals, or chemicals. If present, the materials will be removed and disposed of in accordance with all applicable laws and regulations, including Caltrans Construction Program Procedure Bulletin 99-2 (CPB 99-2). If the lead or chemical content of the paint is above regulatory thresholds, standard BMPs as described under the SWPPP, as discussed in Section 3.8, *Hydrology and Water Quality*, will address worker safety when working with potential LBP. The bridge will also be sampled and tested for ACM and TWW. Hazardous materials found within the Project area will be removed and disposed of by a licensed and certified abatement contractor prior to demolition or other activities that will disturb hazardous materials. This impact would be less than significant, and no mitigation is required.

Impact HAZ-2: Creation of 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 (less than significant)

Construction equipment that would be used to build the Project has the potential to release oils, greases, solvents, and other finishing materials through accidental spills. 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 consequences of construction-related spills are not as great as other accidental spills and releases because the amount of hazardous material released during a construction-related spill is small because the volume in any single piece of construction equipment is generally less than 50 gallons, and fuel trucks are limited to 10,000 gallons or less. Moreover, the handling and disposal of these materials would be governed according to regulations enforced by CUPA, Cal/OSHA, and 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 Section 3.8, *Hydrology and Water Quality*, for a discussion of SWPPPs). Consequently, it is not anticipated that use of hazardous materials during construction would result in reasonably foreseeable upset or accident conditions that would cause significant hazard to the public or environment. This impact would be less than significant, and no mitigation is required.

Impact HAZ-3: Release of hazardous emissions or handling of hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school (no impact)

There are no existing schools within 0.25 mile of the Project area. Therefore, the proposed Project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school. There would be no impact.

Impact HAZ-4: Location on a site that is on a list of hazardous materials sites and the resultant creation of a significant hazard to the public or the environment (no impact)

No hazardous materials sites included on a list compiled pursuant to Government Code Section 65962.5 are present within the Project area. The Project is not located on or near a Superfund or other NPL site and therefore would not result in a significant hazard to the public or the environment through exposure to such sites. There would be no impact.

Impact HAZ-5: Location within an airport land use plan area or within 2 miles of a public airport or public use airport, resulting in a safety hazard for people residing or working in the Project area (no impact)

Placerville Airport is more than 3 miles south of the Project site. The Project site is not within the Placerville Airport Land Use Compatibility Plan influence area. Therefore, there would be no impact.

Impact HAZ-6: Location within the vicinity of a private airstrip, resulting in a safety hazard for people residing or working in the Project area (no impact)

The closest private airstrip is Swansboro Country Airport located approximately 1.6 miles north of the Project area. It is privately owned and use is restricted to property owners and their guests. Prior permission is required to use the airport and no night landings are allowed. Due to the limited number of aircraft in the area, conflicts between the airport and the Project are unlikely. In addition, while the Project would construct a bridge at a higher elevation in the South Fork American River canyon than the existing bridge, its elevation would not result in a safety hazard for people utilizing the private airstrip, or people residing or working in the Project area. There would be no impact.

Impact HAZ-7: Impairment of or physical interference with implementation of an adopted emergency response plan or emergency evacuation plan (less than significant)

Construction of the proposed Project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. With the exception of occasional short-term closures of up to approximately 2 to 4 weeks, the existing bridge would remain open during construction of the new bridge. Traffic controls would be implemented during construction, although relatively minimal traffic restrictions are anticipated. If needed, temporary single-lane traffic controls would be implemented. The Project contractor would be required to prepare a traffic control plan that must be approved by El Dorado County. Access for emergency vehicles through the Project area would be maintained at current conditions at all times. When a closure is implemented, traffic would be rerouted on Rock Creek Road, a detour of as much as 20 miles, and the current route used by large emergency vehicles because the existing Mosquito Road Bridge cannot accommodate them. This impact would be less than significant, and no mitigation is required.

Impact HAZ-8: Exposure of people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands (less than significant with mitigation)

Several factors contribute to susceptibility to wildfire danger in El Dorado County, including climate, winds, steep terrain, and vegetation. The Project area is located within a designated SRA for wildfire danger and the Project would require construction work crews, temporarily increasing the number of vehicles in the area. Human activities are the primary reason wildfires start, although lightning strikes do occasionally occur. Project construction would involve the use of heavy equipment, welding, and other activities that have potential to ignite fires. A wildland fire caused by Project construction activities could result in a significant impact. Implementation of Mitigation Measure HAZ-8 would reduce this potential impact to less-than-significant.

Mitigation Measure HAZ-1: Implement a fire protection plan

The County will require its contractors to coordinate, with CAL FIRE to prepare a Fire Protection Plan. CAL FIRE will review, revise if necessary, and approve the plan before construction begins in areas with moderate to high fire hazards. The Fire Protection Plan will include the following measures.

- Internal combustion engines, stationary and mobile, will be equipped with spark arresters. Spark arresters shall be in good working order.
- Contractor will keep all construction sites and staging areas free of grass, brush, and other flammable materials.
- Personnel will be trained in the practices of the fire safety plan relevant to their duties. Construction and maintenance personnel shall be trained and equipped to extinguish small fires.
- Work crews shall have fire-extinguishing equipment on hand, as well as emergency numbers and cell phone or other means of contacting the Fire Department.
- Smoking will be prohibited while operating equipment and shall be limited to paved or graveled areas or areas cleared of all vegetation. Smoking will be prohibited within 30 feet of any combustible material storage area (including fuels, gases, and solvents). Smoking will be prohibited in any location during a Red Flag Warning issued by the National Weather Service for the project area¹.

¹ "Red-Flag Warning" is a term used by fire-weather forecasters to call attention to limited weather conditions of particular importance that may result in extreme burning conditions.

3.7.3 References

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3.8 Hydrology, Water Quality, and Water Resources

This section describes the regulatory and environmental setting for hydrology and water quality, based on available information provided as part of the Project application and published reports. It also describes impacts on hydrology and water quality that would result from implementation of the proposed Project and mitigation measures that would reduce these impacts.

3.8.1 Existing Conditions

3.8.1.1 Regulatory Setting

Federal

Clean Water Act

Several sections of the CWA pertain to regulating impacts on waters of the United States. The CWA sections discussed below pertain to the Project.

The term *waters of the United States* essentially refers to all surface waters, such as all navigable waters and their tributaries, all interstate waters and their tributaries, all wetlands adjacent to these waters, and all impoundments of these waters. The EPA is the overarching authority charged with protecting the quality of waters of the United States. However, the State Water Board administers CWA Sections 303, 401 and 402, and USACE has jurisdiction over waters of the United States under CWA Section 404.

Section 303 and 305—Impaired Waters

The State of California adopts water quality standards to protect beneficial uses of waters of the state as required by Section 303(d) of the CWA and the Porter-Cologne Act. Section 303(d) of the CWA established the total maximum daily load (TMDL) process to guide the application of state water quality standards. TMDLs may establish daily load limits of the pollutants, or in some cases require other regulatory measures, with the ultimate goal of reducing the amount of the pollutant entering the waterbody to meet water quality objectives. In order to identify candidate waterbodies for TMDL analysis, a list of water quality-limited segments was generated by the State Water Board. These stream or river segments are impaired by the presence of pollutants such as sediment and are more sensitive to disturbance because of this impairment.

In addition to the impaired waterbody list required by CWA Section 303(d), CWA Section 305(b) requires states to develop a report assessing statewide surface water quality. Both CWA requirements are being addressed through the development of a 303(d)/305(b) Integrated Report, which will address both an update to the 303(d) list and a 305(b) assessment of statewide water quality. The State Water Board developed the statewide 2012 California Integrated Report based on the Integrated Reports from each of the nine RWQCBs. The 2012 California Integrated Report was submitted by the State Water Board on April 14, 2014, and approved by EPA on July 30, 2015.

Section 401—Water Quality Certification

Section 401 of the CWA requires that an applicant pursuing a federal permit to conduct an activity that may result in a discharge of a pollutant obtain a Water Quality Certification (or waiver). A Water Quality Certification requires the evaluation of water quality considerations associated with dredging or placement of fill materials into waters of the United States. Water Quality Certifications are issued by one of the nine geographically separated RWQCBs in California. Under the CWA, the RWQCB must issue or waive a Section 401 Water Quality Certification for a project to be permitted under CWA Section 404.

The Project would be required to obtain a Water Quality Certification from the Central Valley RWQCB due to ground-disturbing and grading activities.

Section 402—National Pollutant Discharge Elimination System

Section 402 of the CWA is discussed in more detail in Section 3.5, *Geology, Soils, Minerals, and Paleontological Resources*. EPA has granted the State of California primacy in administering and enforcing the provisions of the CWA and NPDES within the borders of the state. NPDES permits are issued by one of the nine RWQCBs.

The Project would comply with both construction and municipal NPDES stormwater requirements. More information is provided in the *State* regulations section below.

Section 404—Dredge/Fill Permitting and Section 10 of the Rivers and Harbors Act

The discharge of dredged or fill material into waters of the United States is subject to permitting specified under Title IV (Permits and Licenses) under Section 404 (Discharges of Dredge or Fill Material) of the CWA. Section 404 of the CWA regulates placement of fill materials into the waters of the United States. Section 404 permits are administered by USACE.

Section 10 of the Rivers and Harbors Act, also administered by USACE, requires permits for all structures (such as riprap) and activities (such as dredging) in navigable waters of the United States.

The Project would be required to obtain a CWA Section 404 Permit and a Rivers and Harbors Act Section 10 Permit from the USACE Sacramento District due to ground-disturbing and grading activities.

National Flood Insurance Program

In response to increasing costs of disaster relief, Congress passed the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. FEMA administers the National Flood Insurance Program to provide subsidized flood insurance to communities that comply with FEMA regulations limiting development in floodplains. A Flood Insurance Rate Map (FIRM) is the official map of a community prepared by FEMA to delineate both the special flood-hazard areas and the flood risk premium zones applicable to the community.

State**Porter-Cologne Water Quality Control Act**

The Porter-Cologne Act was established and is implemented by the State Water Board and nine RWQCBs. The State Water Board is the primary state agency responsible for protecting the quality of

the state's surface and groundwater supplies, or *waters of the state*. More broadly defined than waters of the United States, waters of the state are any surface water or groundwater, including saline waters, within the boundaries of the state. This includes waters in both natural and artificial channels. It also includes all surface waters that are not waters of the United States or non-jurisdictional wetlands, which are essentially distinguished by whether they are navigable. If waters are not navigable, then they are considered to be isolated and, therefore, only fall under the jurisdiction of the Porter-Cologne Act and not the CWA. The RWQCBs are responsible for implementing CWA Sections 303(d), 401, and 402 mentioned above.

The Porter-Cologne Act authorizes the State Water Board to draft state policies regarding water quality. The act requires projects that are discharging, or proposing to discharge, wastes that could affect the quality of the state's water to file a Report of Waste Discharge with the appropriate RWQCB. The Porter-Cologne Act also requires that State Water Board or a RWQCB adopt basin plans for the protection of water quality. Basin plans are updated and reviewed every 3 years and provide the technical basis for determining WDRs, taking enforcement actions, and evaluating clean water grant proposals. A basin plan must include: (1) a statement of beneficial water uses that the RWQCB will protect, (2) water quality objectives needed to protect the designated beneficial water uses, and (3) strategies to be implemented with time schedules for achieving the water quality objectives (Central Valley Regional Water Quality Control Board 2016).

In basin plans, RWQCBs designate beneficial uses for all waterbody segments in their jurisdictions and then set criteria necessary to protect these uses. Consequently, the water quality objectives developed for particular water segments are based on the designated use and vary depending on such use. Each RWQCB has region-wide and waterbody-specific beneficial uses and has set quantitative and qualitative water quality objectives for several substances and parameters in numerous surface waters in its region. For those waters that do not have specific beneficial uses or water quality objectives, the tributary rule¹ applies to streams. 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 2016).

In addition, the State Water Board identifies waters failing to meet standards for specific pollutants, which are then state-listed in accordance with CWA Section 303(d). If it is determined that waters are impaired for one or more pollutants and the standards cannot be met through point-source or nonpoint-source controls (NPDES permits or WDRs), then the CWA requires the establishment of TMDLs.

The Project lies within the jurisdiction of the Central Valley RWQCB. The Central Valley RWQCB is responsible for the protection of beneficial uses of water resources in the entire area included in the Sacramento and San Joaquin River drainage basins. The *Water Quality Control Plan for the California Regional Water Quality Control Board Central Valley Region* (Basin Plan) was last updated in 2016 (Central Valley Regional Water Quality Control Board 2016). More information on beneficial uses and 303(d) impairments that apply to the Project are provided in the water quality discussion in Section 3.8.1.2, *Environmental Setting*.

¹ The *tributary rule* refers to any streams not specifically listed in the basin plan that are deemed to have the same beneficial uses and water quality objectives of the listed stream, river, or lake to which they are a tributary.

National Pollutant Discharge Elimination System Construction General Permit

The General NPDES Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order 2009-0009-DWQ, NPDES No. CAS000002) (Construction General Permit) regulates stormwater discharges for construction activities under CWA Section 402. Additional information regarding the Construction General Permit is provided in Section 3.5, *Geology, Soils, Minerals, and Paleontological Resources*. Dischargers whose projects disturb 1 or more acres of soil, or whose projects disturb less than 1 acre but are part of a larger common plan of development that in total disturbs 1 or more acres, are required to obtain coverage under the Construction General Permit.

The Project would involve more than 1 acre of land disturbance, and therefore a Construction General Permit would be required.

National Pollutant Discharge Elimination System General Municipal Stormwater Permit

CWA Section 402 mandates permits for municipal stormwater discharges, which are regulated under the NPDES General Permit for MS4s (MS4 Permit).

Municipal stormwater discharges in El Dorado County are regulated under the State Water Board Water Quality Order No. 2013-0001-DWQ, NPDES General Permit No. CAS000004, WDRs for Storm Water Discharges from Small MS4s (Phase II General Permit). Additional information is provided in Section 3.5, *Geology, Soils, Minerals, and Paleontological Resources*.

California Department of Transportation National Pollutant Discharge Elimination System Municipal Separate Storm Sewer System Permit

To streamline the Caltrans NPDES permitting process, the State Water Board issued a state water permit on July 15, 1999, that regulated all discharges from Caltrans MS4s. The new Caltrans stormwater permit was re-issued and became effective July 1, 2013.

The State Water Board has identified Caltrans as an owner/operator of an MS4 pursuant to federal regulations. Caltrans holds a general NPDES permit that covers primarily municipal stormwater discharges (Order No. 2012-0011-DWQ [NPDES No. CAS000003] NPDES Statewide Storm Water Permit WDRs for Caltrans MS4 Permit, effective July 1, 2013). Caltrans' MS4 permit covers all Caltrans rights-of-way, properties, facilities, and activities in the state. The State Water Board or the RWQCB issues NPDES permits for 5 years, and permit requirements remain active until a new permit is adopted. The permit regulates the following discharges.

- Stormwater discharges from all Caltrans-owned MS4s
- Stormwater discharges from Caltrans vehicle maintenance, equipment cleaning operations facilities, and any other non-industrial facilities with activities that have the potential of generating pollutants
- Certain categories of non-stormwater discharges. Caltrans shall check with the appropriate RWQCB to determine if a specific non-stormwater discharge requires coverage under a separate NPDES permit.

This permit does not regulate stormwater discharges from industrial facilities. Instead, Caltrans is required to obtain coverage under the Statewide Industrial General Permit for each batch plant and industrial facility, and shall comply with applicable requirements.

This permit does not regulate discharges from Caltrans' construction activities, including dewatering effluent discharges from construction projects. Instead, Caltrans is required to obtain coverage by the Construction General Permit and develop a project SWPPP. Caltrans provides a SWPPP template, stormwater guidance documents, and other construction stormwater resources on the Caltrans Stormwater and Water Pollution Control webpage. Any discharges from a site occurring after completion of construction are fully subject to the requirements of this Order.

Some RWQCBs have issued specific requirements for dewatering effluent discharges in their regions. Because the proposed Project is within the jurisdiction of the Central Valley RWQCB, a General Order for Dewatering and Other Low-Threat Discharges to Surface Waters would be required for discharges not permitted under the Construction General Permit. Caltrans will coordinate with the Central Valley RWQCB to ensure proper compliance with dewatering requirements.

Caltrans' MS4 Permit, currently under revision, contains three basic requirements:

- a. Caltrans must comply with Construction General Permit requirements (see above)
- b. Caltrans must implement a year-round program in all parts of the State to effectively control stormwater and non-stormwater discharges
- c. Caltrans stormwater discharges must meet water quality standards through implementation of permanent and temporary (construction) BMPs to the maximum extent practicable, and other measures as the State Water Board determines to be necessary to meet the water quality standards.

California Department of Transportation Statewide Storm Water Management Plan

To comply with the permit, Caltrans developed the Statewide SWMP (California Department of Transportation 2003) to address stormwater pollution controls related to highway planning, design, construction, and maintenance activities throughout California as well as associated program guidance documents. The SWMP assigns responsibilities within Caltrans for implementing stormwater management procedures and practices as well as training, public education and participation, monitoring and research, program evaluation, and reporting activities. The SWMP describes the minimum procedures and practices Caltrans uses to reduce pollutants in stormwater and non-stormwater discharges. The SWMP also outlines procedures and responsibilities for protecting water quality, including the selection and implementation of BMPs.

All MS4s under Caltrans' jurisdiction are considered one system, and are regulated by the Caltrans NPDES Permit. Caltrans shall include a Municipal Coordination Plan in the SWMP. The plan shall describe the specific steps needed for Caltrans to establish communication, coordination, cooperation, and collaboration with other MS4 stormwater management agencies and their programs, including establishing agreements with municipalities, flood control departments, or districts as necessary or appropriate. Caltrans shall report on the status and progress of interagency coordination activities in each annual report. The proposed Project would follow the guidelines and procedures outlined in the latest SWMP to address stormwater runoff. The County and its construction contractors will also comply with the Caltrans Standard Specifications.

State Water Board Low Impact Development Policy

The State Water Board is advancing Low Impact Development (LID) in California as a means of complying with municipal stormwater permits. On January 20, 2005, the State Water Board adopted

the LID Policy, which promotes the idea of sustainability to be considered during the design and planning process for future development. LID incorporates, in part, site design, the use of vegetated swales and retention basins, and minimizing impermeable surfaces. Implementation of these features to manage stormwater will maintain predevelopment runoff rates and volumes, benefit water supply, and contribute to water quality protection. To meet the “maximum extent possible” standard of the Phase II General Permits, it is necessary to incorporate LID into the design of proposed projects.

Local

El Dorado County Ordinance Code

The Grading, Erosion and Sediment Control Ordinance (Chapter 15.14) regulates grading within the unincorporated areas of El Dorado County, to avoid pollution of water, and to ensure that the intended use of a graded site is consistent with the County General Plan (El Dorado County 2004b) and any specific adopted plans including the adopted stormwater management plan (El Dorado County 2004a), State Fire Safe Standards, and relevant El Dorado County ordinances. This ordinance establishes the procedures for the issuance of permits, approval of plans, and inspection of construction sites. The Grading, Erosion and Sediment Control Ordinance requires that waterways and adjacent properties be protected from erosion, flooding, or sediment deposits that could result from grading activities (El Dorado County 2014).

The Flood Damage and Prevention Ordinance (Chapter 130.25) implements General Plan Policy 6.4.1.1 requiring continued participation in the National Flood Insurance Program to promote public health, safety, and general welfare, and to minimize public and private losses due to flood conditions in specific areas. This ordinance is applied throughout the community and provides legally enforceable regulations to all publicly and privately owned land within flood-prone areas (El Dorado County 2014).

The County has authority to impose conditions of approval on a proposed project to ensure that the project is consistent with all applicable standards and regulations, or to mitigate any potential impacts created by the proposed project. Standard conditions of approval related to stormwater drainage and infrastructure include grading plans. Grading plans must be submitted and reviewed by the County in support of permit applications and be consistent with the design standards described in the Grading, Erosion and Sediment Control Chapter of the Design and Improvement Standards Manual. To minimize the environmental effects of construction in the hillside environment in El Dorado County, the *Design and Improvement Standards Manual* standardizes development practices (El Dorado County 1990). Volume II of the manual includes drainage and design criteria for stormwater, while Volume III of the manual provides guidance on how to implement the erosion and sediment control standards in Chapter 15.14 of the El Dorado County Code of Ordinances.

Western El Dorado County Storm Water Management Plan

The Western El Dorado County SWMP describes a program to reduce the discharge of pollutants associated with the stormwater drainage systems that serve Western El Dorado County. It identifies how the County will comply with the provisions of the NPDES MS4 permit proposed by the State Water Board. The Western El Dorado County SWMP addresses its responsibilities for implementing the applicable stormwater management practices as well as training, public education and outreach, monitoring, program evaluation, and reporting activities. The SWMP requires full compliance with

El Dorado County's Grading, Erosion and Sediment Control Ordinance, El Dorado County Design and Improvement Standards Manual, and the El Dorado County Drainage Manual. The Drainage Manual focuses on drainage priorities in the County and provides criteria to address procedures for the analysis and design of drainage facilities within the County. A site-specific Storm Water Mitigation Report documenting permanent stormwater quality mitigation measures must be developed during the planning and design stage of a proposed construction project (El Dorado County 2004a).

The SWMP also includes the Construction Site Runoff Control Program, which includes practices to protect water quality and control runoff from all development or redevelopment projects greater than or equal to 1 acre. The Construction Site Runoff Control Program describes typical construction site practices expected to be implemented for common construction activities, as well as the minimum construction site practices required to protect water quality. The minimum practices include scheduling, preservation of existing vegetation, stockpile management, non-stormwater management, and disturbed soil area management as well as the construction, implementation, and long-term operation and maintenance of BMPs.

County of El Dorado General Plan

The General Plan guides development and use of land within the County. Several goals and policies of the General Plan apply directly and broadly to hydrology and water quality. The El Dorado County Board of Supervisors adopted a new General Plan for the County on July 19, 2004 (El Dorado County 2004b). Goals, objectives, and policies within the Conservation and Open Space Element and Public Health, Safety, and Noise Element of the County's General Plan relevant to the Project are related to erosion and sedimentation, grading, drainage patterns, water quality and quantity, and flood hazards.

3.8.1.2 Environmental Setting

Climate

The Project site is characterized by warm, dry summers and cool, moist winters. The approximate annualized average high temperature in the vicinity of the Project site is 70.5° F; the average low is 49.5° F. The mean annual precipitation is approximately 37.41–40.77 inches, with average of 4.2–6.6 inches as snowfall, with most of the rainfall occurring from November through March (Western Regional Climate Center 2016).

Surface Water Hydrology

The Project site is located within the South Fork American watershed (hydrologic unit code 18020129) (U.S. Geological Survey 2015). The primary waterway in the delineation area is the South Fork American River, a traditional navigable water. South Fork American River flows under the existing Mosquito Road Bridge. An intermittent stream on the Placerville side of the river drains to House Creek, which is tributary to the South Fork American River just north of the Project area (ICF International 2016). A small unnamed canal flows on the southeast portion of the Project study area and Finnon Reservoir is approximately 1.5 miles north of the Project site.

Runoff and Drainage Patterns

The general topography of the Project area is characterized by moderate slopes changing to very steep slopes on both sides of the South Fork American River, with elevations ranging from

approximately 1300 to 1750 feet above mean sea level. Runoff from the existing road and bridge may flow into the South Fork American River. The area around the Project site is densely vegetated. Land in the surrounding area are primarily rural and open space, where stormwater and precipitation can infiltrate and underlying bedrock is well drained (ICF International 2016).

Groundwater

Because the Project is located high on steeply sloped areas with bedrock essentially at the surface, the Project area is not located within a recognized groundwater basin. Groundwater is expected to occur deep below the surface within fractured bedrock. The site contains six soil types, five which include bedrock or rocky sandy loam and one of which is an area of water (ICF International 2016). The closest recognized groundwater basin, the South American Subbasin of the larger Sacramento Valley groundwater basin (California Department of Water Resources Basin Number 5-21.65), lies approximately 25 miles west of the Project area. The subbasin is bound 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. Recharge in the area occurs through infiltration into mountain streambeds and bedrock and through infiltration of precipitation.

Water Quality

Water quality in a typical surface waterbody is influenced by past and current land uses that take place within the watershed and by the composition of local geologic materials. The Project area is within a relatively undeveloped area, and water quality is affected primarily by discharges from both point and nonpoint sources. Point and nonpoint sources include winter storms, overland flow, exposed soil, and roads.

Water quality in surface and groundwater bodies is regulated by the State Water Board and RWQCBs. The Project site is under the jurisdiction of the Central Valley RWQCB, which is responsible for implementation of State and federal water quality protection statutes, regulations, and policies in the vicinity of the Project site. The Central Valley RWQCB implements the Basin Plan for the Sacramento and San Joaquin River Basins, a master policy document for managing water quality in the region (Central Valley Regional Water Quality Control Board 2016). The Basin Plan specifies the beneficial uses that apply to the Project area. Once beneficial uses are designated, appropriate water quality objectives can be established, and programs that maintain or enhance water quality can be implemented to ensure the protection of beneficial uses.

The Basin Plan describes the beneficial uses of the South Fork American River (Placerville to Folsom Lake) as providing the beneficial uses of municipal and domestic supply, irrigation supply, hydropower generation, water contact and non-contact recreation, warm and cold freshwater habitat, and wildlife habitat. The South Fork American River (below Slab Creek Reservoir to Folsom Lake) is on the Clean Water Act 303(d) list as impaired for mercury. The 303(d) listed impairments are based on the *2010 California Integrated Report* (State Water Resources Control Board 2015).

Flooding

The majority of the Project site is within FEMA Zone X (unshaded), an area of minimal flood hazard above the 500-year flood level. However, the South Fork American River and areas immediately adjacent to the river are within the FEMA 100-year floodplain (Zone A) and subject to river flooding (FIRM Panels 06017C0500E and 06017C0525E; FEMA 2008a, 2008b). No depths or base flood elevations are known within these zones. Areas within the 100-year flood-hazard area are subject to

a 100-year flood, which means that, in any given year, the risk of flooding in the designated area is 1 percent.

3.8.2 Environmental Impacts

This section describes the impact analysis related to hydrology and water quality for the Project. It describes the methods used to determine the impacts of the Project and lists the thresholds used to conclude whether an impact would be significant. Measures to mitigate (i.e., avoid, minimize, rectify, reduce, eliminate, or compensate for) significant impacts accompany each impact discussion.

3.8.2.1 Methods of Analysis

All Project elements were analyzed by comparing baseline conditions, as described in Section 3.8.1.2, *Environmental Setting*, to conditions during construction and/or operation of the Project. Analysis focused on issues related to surface hydrology, flood hazards, groundwater supply, and surface and groundwater quality. The key construction-related impacts were identified and evaluated qualitatively based on the physical characteristics of the Project site and the magnitude, intensity, location, and duration of activities.

Surface Water Hydrology: The surface water hydrology impact analysis considered potential changes in the physical characteristics of waterbodies, impervious surfaces, and drainage patterns throughout the Project area as a result of Project implementation.

Groundwater Hydrology: Impacts on groundwater supply and recharge were assessed by comparing groundwater use, as well as recharge capabilities with the Project. Recharge is determined by the ability of water to infiltrate into the soil.

Water Quality: Impacts of the Project on surface water and groundwater quality were analyzed by comparing existing water quality conditions and potential Project water quality conditions. Potential Project-related sources of water contaminants inadvertently released during Project construction or generated by industrial and Project operation activities, such as vehicle use, bridge maintenance, pesticide use, trash, and storage of hazardous materials may be considered. The potential for water quality objectives to be exceeded and beneficial uses to be compromised are also considered.

Flooding: The impact analysis for current flood risk was conducted using FEMA data and historical flood information to determine the existing flood zone and whether the Project site overlaps with current designated 100-year floodplains, results in impacts on the drainage system, or has the potential to be a flood risk.

3.8.2.2 Thresholds of Significance

The Project would be considered to have a significant effect if it would result in any of the conditions listed below.

- Violate any water quality standards or waste discharge requirements.
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a

level that would not support existing land uses or planned uses for which permits have been granted).

- 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 of siltation on- or off-site.
- 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 on- or off-site.
- 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 FIRM or other authoritative 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.
- Expose people or structures to a significant risk of loss, injury, or death involving inundation by seiche, tsunami, or mudflow.

3.8.2.3 Impacts and Mitigation Measures

This section analyzes potential hydrology and water quality impacts that could result from implementation of the proposed Project. Mitigation measures are provided, where appropriate and feasible.

Impact WQ-1: Potential to violate any water quality standards or waste discharge requirements (less than significant)

Construction Impacts. Implementation of the Project would include construction activities, such as asphalt demolition, excavation, rock drilling, grading, paving, and landscaping. Two large construction staging areas would be used to store equipment and materials. These land-disturbing activities and placement of stockpiles within proximity to drainage culverts or nearby surface waters may result in a temporary increase in sediment loads and pollutants to the South Fork American River, and can be transported to downstream locations and degrade water quality.

The delivery, handling, and storage of construction materials and wastes (e.g., concrete debris), and the use of heavy construction equipment, could also result in stormwater contamination, affecting water quality. Construction activities may involve the use of chemicals and operation of heavy equipment that could result in accidental spills of hazardous materials (e.g., fuel and oil) during construction activities that could enter the groundwater aquifer or nearby surface waterbodies via runoff or storm drains. Constituents in fuel, lubricating oil, and grease can be acutely toxic to aquatic organisms and/or bioaccumulate in the environment. Staging areas or construction sites can be sources of pollution because of the use of paints, solvents, cleaning agents, and metals during construction.

Operation Impacts. Operation and maintenance activities of the Project would be similar to existing operation and maintenance activities, including landscape maintenance, bridge maintenance, and vehicle use. Leaks of fuel or lubricants, tire wear, and fallout from exhaust and runoff from impervious surfaces could contain nonpoint pollution sources typically associated with automobiles. Heavy metals, oil, grease, and polycyclic aromatic hydrocarbons are common pollutants in road runoff, and roadside landscaping can introduce pesticides and fertilizers. Runoff from vehicles on bridges or sediment can be discharged into streams during rain events and through normal usage and aging. Roadside ditches would be constructed to convey stormwater from the roadway. Implementation of the Project would not result in an increase in vehicle use, and therefore the amount and types of pollutants associated with vehicle and road use would not increase compared to existing conditions. Impacts would be minimized through implementation of BMPs and other measures specified in the Construction General Permit SWPPP, the 401 Water Quality Certification, and the Section 404 Permit. The Project would also be in compliance with Caltrans MS4 requirements. The impact would be less than significant, and no mitigation is required.

Impact WQ-2: Potential to 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 (no impact)

The Project area is not located in a recognized groundwater basin. Groundwater is expected to occur deep below the surface within fractured bedrock. In addition, temporary dewatering would not be required. Water supply for construction activities (e.g., dust control, grading activities, and concrete mixing) would likely come from existing surface supplies to the site, or would be trucked to the site. Groundwater recharge in the area occurs through infiltration into mountain streambeds and bedrock and through infiltration of precipitation. There would be no impact and no mitigation is required.

Impact WQ-3: Potential to substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on-site or off-site (less than significant)

The proposed bridge would be likely be constructed using segmental construction or concrete arch methods. These methods would eliminate the need for work in the South Fork American River and the need to divert river flows. Project construction activities would temporarily alter existing drainage patterns and could result in local (on-site) and temporary erosion and siltation during construction or the removal or modification of drainage culverts.

Excavation and the exposure of shallow soils related to grading could result in erosion and sedimentation. For roadway approaches, cut and fill slopes would be constructed on 2:1 (horizontal:vertical) conditions and seeded with native seed mixes to protect against erosion. Standard BMPs to ensure erosion and sedimentation control during construction would also be undertaken as part of the Project, such as a SWPPP that the construction contractor would be required to prepare and implement. Preparation and implementation of the Grading Plan, compliance with the Grading, Erosion and Sediment Control Ordinance and the SWPPP would reduce the potential for substantial erosion or siltation on-site or off-site or alteration of existing drainage patterns that would result in substantial erosion or siltation on-site or off-site. The impact would be less than significant, and no mitigation is required.

Impact WQ-4: Potential to 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 on-site or off-site (less than significant)

Construction would occur well above the river elevation and outside of the channel, and would not substantially alter the existing drainage pattern of the site or area or alter the course of the river. Implementation of the Project would involve the construction of new impervious surfaces, including roadways on predominantly undeveloped land. The accumulation of sediment could result in the blockage of flows, potentially causing increased localized ponding or flooding. Although drainage patterns may be temporarily altered, the proposed Project would not increase stormwater runoff that would exceed the capacity of existing or planned stormwater drainage systems or result in on-site or off-site flooding. The pre- and post-development peak flows of the 10-year and 100-year storms would comply with the guidelines and procedures of the El Dorado County Drainage Manual.

Preparation and implementation of the Grading Plan, compliance with the Grading, Erosion and Sediment Control Ordinance, NPDES Construction General Permit, and the SWPPP would reduce the potential for flooding on-site or off-site as a result of altering existing drainage patterns, or substantially increasing the rate or amount of runoff that would result in substantial flooding on-site or off-site. The impact would be less than significant, and no mitigation is required.

Impact WQ-5: Creation or contribution of runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff (less than significant)

Roadside ditches would be constructed to convey stormwater from the roadway. Drainage culverts may be necessary to facilitate roadway drainage from one side of the road to the other. Drainage system outfalls would likely involve light rock slope protection to dissipate stormwater flow.

The Project would be designed to prevent potential additional runoff from the Project being discharged to the storm drain system and therefore would not create or contribute runoff water that would exceed the capacity of the existing stormwater drainage systems. Some roadway approaches would be seeded with native seed mixes to protect against erosion, and allow stormwater drainage and infiltration from surface runoff. The final design would be required to meet several criteria, including the 100-year flood criteria, to ensure adequate storm drain capacity for the Project and would comply with the guidelines and procedures of the El Dorado County Drainage Manual. The impact would be less than significant, and no mitigation is required.

Impact WQ-6: Potential to otherwise substantially degrade water quality (less than significant)

In contrast to Impact WQ-1, which discusses impacts involving violations of water quality objectives and standards, this impact addresses other water quality impacts, such as those that can result from wetland dredge and fill. Construction activities that require work within waters of the United States/State and navigable waters trigger compliance with USACE jurisdiction under Section 404 of the CWA, Section 10 of the River and Harbor Act, and Central Valley RWQCB jurisdiction under CWA Section 401. The Project would not otherwise degrade water quality and the impact would be less than significant. No mitigation is required.

Impact WQ-7: Placement of 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 (no impact)

The Project does not include a housing component. As such, implementation of the Project would not place housing within a 100-year flood-hazard area. There would be no impact related to placing housing within a 100-year flood-hazard area.

Impact WQ-8: Placement within a 100-year flood-hazard area of structures that would impede or redirect floodflows (less than significant)

The method of bridge construction limits the number of supports and does not result in supports in the floodplain of the South Fork American River, or supports in the water. Therefore, new structures would not be placed within a 100-year flood-hazard area that may impede or redirect flood flows. The impact would be less than significant, and no mitigation is required.

Impact WQ-9: Exposure of 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 (less than significant)

The Project is within a special flood-hazard area, Flood Zone A, which is a 100-year floodplain that is subject to river flooding. However, no structures would be placed within a 100-year flood-hazard area and the proposed bridge would be elevated approximately 400 feet above the South Fork American River Canyon, which is approximately 1,730 feet above sea level. There are no major reservoirs or levees located upstream of the Project site. Because there are no major reservoirs or levees located upstream of the Project site, there would be no exposure of people or structures to flood impacts as a result of dam or levee failure and the Project would not expose people or structures to a significant risk of loss, injury, or death involving flooding and the impact would be less than significant. No mitigation is required.

Impact WQ-10: Contribution to inundation by seiche, tsunami, or mudflow (no impact)

Elevations at the Project site range from approximately 1,280 feet above sea level at the river level to approximately 1,730 feet at the proposed Project's roadway tie-in locations. The Project site is approximately 127 miles east of the Pacific Ocean and the nearest lake (Finnon Reservoir) is located approximately 1.5 miles north of the Project site. As a result, the proposed Project would not expose people or structures to a substantial risk of inundation by seiche, tsunami, and/or mudflow and there would be no impact.

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3.9 Land Use Planning and Agricultural Resources

This section describes the regulatory and environmental setting and identifies potential impacts on land use planning and agricultural resources.

3.9.1 Existing Conditions

3.9.1.1 Regulatory Setting

State

Farmland Mapping and Monitoring Program

The Farmland Mapping and Monitoring Program (FMMP) is a non-regulatory program of the California Department of Conservation (DOC) that inventories the state's important farmlands and tracks the conversion of farmland to other land uses. The FMMP publishes reports of mapped farmland and conversions every 2 years. The FMMP categorizes farmland on the basis of its soil quality, the availability of irrigation water, current use, and slope, among other criteria. The categories of farmland identified in the FMMP are listed below.

- **Prime Farmland.** Farmland with the best combination of physical and chemical features able to sustain long-term agricultural production. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Land must have been used for irrigated agricultural production at some time during the 4 years prior to the mapping date.
- **Farmland of Statewide Importance.** Farmland similar to Prime Farmland but with minor shortcomings, such as greater slopes or less ability to store soil moisture. Land must have been used for irrigated agricultural production at some time during the 4 years prior to the mapping date.
- **Unique Farmland.** Farmland of lesser quality soils used for the production of the state's leading agricultural crops. This land is usually irrigated, but may include nonirrigated orchards or vineyards as found in some climatic zones in California. Land must have been cropped at some time during the 4 years prior to the mapping date.
- **Farmland of Local Importance.** Land of importance to the local agricultural economy as determined by each county's board of supervisors and a local advisory committee.
- **Grazing Land.** Land on which the existing vegetation is suited to the grazing of livestock. This category was developed in cooperation with the California Cattlemen's Association, University of California Cooperative Extension, and other groups interested in the extent of grazing activities.

The FMMP also identifies nonagricultural lands.

- **Urban and Built-Up Land.** Land occupied by structures with a building density of at least 1 unit to 1.5 acres, or approximately 6 structures to a 10-acre parcel. Common examples include residential, industrial, commercial, institutional facilities, cemeteries, airports, golf courses, sanitary landfills, sewage treatment, and water control structures.

- **Other Land.** Land not included in any other mapping category. Common examples include low-density rural developments, brush, timber, wetland, and riparian areas not suitable for livestock grazing, confined livestock, poultry, or aquaculture facilities, strip mines, borrow pits, and water bodies smaller than 40 acres. Vacant and nonagricultural land surrounded on all sides by urban development and greater than 40 acres is mapped as Other Land.

FMMP data is helpful in analyzing whether agricultural conversion is occurring within the county, and at what rate.

California Land Conservation Act of 1965 (Williamson Act) and Farmland Security Zone Act

The California Land Conservation Act of 1965 (Government Code § 51200 et seq.), also known as the Williamson Act, protects farmland from conversion to other uses by offering owners of agricultural land a property tax incentive to maintain their land in agricultural use. Under the Williamson Act, landowners contract with the county (or city) in which their property is located, promising to maintain the land in agriculture or a compatible use for a minimum period of 10 years. In return, the property tax on the land is based on its productive value rather than its assessed value.

Two types of agricultural land are recognized under the Williamson Act: Prime and Nonprime. Determination is made on the basis of soil quality. Neither Prime nor Nonprime land is prioritized for protection (California Department of Conservation 2015).

California Timberland Productivity Act of 1982

The California Timberland Productivity Act of 1982 (Government Code § 51100 et seq.) was enacted to help preserve forest resources. Similar to the Williamson Act, this program gives landowners tax incentives to keep their land in timber production. Contracts involving Timber Production Zones are on 10-year cycles.

Local

El Dorado County General Plan

On July 19, 2004, the El Dorado County Board of Supervisors adopted a new General Plan for the County, which serves as the basic planning document and is the vehicle through which the County addresses and balances the competing needs and interests of its residents.

The Land Use Element was amended in July of 2015, which establishes a land use development pattern that makes the most efficient and feasible use of existing infrastructure and public services, provides guidelines for new and existing development that promotes a sense of community, defines those characteristics which make the county rural and provides strategies for preserving these characteristics, as well as providing opportunities for positive economic growth, greater capture of tourism, increased retail sales, and high technology industries.

The Conservation and Open Space Element, last amended in December of 2015, must conserve and improve the 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 federally classified wilderness areas; and preserve resources of significant biological, ecological, historical or cultural importance.

The importance of agriculture and forestry to the county is reflected in the County General Plan's Agriculture and Forestry Element, last amended in December of 2015. Through this element, the County has adopted extensive policies relating to the conservation, management, and utilization of the county's agricultural and forest lands "as fundamental components of the County's rural character and way of life."

El Dorado County Zoning Ordinance

While the General Plan establishes policies to guide the County's land use decisionmaking, the Zoning Ordinance consists of enforceable regulations on the use of county land. The unincorporated area is broken into various residential, commercial, industrial, agricultural, and other "zones," and the Zoning Ordinance describes the standards and regulations applicable to each particular zone. Zoning maps illustrate how the zoning districts are distributed throughout the county.

3.9.1.2 Environmental Setting

The study area for land use and planning and agricultural resources is the area within a 0.5-mile radius of the proposed replacement bridge (Figure 3.9-1).

Existing General Plan Land Use Designations and Zoning on the Project Site

The proposed Project site is located within the central part of El Dorado County, in an unincorporated area approximately 3 miles to the northeast of Placerville's city boundary. Land uses surrounding the Project site include rural and open space. The area around the Project site is densely vegetated. Very few sensitive receptors (e.g., residential land uses) are within the immediate vicinity of the Project site. Land adjacent to Mosquito Road is zoned Residential Agriculture 20-acre or Unclassified, Timberland Preserve Zone with a land use designation of Natural Resources 1 dwelling unit/40 acre. There are no designated Mineral Resource Zones in the study area.

The zoning designations of lands in the study area are described in Table 3.9-1 and shown on Figure 3.9-2.

Table 3.9-1. Zoning Designations in the Study Area

Zoning Designation	Uses Permitted by Right
RA-20 (Residential Agricultural 20-acre) ^{a,b}	One single-family detached dwelling; agricultural uses, such as raising and grazing of livestock, growing of crops; unlit signage
Unclassified ^{a,b}	One single-family detached dwelling; agricultural uses; unlit signage
Timberland Preserve Zone ^b	Growing and harvesting of forest products; maintenance and repair facilities for equipment used in the management and harvesting of timber; noncommercial recreation uses; raising and grazing of livestock; signage
Estate Residential 10-acre	One single-family detached dwelling; barns, agricultural structures, etc.; packing and processing of agricultural products; real estate sales office
Exclusive Agricultural	One single-family detached dwelling; raising and grazing of livestock; growing of trees, fruits, vegetables, flowers, grains and other crops; barns, corrals and other outbuildings; wineries and wine tasting facilities

Source: ICF International 2016.

^a Permanent Project improvements would occur on sites with this zoning designation.

^b Temporary construction disturbance would occur on sites with this zoning designation.

The study area contains large parcels, many of which are undeveloped or have only a small portion developed. Table 3.9-2 shows the parcels within the study area that contain development of some type, most of which have single-family dwelling units and accessory uses, such as small plots for agricultural production. All other properties are undeveloped. Access to each developed parcel is provided either directly from Mosquito Road or via private roadways between property lines. Figure 3.9-3 shows land uses in the study area.

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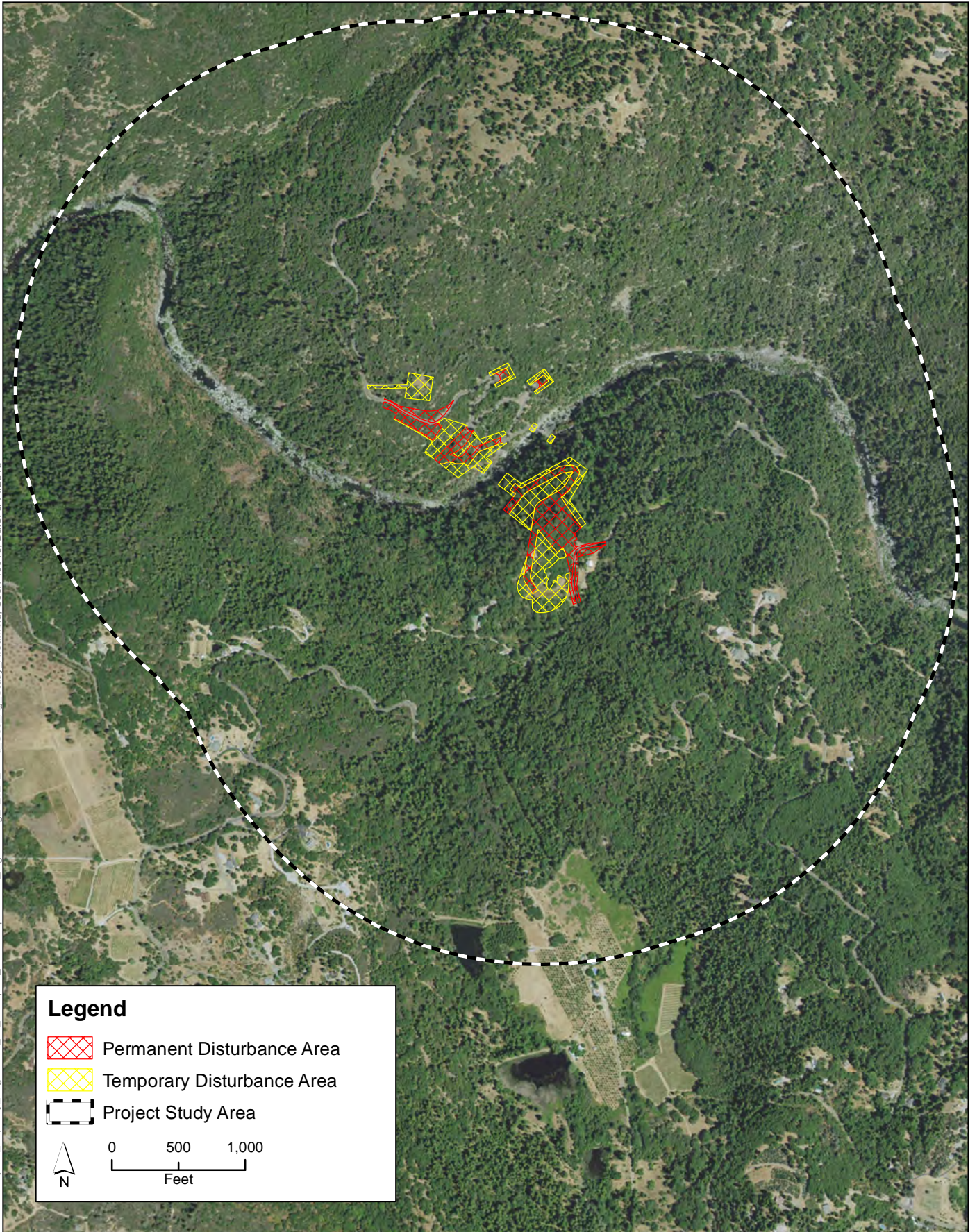
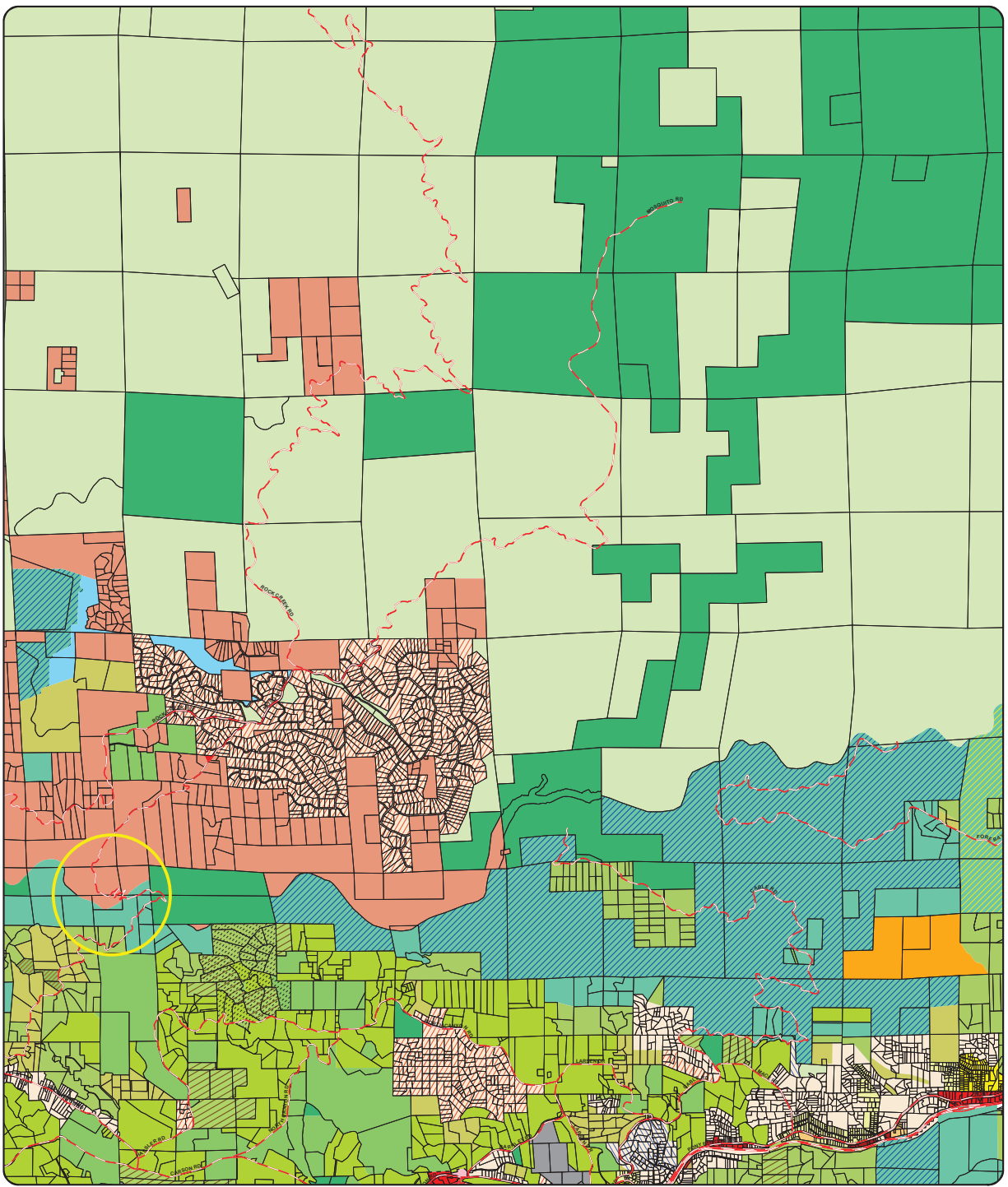


Figure 3.9-1
Land Use and Agriculture Study Area



LEGEND					
Agricultural	Planned Commercial	Residential	Residential Agricultural 80-acre	Unclassified	Tahoe Limited Multifamily Residential
Select Agricultural	Commercial	One-Half Acre Residential	Residential Agricultural 160-acre	Marble Valley - Tentative Map	Tahoe Tourist Residential
Planned Agricultural	General Commercial	One-Acre Residential	Airport Approach	Carson Creek Specific Plan	Tahoe Transportation Corridor
Planned Agricultural - 20 ac.	Research & Development	Single-Family Two-Acre	Open Space	Promontory Specific Plan	Mayers Community Plan - 1
Planned Agricultural - 30 ac.	Industrial	Single-Family Three-Acre	Mineral Resource	Valley View Specific Plan	Mayers Community Plan - 2
Planned Agricultural - 40 ac.	Tourist Residential	Estate Residential Five-Acre	Planned Development	Tahoe Agricultural	Mayers Community Plan - 3
Exclusive Agricultural	Limited Multifamily Residential	Estate Residential Ten-Acre	Public Facilities	Tahoe Planned Commercial	Mayers Community Plan - 4
Agricultural Preserve	Multifamily Residential	Residential Agricultural 20-acre	Recreational Facilities	Tahoe Residential	Mayers Community Plan - 5
Timberland Preserve Zone	Mobliahme Park	Residential Agricultural 40-acre	Transportation Corridor	Tahoe One-Family Residential	City of Placerville
Professional Office Commercial	One-Family Residential			City of South Lake Tahoe	Planned Development
					Design Control
					Airport Approach
					Historic Design
					Setback Design
					Parcel Boundaries
					Major Roads
					Airport Safety Zones

Study Area

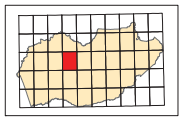
NOTES:

The zoning represented in this map series is a compilation of Area Plan Zoning Maps and the 1987 Zoning Map. This document was compiled from many sources - public and private - the accuracy of which was not verified by the County of El Dorado. The County does not warrant, endorse or imply the accuracy or quality of information contained in this document. Users bear sole responsibility for the information at their own risk, and are encouraged to verify any information contained or depicted in this document.

Land use data is developed and maintained by the El Dorado County Planning Department - GIS Division. This map uses a modified version of the parcel base referred to below. Parcel boundaries and road data were developed and maintained by the El Dorado County Surveyor's Office - GIS Division. The airport safety zones are shown for informational purposes only. For precise airport safety zone boundary locations, see large scale map maintained by the Hearing Department. Map accuracy: 01/02/2008



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SLATE MOUNTAIN

**Figure 3.9-2
Zoning Designations in the Study Area**

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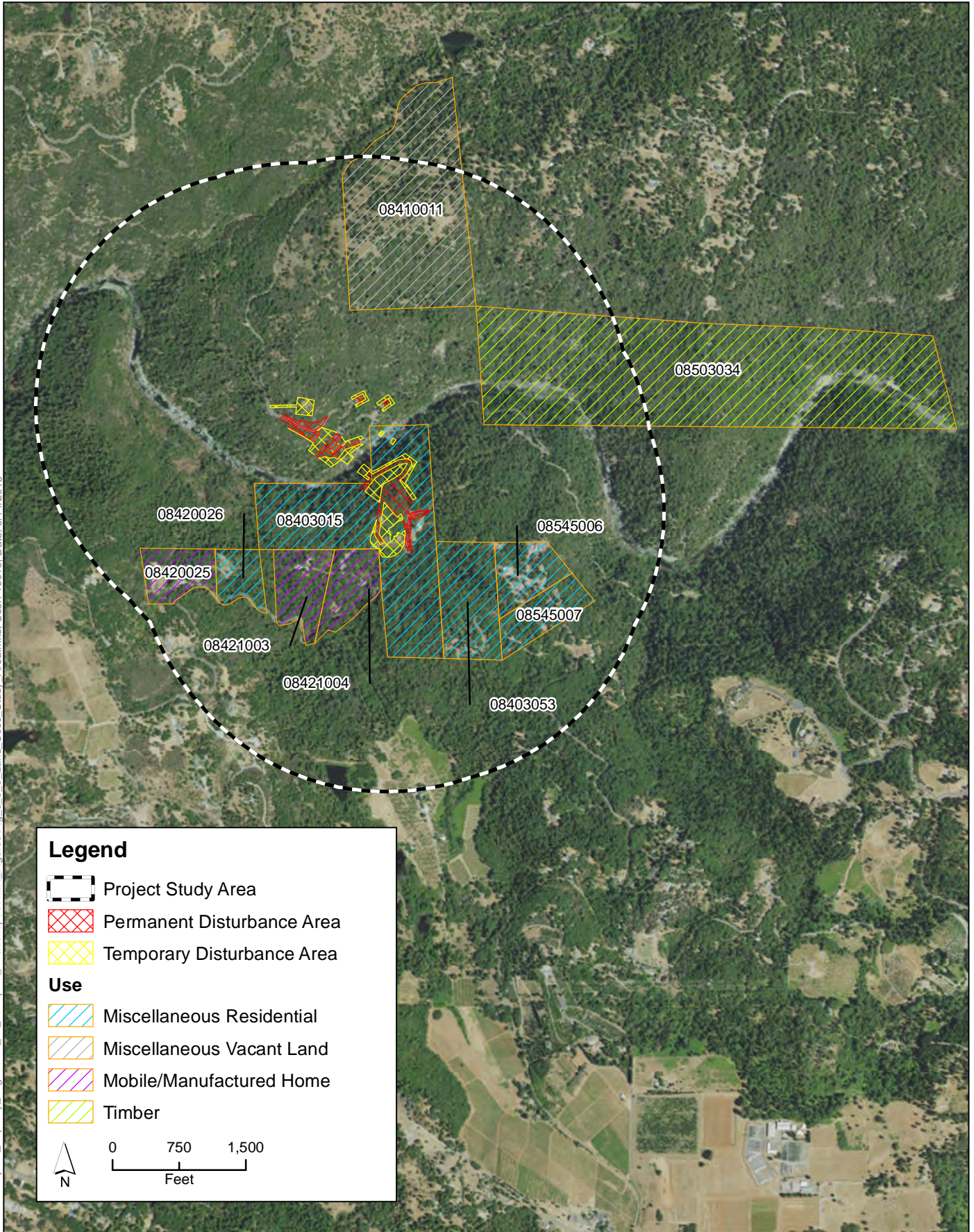


Figure 3.9-3
Land Uses in the Study Area

Table 3.9-2. Existing Land Uses in the Study Area

APN	Address	Identified Assessor Use
0842002510	8300 Mosquito Rd.	Mobile/Manufactured Home; agricultural uses also noted on site
0842002610	8280 Mosquito Rd.	Miscellaneous Residential; agricultural uses also noted on site
0842100310	8200 Mosquito Rd.	Mobile/Manufactured Home
0842100410	8140 Mosquito Rd.	Mobile/Manufactured Home
0840301510	8061 Mosquito Rd.	Miscellaneous Residential; site includes a single dwelling unit, accessory buildings, and stored vehicles
0850303410	No Address	Timber; no structures present
0840305310	3045 Greenbrook Dr.	Miscellaneous Residential; site includes a dwelling unit and an additional structure
0854500610	3100 Greenbrook Dr.	Miscellaneous Residential; site contains four structures
0854500710	3070 Greenbrook Dr.	Miscellaneous Residential; site has a single dwelling unit
0841001110	7285 Mosquito Rd.	Miscellaneous Vacant Land; site contains dwelling unit and agricultural uses

Source: ICF International 2016

Farmlands/Timberlands

In 2012, the County contained approximately 1,358 farms. These farmlands totaled 128,365 acres, resulting in an average of 95 acres per farm. For the same year, the top crop items were grapes, cut Christmas trees, and apples. Crop sales totaled \$24.34 million, with the average farm yielding \$22,465 (ICF International 2016).

In 2013, the County contained 2,272 acres of Prime Farmland and 31,651 acres of Nonprime Farmland under the Williamson/Land Conservation Act. Additionally, 5 acres of prime, non-urban farmland and 180 acres of nonprime, non-urban farmland were protected as a Farmland Security Zone(s). According to maps provided by the DOC, no farmland under Williamson Act contract is present within the Project study area (California Department of Conservation 2015).

The DOC FMMP produces maps and statistical data used for analyzing impacts on California's agricultural resources. Within the Project study area, although no lands under Williamson Act contract are present, three important farmland category types are classified:

- *Grazing Land (G)*—Land on which the existing vegetation is suited to the grazing of livestock.
- *Farmland of Local Importance (L)*—Land of importance to the local agricultural economy as determined by each county's board of supervisors and a local advisory committee.
- *Other Land (X)*—Land not included in any other mapping category. Common examples include low-density rural developments; brush, timber, wetland, and riparian areas not suitable for livestock grazing; confined livestock, poultry or aquaculture facilities; strip mines, borrow pits; and water bodies smaller than 40 acres. Vacant and nonagricultural land surrounded on all sides by urban development and greater than 40 acres is mapped as Other Land as well.

Farmlands mapped as part of the FMMP in in the Project study area are shown in Figure 3.9-4. Within the Project study area, a portion of lands east of the proposed Project alignment are mapped on the El Dorado County Zoning Map as Timberland Preserve Zones.

3.9.2 Environmental Impacts

3.9.2.1 Methods of Analysis

Land use analysis was based on research, including review of relevant planning documents and available information regarding existing and planned land uses on the Project site and in the vicinity. Information on agricultural and timber resources was obtained from the FMMP and from review of County General Plan and zoning designations, and review of the Project vicinity using aerial photographs.

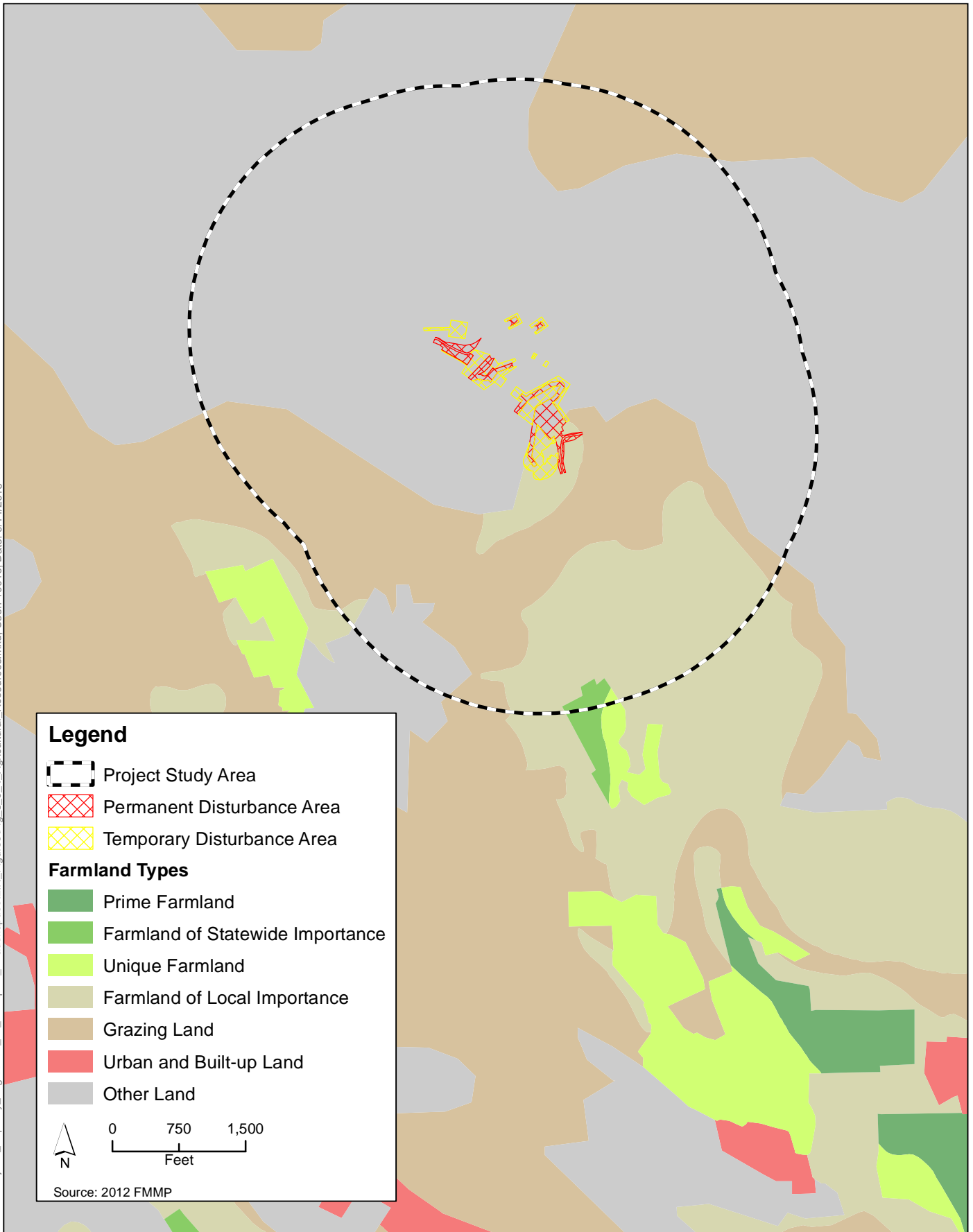
The study area for land use and planning and agricultural resources is the area within a 0.5-mile radius of the proposed replacement bridge. The study area is intended to encompass an area in which the potential land use impacts, if any, from construction and operation of the proposed Project would be reasonably foreseeable.

3.9.2.2 Thresholds of Significance

In accordance with Appendix G of the State CEQA Guidelines, the proposed Project would be considered to have a significant effect if it would result in any of the conditions listed below.

- 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, a 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 habitat conservation plan or natural community conservation plan
- Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, 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 conflict with a Williamson Act contract
- Conflict with existing zoning for, or cause rezoning of, forest land (as defined in PRC § 12220[g]), timberland (as defined by PRC § 4526), or timberland zoned Timberland Production (as defined by Government Code § 51104[g]).
- Result in the loss of forest land or conversion of forest land to non-forest use.
- Involve other changes in the existing environment that, due to their location or nature, could result in conversion of Farmland to nonagricultural use or conversion of forest land to non-forest use.

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**Figure 3.9-4
Agricultural Resources in the Study Area**

3.9.2.3 Impacts and Mitigation Measures

Impact LU-1: Physical division of an established community (no impact)

The Project site is in central El Dorado County, between the city of Placerville to the southwest and the Mosquito/Swansboro area to the northeast. The Project study area is composed primarily of large parcels, some of which have low-density single-family residential development in a rural setting; there are no community facilities in the Project study area.

Implementation of the proposed Project would change the alignment of Mosquito Road near the point at which it crosses the South Fork American River, and would involve the conversion of private land not currently used for transportation purposes to transportation right-of-way, which would require easements. Temporary easements would be obtained for construction staging and possibly for access roads for bridge abutments and supports and permanent easements may be needed for future maintenance of the bridge abutments and supports. With the exception of the conversion of land to transportation uses and the use of land for construction staging, no change in land use or underlying zoning designations that could affect communities within the study area would occur as a result of Project implementation.

Because the proposed Project would involve the realignment of Mosquito Road to bypass the one hairpin turn on the Placerville side of the canyon and the four hairpin turns on the Mosquito/Swansboro side of the canyon, the bypassed portion of Mosquito Road would no longer be publicly accessible by automobile. However, access to properties currently reached via the portion of Mosquito Road that would be bypassed as a result of Project implementation would be maintained.

The proposed Project would not result in a physical division of an established community and would improve the safety and efficiency of the roadway between these communities. There would be no impact. No mitigation is required.

Impact LU-2: Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project adopted for the purpose of avoiding or mitigating an environmental effect (no impact)

Implementation of the proposed Project would change the alignment of Mosquito Road near the point at which it crosses the South Fork American River, and would involve the conversion of private land not currently used for transportation purposes to transportation right-of-way, which would require easements. Temporary easements would be obtained for construction staging and possibly for access roads for bridge abutments and supports, and permanent easements may be needed for future maintenance of the bridge abutments and supports. With the exception of the conversion of land to transportation uses and the use of land for construction purposes, no change in land use or underlying zoning designations within the study area would occur as a result of Project implementation. The Project's consistency with regulations related to other resource topics is included in the corresponding resource topic sections of this document.

The proposed Project is consistent with policies adopted for the purposes of avoiding or minimizing impacts on environmental resources. There would be no policy impact and no mitigation is required.

Impact LU-3: Conflict with any applicable habitat conservation plan or natural community conservation plan (no impact)

No habitat conservation plan or natural community conservation plan covers the Project site. There would be no impact. No mitigation is required.

Impact LU-4: Conversion of Important Farmland to nonagricultural use (less than significant)

Proposed Project improvements requiring temporary construction disturbance, temporary easements, and permanent easements would affect lands in the Project area that are mapped as both Grazing Land (G) and Farmland of Local Importance (L) by the DOC FMMP (Figure 3.9-4).

The proposed Project would require approximately 318,000 square feet in permanent easements for the realigned roadway segment, crossings structure, and access roads. An estimated 160 feet of roadway approaching the bridge structure, beginning at the southeast terminus and extending northwest toward the river crossing, would require the acquisition of up to 36,000 square feet (0.83 acre) of Farmland of Local Importance for permanent easements. This represents less than 0.001 percent of farmland in the County. No portion of the area designated as Farmland of Local Importance by the state is currently used as farmland, and much of it is on sloped land that would make agricultural activities difficult.

The County is required to submit notification to the DOC to notify public acquisition of Important Farmland. The notification would include the acreage (0.83 acre) and type of farmland (nonprime), as well as a description of why the land acquisition is necessary for public improvement.

This impact would be less than significant. No mitigation is required.

Impact LU-5: Conflict with existing zoning for agricultural use or conflict with a Williamson Act contract (less than significant)

There are no farmlands under Williamson Act contract present within the Project area. The proposed Project would not require the temporary or permanent acquisition of land designated by the County as Timberland Preserve Zones. Thus, the proposed Project would not conflict with the Timberland Productivity Act or other forest land protections.

The impact would be less than significant. No mitigation is required.

Impact LU-6: Other changes in the existing environment that, due to their location or nature, could result in conversion of farmland to nonagricultural use (less than significant)

The temporary easements required on the Grazing Lands (see Impact LU-4) would not result in conversion of farmland to nonagricultural use. There would be no other changes associated with the proposed Project that would result in conversion of farmland to nonagricultural use. The impact would be less than significant. No mitigation is required.

3.9.3 References

California Department of Conservation. 2015. County Data: El Dorado, Farmland Mapping & Monitoring Program. 2015. Available: <http://www.conservation.ca.gov/dlrp/fmmp/Pages/county_info.aspx>. Accessed on October 15, 2015.

California Department of Conservation. 2016. Land Conservation (Williamson) Act Program Overview: History, Objectives, and Program Structure. Available: http://www.conservation.ca.gov/dlrp/lca/basic_contract_provisions. Accessed: June 25, 2016, 2015.

El Dorado County. 2004. *El Dorado County General Plan*. July.

ICF International. 2016. *Community Impact Assessment, Mosquito Road Bridge Replacement Project*. April.

3.10 Noise and Vibration

This section describes the regulatory and environmental setting for noise in El Dorado County as it pertains to the Project. It also describes the noise impacts that would result from implementation of the Project and provides mitigation for significant impacts.

3.10.1 Noise and Vibration Terminology

3.10.1.1 Noise

Noise is commonly defined as unwanted sound that annoys or disturbs people and potentially causes an adverse psychological or physiological effect on human health. Because noise can interfere with human activities, evaluation of noise is necessary when considering the environmental impacts of a proposed project.

Sound is mechanical energy (vibration) transmitted by pressure waves over a medium such as air or water. Sound is characterized by various parameters that include the rate of oscillation of sound waves (frequency), the speed of propagation, and the 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 (existing) sound level. Although the decibel (dB) scale, a logarithmic scale, is used to quantify sound intensity, it does not accurately describe how sound intensity is perceived by human hearing. 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*, referred to as *A-weighted decibels (dBA)*. Table 3.10-1 defines sound measurements and other terminology used in this chapter, and Table 3.10-2 summarizes typical A-weighted sound levels for different noise sources.

Table 3.10-1. Definition of Sound Measurements

Sound Measurements	Definition
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.
C-Weighted Decibel (dBC)	The sound pressure level in decibels as measured using the C-weighting filter network. The C-weighting is very close to an unweighted or <i>flat</i> response. C-weighting is only used in special cases when low-frequency noise is of particular importance. A comparison of measured A- and C-weighted level gives an indication of low frequency content.
Maximum Sound Level (L_{max})	The maximum sound level measured during the measurement period.
Minimum Sound Level (L_{min})	The minimum sound level measured during the measurement period.
Equivalent Sound Level (L_{eq})	The equivalent steady state sound level that in a stated period of time would contain the same acoustical energy.
Percentile-Exceeded Sound Level (L_{xx})	The sound level exceeded xx % of a specific time period. L_{10} is the sound level exceeded 10% of the time. L_{90} is the sound level exceeded 90% of the time. L_{90} is often considered to be representative of the background noise level in a given area.
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 10:00 p.m. to 7:00 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 7:00 p.m. to 10:00 p.m. and 10 dB added to the A-weighted sound levels occurring during the period from 10:00 p.m. to 7:00 a.m.
Peak Particle Velocity (Peak Velocity or PPV)	A measurement of ground vibration defined as the maximum speed (measured in inches per second) at which a particle in the ground is moving relative to its inactive state. PPV is usually expressed in inches/second.
Frequency: Hertz (Hz)	The number of complete pressure fluctuations per second above and below atmospheric pressure.

Table 3.10-2. Typical A-Weighted Sound Levels

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	—110—	Rock band
Jet flyover at 1,000 feet		
	—100—	
Gas lawnmower at 3 feet		
	—90—	
Diesel truck at 50 feet at 50 mph		Food blender at 3 feet
	—80—	Garbage disposal at 3 feet
Noisy urban area, daytime		
Gas lawnmower, 100 feet	—70—	Vacuum cleaner at 10 feet
Commercial area		Normal speech at 3 feet
Heavy traffic at 300 feet	—60—	
		Large business office
Quiet urban daytime	—50—	Dishwasher in next room
Quiet urban nighttime	—40—	Theater, large conference room (background)
Quiet suburban nighttime		
	—30—	Library
Quiet rural nighttime		Bedroom at night, concert hall (background)
	—20—	
		Broadcast/recording studio
	—10—	
	—0—	

Source: California Department of Transportation 2013.

dBA = A-weighted decibel.

Human sound perception, in general, is such that a change in sound level of 1 dB cannot typically be perceived by the human ear, 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) the sound level. A doubling of actual sound energy is required to result in a 3 dB (i.e., barely noticeable) increase in noise; for example, this means that the volume of traffic on a roadway would typically need to double to result in a noticeable increase in noise.

Different types of measurements are used to characterize the time-varying nature of sound. These measurements include the equivalent sound level (L_{eq}), the minimum and maximum sound levels (L_{min} and L_{max}), percentile-exceeded sound levels (such as L_{10} , L_{20}), the day-night sound level (L_{dn}), and the community noise equivalent level (CNEL). L_{dn} and CNEL values differ by less than 1 dB. As a matter of practice, L_{dn} and CNEL values are considered to be equivalent and are treated as such. These measurements are defined in Table 3.10-1.

The decibel level of a sound decreases (or attenuates) exponentially as the distance from the source of that sound increases. For a point source such as a stationary compressor or construction equipment, sound attenuates at a rate of 6 dB per doubling of distance. For a line source such as free-flowing traffic on a freeway, sound attenuates at a rate of 3 dB per doubling of distance (Federal Transit Administration 2006). Atmospheric conditions, including wind, temperature gradients, and humidity, can change how sound propagates over distance and affect the level of sound received at a given location. The degree to which the ground surface absorbs acoustical energy also affects sound propagation. Sound that travels over an acoustically absorptive surface such as grass attenuates at a greater rate than sound that travels over a hard surface such as pavement. The increased attenuation is typically in the range of 1 to 2 dB per doubling of distance. Barriers such as buildings and topography that block the line of sight between a source and receiver also increase the attenuation of sound over distance.

Community noise environments are generally perceived as *quiet* when the 24-hour average noise level is below 45 dBA, *moderate* in the 45 to 60 dBA range, and *loud* above 60 dBA. Very noisy urban residential areas are usually around 70 dBA CNEL. Along major thoroughfares, roadside noise levels are typically between 65 and 75 dBA CNEL. Increments of 3 to 5 dB to the existing 1-hour L_{eq} , or to CNEL are commonly used as thresholds for an adverse community reaction to a noise increase. However, there is evidence that incremental thresholds in this range may not be sufficiently protective in areas where noise-sensitive uses are located and CNEL is already high (i.e., above 60 dBA). In these areas, limiting noise increases to 3 dB or less is recommended (Federal Transit Administration 2006). Noise intrusions that cause short-term interior levels to rise above 45 dBA at night can disrupt sleep. Exposures to noise levels greater than 85 dBA of 8 hours or longer can cause permanent hearing damage.

3.10.1.2 Groundborne Vibration

Operation of heavy construction equipment, particularly pile-driving equipment and other impact devices (e.g., pavement breakers), creates seismic waves that radiate along the surface of and downward into the ground. These surface waves can be felt as ground vibration. Vibration from the operation of this type of equipment can result in effects that range from annoyance for people to damage for structures. Variations in geology and distance result in different vibration levels, including different frequencies and displacements. In all cases, vibration amplitudes decrease with increased distance.

Perceptible groundborne vibration is generally limited to areas within a few hundred feet of construction activities. As seismic waves travel outward from a vibration source, they cause rock and soil particles to oscillate. The actual distance that these particles move is usually only a few ten-thousandths to a few thousandths of an inch. The rate or velocity (in inches per second) at which these particles move is the commonly accepted descriptor of vibration amplitude, referred to as peak particle velocity (PPV).

Vibration amplitude attenuates over distance. This is a complex function of how energy is imparted into the ground and the soil or rock conditions through which the vibration is traveling.

The following equation is used to estimate the vibration level at a given distance for typical soil conditions (Federal Transit Administration 2006). PPV_{ref} is the reference PPV at 25 feet:

$$PPV = PPV_{ref} \times (25/\text{distance})^{1.5}$$

Table 3.10-3 summarizes typical vibration levels generated by construction equipment at the reference distance of 25 feet and greater distances, as determined with use of the attenuation equation above.

Table 3.10-3. Vibration Source Levels for Construction Equipment

Equipment	PPV at 25 Feet	PPV at 50 Feet	PPV at 75 Feet	PPV at 100 Feet	PPV at 175 Feet
Pile driver (impact)	1.518	0.537	0.292	0.190	0.082
Pile driver (sonic/vibratory)	0.734	0.260	0.141	0.0918	0.0396
Hoe ram	0.089	0.032	0.017	0.0111	0.0048
Large bulldozer	0.089	0.032	0.017	0.0111	0.0048
Loaded trucks	0.076	0.027	0.015	0.0095	0.0041
Jackhammer	0.035	0.012	0.007	0.0044	0.0019
Small bulldozer	0.003	0.001	0.001	0.0004	0.0002

Source: Federal Transit Administration 2006.

Tables 3.10-4 and 3.10-5 summarize the guidelines developed by Caltrans for damage and annoyance potential from the transient and continuous vibration that is usually associated with construction activity. The activities that are typical of continuous vibration include the use of excavation equipment, static compaction equipment, tracked vehicles, vehicles on a highway, vibratory pile drivers, pile-extraction equipment, and vibratory compaction equipment. The activities that are typical of single-impact (transient) or low-rate, repeated impact vibration include drop balls, blasting, the use of impact pile drivers, “pogo stick” compactors, and crack-and-seat equipment (California Department of Transportation 2013a).

Table 3.10-4. Vibration Damage Potential Threshold Criteria Guidelines

Structure and Condition	Maximum PPV (in/sec)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Extremely fragile historic buildings, ruins, ancient monuments	0.12	0.08
Fragile buildings	0.2	0.1
Historic and some old buildings	0.5	0.25
Older residential structures	0.5	0.3
New residential structures	1.0	0.5
Modern industrial/commercial buildings	2.0	0.5

Source: California Department of Transportation 2013a.

Note: Transient sources create a single, isolated vibration event (e.g., blasting or drop balls). Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.

Table 3.10-5. Vibration Annoyance Potential Criteria Guidelines

Structure and Condition	Maximum PPV (in/sec)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Barely perceptible	0.04	0.01
Distinctly perceptible	0.25	0.04
Strongly perceptible	0.9	0.10
Severe	2.0	0.4

Source: California Department of Transportation 2013b.

Note: Transient sources create a single, isolated vibration event (e.g., blasting or drop balls). Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.

Groundborne vibration can also be quantified by the root-mean-square velocity amplitude, which is useful for assessing human annoyance. The root-mean-square amplitude is expressed in terms of the velocity level in decibel units (VdB). The background vibration velocity level in residential areas is usually around 50 VdB or lower. The vibration velocity level threshold of perception for humans is approximately 65 VdB. Most perceptible indoor vibration is caused by sources within buildings, such as the operation of mechanical equipment, movement of people, or the slamming of doors. Typical outdoor sources of perceptible groundborne vibration are heavy construction equipment, steel-wheeled trains, and traffic on rough roads. If a roadway is smooth, the groundborne vibration from traffic is rarely perceptible.

Table 3.10-6 summarizes the typical groundborne vibration velocity levels and average human response to vibration that may be anticipated when a person is at rest in quiet surroundings. If the person is engaged in any type of physical activity, vibration tolerance increases considerably. The duration of the event has an effect on human response, as does its daily frequency of occurrence. Generally, as the duration and frequency of occurrence increase, the potential for adverse human response increases.

Table 3.10-6. Typical Levels of Groundborne Vibration

Human or Structural Response	Vibration Velocity Level (VdB)	Typical Sources (50 feet from source)
Threshold for minor cosmetic damage to fragile buildings	100	Blasting from construction project Bulldozer or heavy-tracked construction equipment
Difficulty in reading computer screen	90	Upper range of commuter rail
Threshold for residential annoyance for occasional events (e.g., commuter rail)	80	Upper range of rapid transit
Threshold for residential annoyance for frequent events (e.g., rapid transit)	70	Typical commuter rail Bus or truck over bump Typical rapid transit

Human or Structural Response	Vibration Velocity Level (VdB)	Typical Sources (50 feet from source)
Approximate threshold for human perception of vibration; limit for vibration-sensitive equipment	60	Typical bus or truck on public road
	50	Typical background vibration

Source: Federal Transit Administration 2006.

Groundborne noise is a secondary component of groundborne vibration. When a building structure vibrates, noise is radiated into the interior of the building. Typically, this is a low-frequency sound that can be perceived as a low rumble. The magnitude of the sound depends on the frequency characteristic of the vibration and the manner in which the room surfaces in the building radiate sound. Groundborne noise is quantified by the A-weighted sound level inside the building. The sound level accompanying vibration is generally 25 to 40 dBA lower than the vibration velocity level in VdB. Groundborne vibration levels of 65 VdB can result in groundborne noise levels of up to 40 dBA, which can disturb sleep. Groundborne vibration levels of 85 VdB can result in groundborne noise levels of up to 60 dBA, which can be annoying to daytime noise-sensitive land uses such as schools (Federal Transit Administration 2006).

3.10.2 Existing Conditions

3.10.2.1 Regulatory Setting

Federal, state, and local agencies regulate different aspects of environmental noise. Generally, the federal government sets noise standards for transportation-related noise sources closely linked to interstate commerce. These sources include aircraft, locomotives, and trucks. Federal standards related to transportation projects with federal involvement are discussed below. The state government sets noise standards for transportation noise sources such as automobiles, light trucks, and motorcycles. Noise sources associated with industrial, commercial, and construction activities are generally subject to local control through noise ordinances and general plan policies. Local general plans identify general principles intended to guide and influence development plans. State and local noise policies and regulations applicable to the Project are described below.

Federal

For highway transportation projects with federal involvement, the Federal-Aid Highway Act of 1970 and the associated implementing regulations (23 CFR 772) govern the analysis and abatement of traffic noise impacts. A *Noise Study Report* was prepared that discusses potential noise impacts and feasibility of noise abatement measures associated with the construction and operation of the Project (ICF International 2016). The report was prepared to comply with 23 CFR 772, “Procedures for Abatement of Highway Traffic Noise,” and Caltrans’ noise analysis policies, as described in the Traffic Noise Analysis Protocol.

State

California Environmental Quality Act

CEQA requires a strictly baseline versus build analysis to assess whether a proposed project will result in a noise impact. If a proposed project is determined to cause a substantial increase in noise levels, CEQA requires that feasible mitigation measures be incorporated into the project.

Local

El Dorado County General Plan

Policies and standards for noise exposures at noise sensitive land uses during construction are outlined in the 2004 County General Plan Public Health, Safety, and Noise Element (amended in December 2014).

The construction noise standards outlined in the County General Plan Table 6-5, which apply to construction noise in rural regions, are summarized in Table 3.10-7 below. Note that, according to the County General Plan, the standards outlined in General Plan Tables 6-3, 6-4, and 6-5 (which pertain to construction noise in various regions) will not apply to those activities associated with *actual construction* of a project as long as such construction occurs between the hours of:

- 7 a.m. and 7 p.m., Monday through Friday
- 8 a.m. and 5 p.m. on weekends, and on federally recognized holidays.

Further, the standards outlined in General Plan Tables 6-3, 6-4, and 6-5 do not apply to public projects to alleviate traffic congestion and safety hazards; because the proposed Project replaces a structurally deficient bridge, this exception would apply.

Table 3.10-7. Maximum Allowable Noise Exposure for Construction Noise in Rural Regions

Land Use Designation	Time Period	Noise Level (dB)	
		L _{eq}	L _{max}
All Residential	7 a.m.–7 p.m.	50	60
	7 p.m.–10 p.m.	45	55
	10 p.m.–7 a.m.	40	50
Commercial, Recreation, and Public Facilities	7 a.m.–7 p.m.	65	75
	7 p.m.–7 a.m.	60	70
Rural Land, Natural Resources, Open Space, and Agricultural Lands	7 a.m.–7 p.m.	65	75
	7 p.m.–7 a.m.	60	70

Source: El Dorado County 2004, Table 6-5.

Operational noise standards that would be applicable to the Project are outlined in County General Plan Table 6-1 for transportation noise sources. This table is presented in this document as Table 3.10-8.

Table 3.10-8. Maximum Allowable Noise Exposure for Transportation Noise Sources

Land Use	Outdoor Activity Areas ^a L _{dn} /CNEL, dB	Interior Spaces	
		L _{dn} /CNEL, dB	L _{eq} , dB ^b
Residential	60 ^c	45	–
Transient lodging	60 ^c	45	–
Hospitals, nursing homes	60 ^c	45	–
Theaters, auditoriums, music halls	–	–	35
Churches, meeting halls, schools	60 ^c	–	40
Office buildings	–	–	45
Libraries, museums	–	–	45
Playgrounds, neighborhood parks	70	–	–

Source: El Dorado County 2004, Table 6-1.

dB = decibel.

CNEL = community noise equivalent level.

L_{dn} = day-night level.

L_{eq} = equivalent sound level.

- ^a In Communities and Rural Centers, where the location of outdoor activity areas is not clearly defined, the exterior noise level standard shall be applied to the property line of the receiving land use. For residential uses with front yards facing the identified noise source, an exterior noise level criterion of 65 dB L_{dn} shall be applied at the building facade, in addition to a 60 dB L_{dn} criterion at the outdoor activity area. In Rural Regions, an exterior noise level criterion of 60 dB L_{dn} shall be applied at a 100-foot radius from the residence unless it is within Platted Lands where the underlying land use designation is consistent with Community Region densities in which case the 65 dB L_{dn} may apply. The 100-foot radius applies to properties that are 5 acres and larger; the balance will fall under the property line requirement.
- ^b As determined for a typical worst-case hour during periods of use.
- ^c Where it is not possible to reduce noise in outdoor activity areas to 60 dB L_{dn}/CNEL or less using a practical application of the best-available noise reduction measures, an exterior noise level of up to 65 dB L_{dn}/CNEL may be allowed provided that available exterior noise level reduction measures have been implemented and interior noise levels are in compliance with this table.

El Dorado County Ordinance Code

Chapter 9.16, Noise, of the El Dorado County Ordinance Code, defines and prohibits “loud and raucous noise.” Pursuant to the code, the production of loud and raucous noise that unreasonably interferes with the peace and quiet of private property is prohibited.

3.10.2.2 Environmental Setting

This section describes existing land uses and the existing noise conditions in the Project vicinity.

Surrounding Land Uses

Land uses surrounding the Project site include rural and open space, with a very low density of residential receptors. The area around the Project site is densely vegetated. The general topography of the study area is characterized by moderate slopes changing to very steep slopes in the canyon area. The steep nature of the canyon faces can be expressed as a 450-foot drop in 750 feet. Elevations range from approximately 1,280 feet above sea level at river level to approximately 1,730

feet at the proposed Project's tie-in locations. The existing bridge deck elevation is approximately 1,346 feet above sea level.

Very few sensitive receptors (e.g., residential land uses) are located within the immediate vicinity of the Project site. The nearest residential property (8061 Mosquito Road) is located adjacent to the Project right of way, and the actual residence is located approximately 80 feet from Mosquito Road. Land adjacent to Mosquito Road is zoned Residential Agriculture 20 acre or Unclassified, Timberland Preserve Zone with a land use designation of Natural Resources 1 dwelling unit/40 acre.

Existing Noise Environment

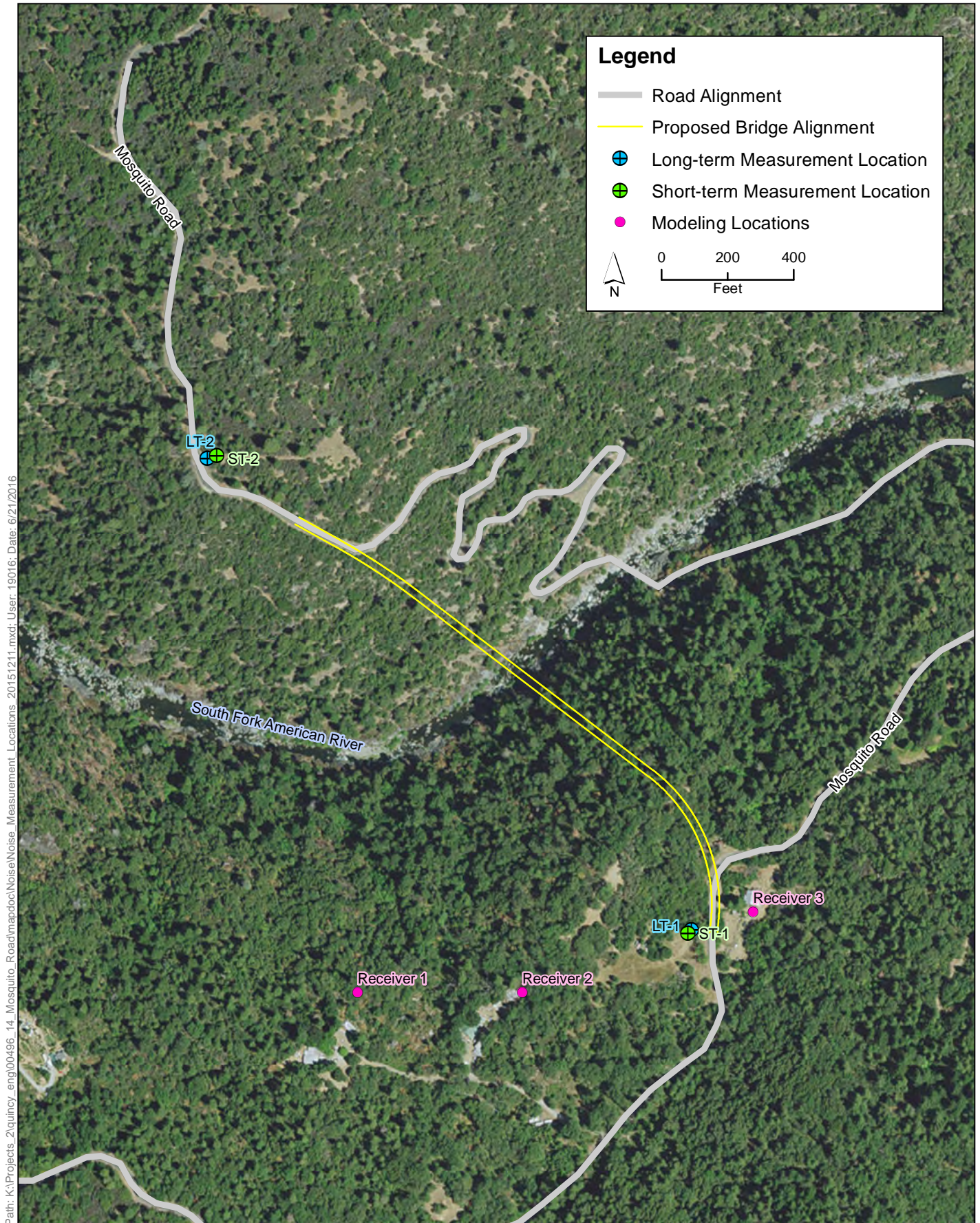
Short-Term Noise Monitoring

Short-term noise measurements were taken on Thursday, August 6, 2015 to characterize existing noise levels in the Project area, and to help validate the traffic noise model for Mosquito Road. Short-term measurement locations were selected to be representative of the land use categories and activities within the Project area. Short-term measurements were taken at two sites: ST-1 and ST-2. The noise measurement locations are shown in Figure 3.10-1. Both measurements were taken adjacent to the Mosquito Road; measurement ST-1 was taken on private property across Mosquito Road from the main house associated with the property, and ST-2 was taken on BLM land. At each location, two simultaneous 10-minute measurements were obtained. The results of the short-term noise monitoring are provided in Table 3.10-9 below.

Table 3.10-9. Short-Term Noise Measurement Results

Receiver	Address/ Approximate GPS Coordinates	Start Date/ Time	Meter	L _{eq} (dBA)	Autos (Speed) ^a
ST-1a	Residential Land Use at 8061 Mosquito Road, Placerville, CA 95667 GPS: 38°46'22.25"N, 120°44'52.56"W	08-06-2015/ 12:58 p.m.	LD 831	46.3	10 (30 mph)
ST-1b	Residential Land Use at 8061 Mosquito Road, Placerville, CA 95667 GPS: 38°46'22.25"N, 120°44'52.56"W	08-06-2015/ 12:58 p.m.	LD 720	46.2	10 (30 mph)
ST-2a	Undeveloped Bureau of Land Management Land GPS: 38°46'36.55"N, 120°45'10.68"W	08-06-2015/ 11:53 a.m.	LD 831	44.3	12 (30 mph)
ST-2b	Undeveloped Bureau of Land Management Land GPS: 38°46'36.55"N, 120°45'10.68"W	08-06-2015/ 11:53 a.m.	LD 720	44.8	12 (30mph)

^a Only automobiles were counted during all noise measurements (no medium trucks, heavy trucks, buses or motorcycles were seen during short-term measurements).



**Figure 3.10-1
Noise Measurement and Modeling Locations**

The relevant traffic data during each short-term measurement was captured by manually tallying vehicle traffic along Mosquito Road, the only roadway in close enough proximity to the measurement locations to contribute to traffic noise. Traffic volumes during each measurement were counted and classified as automobiles, medium-duty trucks, heavy-duty trucks, buses, or motorcycles. During both short-term measurements, traffic noise was the dominant contributor to the measured noise levels. Mosquito Road has a posted advisory speed of 20 mph. However, speeds up to 30 mph have been observed (Quincy Engineering 2015). For the purposes of noise modeling, all vehicles on Mosquito Road were assumed to travel 30 mph.

Long-Term Noise Monitoring

Long-term monitoring was conducted at two locations (LT-1 and LT-2) between August 6 and August 8, 2015; measurements on August 7 and August 8 spanned the full 24 hours of those respective days, so measurements from those days are reported in this document. The long-term measurement locations are identified in Figure 3.10-1. The purpose of these measurements was to identify diurnal traffic noise patterns throughout a typical day/night cycle. The results of long-term monitoring are provided in Table 3.10-10 below.

Table 3.10-10. Long-Term Noise Measurement Results

Date	Day of Week	Position 1 L _{dn}	Position 2 L _{dn}
7-Aug	Friday	63.4	58.7
8-Aug	Saturday	63.6	57.3

Validation of the Traffic Noise Model

To calibrate the model or validate the accuracy of the model, TNM 2.5 was used to compare measured traffic noise levels with modeled noise levels at the short-term measurement locations. For each receptor, traffic volumes counted during the short-term measurement periods were normalized to 1-hour volumes. These normalized volumes were assigned to Mosquito Road to simulate the strength of the noise source during the actual measurement period. Modeled and measured sound levels were then compared to determine the accuracy of the model and whether additional calibration was necessary. The results of calibration modeling showed good agreement (within 0 to 3 dB) between the measured and modeled results. Calibration results did not need to be adjusted, and the accuracy of the model was validated. Refer to Table 3.10-11 below for about the comparison of measured to modeled noise levels at the short-term measurement locations.

Table 3.10-11. Comparison of Measured and Modeled Sound Levels in the TNM 2.5 Model

Modeled Receiver Number - Measurement Site	Measured Sound Level (dBA)		Predicted Sound Level (dBA)	Measured minus Predicted (dB)		K-Factor Used	K-Factor Applied to Additional Modeled Receiver(s)
	LD 831	LD 720		LD 720	LD 831		
ST-1	46.3	46.2	44.3	+2.0	+1.9	0.0	—
ST-2	44.3	44.8	44.7	-0.4	+0.1	0.0	—

3.10.3 Environmental Impacts

This section describes the impact analysis related to noise for the Project. It describes the methods used to determine the impacts of the Project and lists the thresholds used to conclude whether an impact would be significant. Impacts are determined to be less than significant, less than significant with mitigation, or significant and unavoidable; there can also be no impact. Measures to mitigate (i.e., avoid, minimize, rectify, reduce, eliminate, or compensate for) significant impacts accompany each impact discussion, as needed.

3.10.3.1 Methods of Analysis

Operational traffic noise was modeled under existing conditions, design-year No-Build conditions, and design-year Build conditions. Traffic noise in the Project area was modeled using traffic volumes from the Traffic and Transportation Technical Memorandum for the Project (Quincy Engineering 2015) and the FHWA's Traffic Noise Model. Table 3.10-12 summarizes the traffic volumes and assumptions used for each scenario.

Table 3.10-12. PM Peak Hour Average Daily Traffic for Mosquito Road in the Vicinity of Mosquito Road Bridge

Year	Scenario	Total Vehicles		Trucks
		PM Peak Hour ADT (total)	Speed*	Truck ADT
2015	Existing	115	30*	0
2034	Build	230	30*	26
	No Build	230	30*	0

* The speed across the existing bridge is assumed to be 15 mph. The future speed across the new bridge assumed to be 20 mph per traffic memo guidance (Quincy Engineering 2015)

The Transportation Technical Memorandum indicated that overall traffic volumes throughout the study area were relatively similar during the AM and the PM peak hours. However, in the future when trucks will be able to use the new bridge, truck traffic is predicted to be slightly higher during the PM peak hour than during the AM peak hour. Therefore, all modeling of existing and design-year (i.e., future) traffic noise was based on PM peak hour traffic volumes, which included auto and truck volumes (Quincy Engineering 2015).

Speed data was also based on information from this memorandum. According to the memorandum, although the roadway has a posted advisory speed of 20 mph, drivers have been witnessed driving at speeds of up to approximately 30 mph. Therefore, a speed of 30 mph was used for modeling along Mosquito Road. An advisory speed of 20 mph would be posted on the proposed bridge to maintain the roadway characteristic in the vicinity of the Project site, but a speed of 30 mph was assumed as a reasonable worst-case speed for modeling purposes. Although speeds across the existing bridge are generally less than 10 mph (due to the bridge's narrow width) a modeling speed of 15 mph was used as a reasonable worst-case for the existing bridge under both existing and future No-Build conditions. A modeling speed of 20 mph was used for new bridge associated with the future roadway alignment.

Noise levels associated with Project-related construction activities were evaluated by summing the noise levels of the three loudest pieces of equipment that would operate on the Project site. The noise level for each of the loudest equipment types was determined using standard construction equipment data from FHWA. The resulting noise levels were then compared to the significance thresholds.

Vibration from construction equipment was evaluated using methods recommended by Caltrans (California Department of Transportation 2013a) and the Federal Transit Administration (Federal Transit Administration 2006) using source levels and criteria in Tables 3.10-3, 3.10-4, and 3.10-5.

3.10.3.2 Thresholds of Significance

In accordance with Appendix G of the CEQA Guidelines, the Project would be considered to have a significant effect if it would result in any of the conditions listed below.

- 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.
- Be located in the vicinity of a private airstrip and expose people residing or working in the Project area to excessive noise levels.

3.10.3.3 Impacts and Mitigation Measures

Impact NOI-1: Exposure of persons to or generation of noise levels in excess of standards established in a local general plan or noise ordinance or applicable standards of other agencies (less than significant)

Construction Noise

During construction of the Project, noise from construction activities may intermittently dominate the noise environment in the immediate area of construction. Table 3.10-13 summarizes noise levels produced by construction equipment that is anticipated to be used for the Project.

Table 3.10-13. Construction Equipment and Associated Noise Levels

Equipment	Construction Purpose	L _{max} at 50 feet (dBA)
Asphalt Concrete Paver	Paving roadways	77
Backhoe	Soil manipulation and drainage work	78
Rock drilling equipment	Rock excavation and tie-down anchor installation	81

Equipment	Construction Purpose	L_{max} at 50 feet (dBA)
Bulldozer/Loader	Earthwork construction, cleaning and grubbing, tree removal	82
Cranes	Placement of bridge materials, placing of forms, and rebar	81
Dump Truck	Fill material delivery/surplus removal	76
Excavator	Soil and rock manipulation	81
Front-end Loader / Bobcat	Dirt or gravel manipulation	79
Grader	Ground leveling	85
Haul Trucks	Earthwork construction; large tree removal; material delivery	76
Concrete pump systems	Concrete delivery to various locations along the bridge	81
Roller	Earthwork and compacting	80
Scraper	Earthwork construction; clearing and grubbing	84
Truck with Seed Sprayer	Erosion control and landscaping	76
Water Truck	Earthwork construction; clearing and grubbing	76

Source: Federal Highway Administration 2006.

To provide a conservative analysis, modeling for construction noise assumed that three of the loudest pieces of equipment proposed to be used for Project construction (a bulldozer, grader and a scraper) would be operating simultaneously in close proximity to one another on site. Although pile driving may be required and would be a louder activity, pile driving would occur further away from residences than other project-related construction activities. Noise effects specific to pile driving are analyzed below. The combined noise level (both L_{max} and L_{eq}) from operation of a bulldozer, grader and scraper was calculated. L_{eq} values were calculated from L_{max} values assuming estimated utilization factors (the fraction of time that each piece of equipment is assumed to be operating). Calculated average (L_{eq}) construction noise levels at various distances from the Project site are shown in Table 3.10-14.

Table 3.10-14. Project Construction Noise Levels (L_{eq}) at Various Distances

Source Data:		Utilization Factor	L_{eq} Sound Level (dBA)	
Source 1: Bulldozer - Sound level (dBA) at 50 feet = 82		0.4	78.0	
Source 2: Scraper - Sound level (dBA) at 50 feet = 84		0.4	80.0	
Source 3: Grader - Sound level (dBA) at 50 feet = 85		0.4	81.0	
Calculated Data:				
All Sources Combined - L_{max} sound level (dBA) at 50 feet =			89	
All Sources Combined - L_{eq} sound level (dBA) at 50 feet =			85	
Distance Between Source and Receiver (ft.)	Geometric Attenuation (dB) ^a	Ground Effect or shielding Attenuation (dB) ^b	Calculated L_{max} Sound Level (dBA)	Calculated L_{eq} Sound Level (dBA)
50	0	0.0	89	85

Source Data:			Utilization Factor	L _{eq} Sound Level (dBA)
100	-6	-1.5	81	77
200	-12	-3.0	74	70
300	-16	-3.9	69	65
400	-18	-4.5	66	62
500	-20	-5.0	64	60
600	-22	-5.4	62	58
700	-23	-5.7	60	56
800	-24	-6.0	59	55
900	-25	-6.3	57	53
1000	-26	-6.5	56	52
1200	-28	-6.9	54	50
1400	-29	-7.2	52	48
1600	-30	-7.5	51	47
1800	-31	-7.8	50	46
2000	-32	-8.0	49	45
2500	-34	-8.5	46	42
3000	-36	-8.9	44	40

Notes:

Source: Federal Highway Administration 2006.

^a Geometric attenuation based on 6 dB per doubling of distance.

^b Ground affect attenuation based on 1.5 dB per doubling of distance.

This calculation does not include the effects, if any, of local shielding from walls, topography, trees or other barriers which may reduce sound levels further.

There are a few residences located near the southern boundary of the proposed Project area, and at times, construction equipment could be as close as 50 feet from residential land uses. The results in Table 3.10-14 indicate concurrent operation of these three pieces of equipment would result in a noise level of 85 dBA L_{eq} at 50 feet and 77 dBA L_{eq} at a distance of 100 feet.

Impact pile driving may also occur as a part of Project construction. Although general construction activities may occur as close as 50 feet to a nearby residence (as discussed above), pile driving would occur 300 feet or more from the nearest residence. At a distance of 300 feet, the average noise level from pile driving would be approximately 75 dBA L_{eq}. Calculated average (L_{eq}) pile driving noise levels at various distances from the Project site are shown in Table 3.10-15.

Table 3.10-15. Pile Driving Noise Levels (L_{eq}) at Various Distances

Source Data:			Utilization Factor	L _{eq} Sound Level (dBA)
Pile Driver - Sound level (dBA) at 50 feet = 101			0.2	94.0
Distance Between Source and Receiver (ft.)	Geometric Attenuation (dB) ^a	Ground Effect or shielding Attenuation (dB) ^b	Calculated L _{max} Sound Level (dBA)	Calculated L _{eq} Sound Level (dBA)

Source Data:			Utilization Factor	Leq Sound Level (dBA)
300	-16	-3.9	82	75
500	-20	-5.0	76	69
600	-22	-5.4	74	67
700	-23	-5.7	72	65
800	-24	-6.0	71	64
900	-25	-6.3	70	63
1000	-26	-6.5	68	61
1200	-28	-6.9	66	60
1400	-29	-7.2	65	58
1600	-30	-7.5	63	56
1800	-31	-7.8	62	55
2000	-32	-8.0	61	54
2500	-34	-8.5	59	52
3000	-36	-8.9	57	50

Notes:

Source: Federal Highway Administration 2006.

^a Geometric attenuation based on 6 dB per doubling of distance.

^b Ground affect attenuation based on 1.5 dB per doubling of distance.

This calculation does not include the effects, if any, of local shielding from walls, topography, trees or other barriers that may further reduce sound levels.

During the hours of 7 a.m. to 7 p.m. on weekdays and 8 a.m. to 5 p.m. on weekends and federally recognized holidays, construction noise associated with the actual construction of a project is exempt from the numerical noise standards. The proposed construction schedule for the Project includes construction during mostly exempted hours (7 a.m. to 7 p.m. on weekdays and 8 a.m. to 6 p.m. on Saturdays), with only 1 hour (5 p.m. to 6 p.m. on Saturdays) of construction proposed during non-exempt hours.

Although 1 hour per week of Project construction may not qualify under this exemption, the County General Plan also states that the noise standards do not apply to public projects that are intended to alleviate traffic congestion and safety hazards. As discussed in Chapter 2, *Project Description*, the current bridge has a sufficiency rating of 12.5 out of 100 and is considered structurally deficient. As such, construction of the proposed Project would alleviate a safety hazard, and is considered to be exempt from the construction noise standards from the General Plan. Although construction activities may increase noise in the Project area temporarily, construction would be short-term, occurring over a period of 1 to 2 years (2018 to 2019), occur during mostly exempted hours, and would be exempt from noise standards in the General Plan because Project construction would alleviate safety hazards related to the existing structurally deficient bridge. Impacts related to construction noise would be less than significant, and no mitigation is required.

Operational Noise

Traffic noise was modeled for existing and Year 2034 conditions (with and without Project) using peak-hour traffic volumes. The Project proposes to replace a structurally deficient bridge, and

would not directly result in an increase in overall traffic. The Traffic and Transportation Technical Memorandum for the Project (Quincy Engineering 2015) concluded that the total future (Year 2034) peak hour ADT would be equal with or without Project implementation. However, with the proposed Project, trucks would be able to utilize the bridge and the roadways surrounding the bridge, which is not currently possible.

Operational noise from the future No-Project and future With-Project scenarios would, therefore, only differ due to the fact that With-Project conditions would include noise from truck traffic, which is greater than noise from passenger cars or automobiles. Operational noise also includes noises caused by braking and acceleration as vehicles travel into and out of the canyon. This would be reduced in the future With-Project scenario since the bridge alignment both reduces the number of switchbacks and changes in the roadway elevation through the canyon.

Based on monitoring results, weekday L_{dn} values were within 1 dB of the worst-hour weekday L_{eq} noise levels at both sites LT-1 and LT-2. Therefore L_{dn} values are assumed to be equal to modeled worst-hour L_{eq} noise levels.

Nearby receivers that were modeled under all conditions include the residential receptors at 8200 Mosquito Road, 8140 Mosquito Road, and 8061 Mosquito Road. Table 3.10-16 below presents the modeling results for the Existing, Year 2034 No-Project and Year 2034 With-Project conditions.

Table 3.10-16. Modeled Noise Levels (L_{dn}) at Residential Receptors

Residential Receptor ^a	Existing (L_{dn})	Future 2034 No Project (L_{dn})	Future 2034 With-Project (L_{dn})	Significant Impact (greater than 60 L_{dn})?
R1: 8200 Mosquito Road	37	40	42	No
R2: 8140 Mosquito Road	39	42	44	No
R3: 8061 Mosquito Road	41	44	47	No

^a Residential noise levels modeled at residential outdoor use areas. Table 3.10-8 (Table 6-1 from the County Noise Element) states that “in Rural Regions, an exterior noise level criterion of 60 dB L_{dn} shall be applied at a 100-foot radius from the residence.” Noise levels at a 100-foot radius may be higher than the noise levels reported in this table, but would still be below 60 L_{dn} due to the relatively small volume of vehicle traffic that uses this roadway.

Project implementation would not result in traffic noise levels in excess of the 60 L_{dn} threshold at nearby residential receptors; therefore, Project impacts related to operational noise would be less than significant, and no mitigation is required.

Impact NOI-2: Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels (less than significant)

Land uses in which groundborne vibration could potentially interfere with operations or equipment, such as research, manufacturing, hospitals, and university research operations are considered “vibration-sensitive” (Federal Transit Administration 2006). The degree of sensitivity depends on the specific equipment that would be affected by the groundborne vibration. No vibration-sensitive land uses are located within 200 feet of the Project area. Because no vibration-sensitive land uses are located within 200 feet of the Project area, construction vibration would not affect vibration-

sensitive land uses. However, excessive levels of groundborne vibration of either a regular or an intermittent nature can result in annoyance to residential uses.

The operation of heavy construction equipment may generate localized groundborne vibration in areas adjacent to the construction site, especially during the operation of high-impact equipment, such as pile drivers. Vibration from non-impact construction activity and truck traffic is typically below the threshold of perception when the activity is more than approximately 50 feet from the noise-sensitive land uses (Federal Transit Administration 2006). Consequently, for Project construction activities that do not involve the use of high-impact equipment and construction sites that are more than 50 feet from noise-sensitive land uses, groundborne vibration impacts are expected to be less than significant.

One residence is located approximately 50 feet from some of the roadway construction necessary for the Project; vibration could be perceptible at this location or at other nearby residences (all other residences are located over 100 feet away from construction activities), depending on the amount of and specific types of equipment being utilized. However, equipment capable of generating perceptible vibration levels would only be in close proximity to these residences intermittently, and for relatively short periods of time. Of the non-impact (non-pile driving) equipment proposed for use in Project construction, large earth-moving equipment (such as a large bulldozer) would be the most likely to result in perceptible vibration levels. A large bulldozer would result in a vibration level of approximately 0.031 PPV at a distance of 50 feet. This is below the “distinctly perceptible” level of 0.04 PPV, and below the vibration damage threshold for older residential buildings of 0.3 PPV. Because all non-impact equipment associated with Project construction would generate less than “distinctly perceptible” vibration levels at surrounding residences, non-impact equipment used for Project construction would not result in the exposure of persons to excessive groundborne vibration. As such, vibration impacts from non-impact construction equipment would be less than significant, and no mitigation is required.

Because Project construction could require the use of pile drivers, which are considered to be high-impact equipment, further analysis was conducted to determine the potential vibration levels from pile driving at nearby residential land uses. As shown in Table 3.10-3 above, an impact pile driver has the potential to generate a vibration level of 1.518 PPV at a reference distance of 25 feet. Pile driving for Project construction would occur at a distance of 300 feet or more from the nearest residential receptor. Per the equation shown in Section 3.10.1.2 ($PPV = PPV_{ref} \times (25/distance)^{1.5}$), impact pile driving could generate a vibration level of 0.037 PPV at a distance of 300 feet. This vibration level would be below the vibration damage threshold for older residential buildings (0.3 PPV) shown in Table 3.10-4, and below the “distinctly perceptible” vibration level (0.04 PPV) shown in Table 3.10-5 (California Department of Transportation 2013a). As pile drivers would result in vibration levels less than the “distinctly perceptible” level of 0.04 PPV and the damage threshold of 0.3 PPV at a distance of 300 feet, pile driving activities associated with the Project would result in less-than-significant impacts, and no mitigation is required.

Impact NOI-3: Potential to result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project (less than significant)

As discussed above under Impact NOI-1, operational traffic noise associated with Project implementation would not result in traffic noise levels in excess of the applicable local standards (60 L_{dn} for nearby rural residential receptors). The proposed Project would therefore not result in a

substantial permanent increase in noise levels at noise sensitive receptor locations in the Project vicinity, and this impact would be less than significant. No mitigation is required.

Impact NOI-4: Potential to result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project (less than significant with mitigation)

As discussed under Impact NOI-1, construction activities may increase noise in the Project area temporarily. Non-impact construction equipment could operate as close as 50 feet from the nearest residence, and noise levels from these types of construction activities could be up to 85 dBA L_{eq} (refer to Table 3.10-14). Impact pile driving, which could occur as close as 300 feet from the nearest residence, could result in noise levels of approximately 75 dBA L_{eq} at the nearest residence. Although noise levels in the Project area may increase overall, construction would be short-term, occurring over a period of 1 to 2 years (2018 to 2019), and would only intermittently occur in close proximity to nearby noise-sensitive receptors. Further, the proposed Project is intended to alleviate the safety hazards related to the current structurally deficient bridge, and is therefore exempt from the construction noise standards outlined in the County General Plan.

In order to reduce noise effects to the extent practicable, construction would occur mostly during daytime exempted hours (7 a.m. to 7 p.m. on weekdays and 8 a.m. to 5 p.m. on weekends and federally recognized holidays), with only 1 hour of construction activity proposed to occur during non-exempt hours (5 p.m. to 6 p.m. on Saturdays). Although noise from construction activities would be in compliance with the standards outline in the County Noise Element, construction equipment noise would increase ambient noise levels at residences located near the southern terminus of the Project, and would potentially result in a substantial temporary or periodic increase in ambient noise levels. This impact is considered to be potentially significant during hours where construction is not normally exempt from noise limits.

Implementation of Mitigation Measure NOI-1 would reduce noise from construction by implementing feasible measures to reduce excessive construction noise. Implementation of this measure would reduce this impact to a less than significant level.

Mitigation Measure NOI-1: The construction contractor shall employ noise-reducing construction practices to reduce construction noise.

The Project applicant will require the construction contractor to employ noise-reducing construction practices to limit construction noise during non-exempt hours (hours before 7 a.m. and after 7 p.m. Monday through Friday, and before 8 a.m. and after 5 p.m. on weekends and federally recognized holidays) to the sound level limits for residential uses shown in Table 3.10-7. Measures that can be used to limit noise include, but are not limited to, those listed below.

- Locating equipment as far as feasible from noise-sensitive uses.
- Requiring that all construction equipment powered by gasoline or diesel engines have sound-control devices that are at least as effective as those originally provided by the manufacturer and that all equipment be operated and maintained to minimize noise generation.
- Not idling inactive construction equipment for prolonged periods (i.e., more than 2 minutes).
- Prohibiting gasoline or diesel engines from having unmuffled exhaust.

- Using noise-reducing enclosures around noise-generating equipment, including shrouds mounted on pile driving equipment.
- Constructing temporary barriers between noise sources and noise-sensitive land uses or taking advantage of existing barrier features (terrain, structures) to block sound transmission.

Impact NOI-5: Location 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 exposure of people residing or working in the project area to excessive noise levels (no impact)

The nearest public airport to the Project area is the Placerville Airport, a small public use airport located approximately 3.3 miles south of the Project site. No aircraft-related noise effects would occur at this distance, and people residing or working in the Project area would not be exposed to excessive noise levels from activity at this facility. Therefore, there would be no impact related to noise from public use airports.

Impact NOI-6: Location in the vicinity of a private airstrip and exposure of people residing or working in the project area to excessive noise levels (no impact)

The closest private airstrip to the Project site is the Swansboro County Airport, a small airstrip owned by the Swansboro County Property Owners Association, which is located approximately 1.8 miles to the north of the Project site. At this distance, no noise effects from this small private airstrip would occur, and people residing or working in the Project area would not be exposed to excessive noise levels from activity at this facility. There would be no impact related to noise from private airstrips.

3.10.4 References

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- ICF International. 2016. *Noise Study Report*. January. Sacramento, CA.
- Quincy Engineering. 2015. Traffic and Transportation Technical Memorandum. November 6.

3.11 Public Services and Utilities

This section describes the existing conditions for public services (fire and police protection, schools, and parks) and public utilities (water, wastewater, stormwater, and solid waste; telecommunications; and energy), and analyzes potential impacts that could result from implementation of the proposed Project.

3.11.1 Existing Conditions

3.11.1.1 Regulatory Setting

Federal

There are no federal requirements for public services. Below are relevant federal regulations, plans, and policies for utilities.

Clean Water Act

Federal environmental regulations based on the CWA have evolved to require the control of pollutants from MS4s, construction sites, and industrial activities. Discharges from these sources were brought under the NPDES permit process by the 1987 CWA amendments and subsequent 1990 and 1999 promulgation of stormwater regulations by the EPA. In California, EPA has delegated the administration of the federal NPDES program to the State Water Board and the nine RWQCBs.

State

California Environmental Quality Act Guidelines—Appendix F, Energy Conservation

CEQA requires EIRs to include a discussion of potential energy impacts and energy conservation measures. Appendix F, *Energy Conservation*, of the State CEQA Guidelines outlines energy impact possibilities and potential conservation measures designed to assist in the evaluation of potential energy impacts of proposed projects. Appendix F places “particular emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy” and further indicates this may result in an unavoidable adverse effect on energy conservation. Moreover, the State CEQA Guidelines state that significant energy impacts should be “considered in an EIR to the extent relevant and applicable to the project.”

State Water Resources Control Board and Central Valley Regional Water Quality Control Board Permitting Authority and Basin Plan

The State Water Board and the nine RWQCBs have broad authority over water quality control and permitting in California. The State Water Board delegates regional authority for planning, permitting, and enforcement to the RWQCBs including the Central Valley RWQCB, which has jurisdiction over the west slope of El Dorado County.

The State Water Board has issued statewide general NPDES stormwater permits for designated types of construction and industrial activities, and has adopted a statewide permit applicable to all

small municipalities, including communities in the unincorporated areas of the west slope of El Dorado County.

Local

El Dorado County General Plan

Public Health, Safety, and Noise Element

The Public Health, Safety, and Noise Element of the County General Plan (El Dorado County 2009) has a goal and implementing policies to ensure the provision of adequate and comprehensive emergency services, including fire protection, law enforcement, and emergency medical services in the county and is relevant to the proposed Project (Goal 5.7, Emergency Services).

Public Services and Utilities Element

The Public Services and Utilities Element of the County General Plan (El Dorado County 2004) includes goals and policies to ensure provision of adequate public services and utilities in the county. Goals relevant to the proposed Project are those that address stormwater runoff management including protection of soils from erosion and minimizing impacts on existing drainage structures (Goal 5.4, Storm Drainage) and ensure the effective and efficient collection and processing of solid waste, including from construction and demolition activities (Goal 5.5, Solid Waste).

El Dorado County Design and Improvement Standards Manual

The *El Dorado County Design and Improvement Standards Manual* was adopted in 1990 and provides required erosion and sediment control measures applicable to subdivisions, roadways, and other development.

3.11.1.2 Environmental Setting

Community Facilities

There are no community facilities, including schools or parks, in the 0.5-mile area surrounding the Project site. Churches, community centers, libraries, and other community facilities in the Project vicinity are primarily located in Placerville, with a small number of community facilities in the Swansboro/Mosquito area.

Emergency Services

Police services in the study area are provided by the El Dorado County Sheriff's Department and fire protection services are provided by the El Dorado County Fire Department and the Mosquito Fire Protection District. Table 3.11-1 shows the locations of emergency service provider facilities in the Project vicinity, none of which are located within a 0.5-mile radius of the Project site.

Table 3.11-1. Emergency Service Providers in the Vicinity of the Project Site

Facility	Address	Location Relative to Project Site	Linear Distance from Proposed Project (Miles)
Fire Protection			
El Dorado County Fire Station 19	4429 Pleasant Valley Rd. Placerville, CA 95667	Southeast of Project site	7.6
El Dorado County Fire Station 25	3034 Sacramento St. Placerville, CA 95667	Southwest of Project site	4.4
El Dorado County Fire Station 26	730 Main St. Placerville, CA 95667	Southwest of Project site	3.8
Mosquito Fire Protection District	8801 Rock Creek Rd Placerville, Ca 95667	North of the Project site	1.8
Police Services			
El Dorado County Sheriff's Station	300 Fair Lane Placerville, CA 95667	Southwest of Project site	5.3

Source: El Dorado County Fire Department 2015; El Dorado County Sheriff's Department 2015

Utilities

The Project area contains aerial telecommunications for AT&T and PG&E. The alignment of these facilities is generally along the roadway on the Placerville side of the canyon. The facilities diverge from the roadway and traverse the canyon directly down the face of the canyon slope. From there they cross the river near to and slightly higher than the existing bridge within APN 084-030-015, then run directly up the canyon slope, with poles placed near the mid-point of roadway segments between the steep and sharp hairpins within APN 084-030-046 and APN 084-030-045.

3.11.2 Environmental Impacts

3.11.2.1 Methods of Analysis

The analysis of public services and utilities is based on identification of public services and utilities in the Project study area and an assessment of how the proposed Project would affect provision of those services. The environmental baseline for the analysis consists of the public services and utilities that are currently provided in the Project area.

3.11.2.2 Thresholds of Significance

In accordance with Appendix G of the State CEQA Guidelines, the proposed Project would be considered to have a significant effect on public services or utilities if it would result in any of the conditions listed below.

- Substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities or a need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services:
 - Fire protection

- Police protection
- Schools
- Parks
- Other public facilities
- Exceed wastewater treatment requirements of the applicable RWQCB.
- Require or result in the construction of new water or wastewater treatment facilities or the 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.
- Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed.
- Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments.
- Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs.
- Comply with federal, state, and local statutes and regulations related to solid waste.

AT&T and PG&E telecommunication facilities are in the study area and could require relocation; thus the following threshold is considered in the analysis.

- Result in long-term disruption of telecommunications services.

Additionally, Appendix F of the State CEQA Guidelines identifies the following potential environmental impacts related to energy that may be included in an EIR.

1. The project's energy requirements and its energy use efficiencies by amount and fuel type for each stage of the project, including construction, operation, maintenance, and/or removal. If appropriate, the energy intensiveness of materials may be discussed.
2. The effects of the project on local and regional energy supplies and on requirements for additional capacity.
3. The effects of the project on peak- and base-period demands for electricity and other forms of energy.
4. The degree to which the project complies with existing energy standards.
5. The effects of the project on energy resources.
6. The project's projected transportation energy use requirements and its overall use of efficient transportation alternatives.

The State CEQA Guidelines recommend that the discussion of applicable energy impacts focus on whether the project would result in the wasteful, inefficient, or unnecessary consumption of energy, as this may constitute an unavoidable adverse effect on energy resources. Efficiency projects that incorporate conservation measures to avoid wasteful energy usage facilitate long-term energy

planning and avoid the need for unplanned or additional energy capacity. Accordingly, based on the criteria outlined in the State CEQA Guidelines Appendix F, a project would cause significant impacts related to energy if it would lead to a wasteful, inefficient, and unnecessary usage of direct or indirect energy. As discussed in Section 3.11.1.1, *Regulatory Setting*, energy legislation, policies, and standards adopted by California and local governments were enacted and promulgated for the purpose of reducing energy consumption and improving efficiency (i.e., reducing wasteful and inefficient use of energy). Therefore, for the purposes of this analysis, *wasteful* and *inefficient* are defined as circumstances in which the project would conflict with applicable state or local energy legislation, policies, and standards. Accordingly, if the project conflicts with legislation, policies, or standards designed to avoid wasteful and inefficient energy usage, it would result in a significant impact related to energy resources and conservation.

3.11.2.3 Impacts and Mitigation Measures

Impact PSU-1: Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or a need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services: fire protection; police protection; schools; other public facilities (less than significant)

The proposed Project would not result in a population increase that would require new government facilities or lead to the physical alteration of existing facilities, including fire and police protection, schools, parks, or other public facilities. There are no community facilities within the study area and the Project would not physically alter any government facilities.

During construction, short-term closures of the existing bridge that may be necessary. These closures generally would coincide with the County's planned maintenance (approximately 2- to 4-week duration) and would not preclude travel along Mosquito Road to or from community facilities for extended durations. Road closures could affect the response times for emergency service providers. The County contract special provisions will require the contractor to prepare a Traffic Management Plan (see Chapter 2, *Project Description*). Traffic controls would be implemented throughout all phases of construction to facilitate local traffic circulation and through-traffic requirements, although minimal restrictions are anticipated. Emergency service providers including the police and fire departments would be notified as early as possible in order to plan for lane closures and other potential delays related to construction activity. If needed, temporary single-lane traffic controls would be implemented. When a closure is implemented, traffic would be rerouted on Rock Creek Road, a detour of as much as 20 miles, which is the current route used by large emergency vehicles because the existing Mosquito Road Bridge cannot accommodate them. It is expected that emergency service providers in the Project vicinity would be minimally affected during construction. This impact would be less than significant, and no mitigation is required.

Project operation would make the Mosquito Road crossing over the South Fork American River more reliable, safer, and more efficient for travelers and for emergency service providers. This would be a beneficial effect of the Project.

Impact PSU-2: Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board (no impact)

The proposed Project would not generate wastewater that would exceed the Central Valley RWQCB wastewater treatment requirements. No impact would occur.

Impact PSU-3: Require or result in the construction of new wastewater treatment facilities or the expansion of existing facilities, the construction of which could cause significant environmental effects (no impact)

The proposed Project would not increase the demand on existing water or wastewater treatment facilities. There would be no impact.

Impact PSU-4: 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 (less than significant)

Realignment of the bridge and roadway approaches would require construction of roadside ditches to convey stormwater from the realigned roadway. Drainage culverts may be necessary to facilitate roadway drainage from one side of the road to the other. Drainage system outfalls would likely involve light rock slope protection to dissipate stormwater flow. Other than provision of these facilities to direct stormwater flow for the proposed Project, there would be no need to construct new or expand existing stormwater facilities in the Project vicinity. This impact would be less than significant. No mitigation is required.

Impact PSU-5: Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed (no impact)

The proposed Project would not require water service. There would be no impact.

Impact PSU-6: Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments (no impact)

The proposed Project would not generate wastewater. There would be no impact.

Impact PSU-7: Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs (less than significant)

Construction debris from demolition of the existing bridge would be transported off-site and disposed of at a permitted landfill site. The amount of solid waste generated by the Project would not be great enough that it would reduce the capacity of a permitted landfill. This impact would be less than significant. No mitigation is required.

Impact PSU-8: Comply with federal, state, and local statutes and regulations related to solid waste (no impact)

Solid waste generated by the proposed Project would be disposed of at a permitted landfill in compliance with federal, state, and local regulations. No impact would occur.

Impact PSU-9: Result in long-term disruption of telecommunications services (less than significant)

The Project may require relocation of the aerial telecommunications for AT&T and PG&E along the roadway on the Placerville side of the canyon. If the utilities remain in their current location, the roadway to the existing bridge location would likely be used for access by the utility agencies. Segments of roadway may then require transfer of title to the utility companies that require access. If the utilities are relocated, access roadways would need to be provided on the canyon slopes to remove the facilities. This would also require titles or easements for new utility poles along the proposed roadway and placement of utilities on (within) the new bridge. Relocation of the utility poles could result in short-term temporary disruption of telecommunications services. The Project proponent has already initiated coordination with AT&T and PG&E and will continue to evaluate the need for relocation of the utility lines. Should relocation be required, the agencies would develop and implement a procedure to minimize the effects on affected lines and transition to the new system as quickly as possible to ensure no long-term disruption of services would occur. This impact would be less than significant and no mitigation is required.

Impact PSU-10: Lead to a wasteful, inefficient, and unnecessary usage of energy (less than significant)

Project construction would result in short-term increased energy requirements through the use of gasoline and diesel fuels for operation of heavy-duty construction equipment and vehicles. Materials manufacturing would also consume energy, although information on the intensity and quantity of fuel used during manufacturing is currently unknown and beyond the scope of project-level environmental analyses. An analysis of energy associated with materials manufacturing is considered speculative and is not presented in this Draft EIR.

The use of heavy-duty trucks and construction equipment would result in a temporary increase in fuel consumption in the study area relative to the existing condition. As discussed in Section 3.2, *Air Quality*, the maximum average daily fuel usage would be 361 gallons of diesel fuel per day. For the evaluation of impacts on air quality emissions, this level of fuel usage falls below the screening threshold for exceedance of ambient air quality standards set by EDCAQMD. This level of fuel use is not considered excessive or wasteful.

Overall, in the long term the proposed Project would be expected to result in lower fuel consumption and energy use. The existing bridge requires extensive maintenance, which results in up to a 1-month road closure for maintenance construction activities each summer. Maintenance of the new bridge would be less frequent and less intensive and expected to result in lower fuel consumption.

The proposed Project would generate a negligible increase in traffic volumes compared to no build conditions (see Section 3.13, *Traffic and Circulation*). There could be additional fuel savings because the new roadway approaches and bridge crossing would have a shorter travel path (approximately 1 mile less compared to the existing bridge). The shorter travel distance and anticipated gains in travel speed from the current 10 miles per hour to approximately 25 miles per hour improve traffic conditions and could result in further fuel efficiencies, and have a negligible effect on fuel consumption compared to existing conditions.

The new bridge would not result in a long-term continuous use of electricity or other energy sources and would have no effect on local or regional energy supplies and would not require additional capacity. There would be no effect on peak- or base-period demands for electricity or other forms of energy.

The energy use associated with construction and operation of the proposed Project would not conflict with applicable state or local energy legislation, policies or standards and would not be considered wasteful, inefficient, or unnecessary. The impact on energy use would be less than significant. No mitigation is required.

3.11.3 References

California Energy Commission. 2015. *2014 Integrated Energy Policy Report Update*. February. Publication Number: CEC-100-2014-001-CMF.

El Dorado County. 2004. *El Dorado County Adopted General Plan*. Public Services and Utilities Element. July.

El Dorado County. 2009. *El Dorado County Adopted General Plan*. Public Health, Safety, and Noise Element.

Terry A. Hayes Associates Inc. 2016. Memo from Sam Silverman, Senior Associate and Seyedehsan Hosseini, Environmental Scientist to Claire Bromund, Project Manager, ICF International. Mosquito Road Bridge Replacement, Air Quality and Greenhouse Gas Analysis. January 19.

3.12 Recreation

This section describes the existing conditions for recreation facilities in the study area. It also describes impacts on recreation facilities that would result from implementation of the proposed Project.

3.12.1 Existing Conditions

3.12.1.1 Regulatory Setting

El Dorado County General Plan

The Parks and Recreation Element of the County General Plan guides the establishment and maintenance of parks, recreation facilities, and trails within unincorporated El Dorado County (El Dorado County 2004:193). The Parks and Recreation Element policy section addresses conservation and promotion of waterways for recreation among other purposes, and contains goals, objectives, and policies applicable to recreation resources within and near the Project site.

Goal 9.1, *Parks and Recreation Facilities*, addresses provision of adequate recreation opportunities and facilities for the residents and visitors of El Dorado County, and Objective 9.1.4, *Rivers and Waterways*, aims to “conserve and promote the waterways of El Dorado County, particularly the South Fork American River, as recreational and economic assets.” However, the policies associated with this goal and objective focus on areas of the South Fork American River downstream of the proposed Project area.

Goal 9.3, *Recreation and Tourism*, seeks “greater opportunities to capitalize on the recreational resources of the county through tourism and recreational based businesses and industries,” and Objective 9.3.1, *Recreational and Tourist Uses*, is to “protect and maintain existing recreational and tourist based assets such as Apple Hill, State historic parks, the Lake Tahoe Basin, wineries, South Fork of the American River, and other water sport areas and resorts and encourage the development of additional recreation/tourism business and industries.”

3.12.1.2 Environmental Setting

With the exception of the South Fork American River, there are no local, state, or federally designated parks or recreational areas adjacent to or within 0.5 mile of the Project site. The South Fork American River is a popular destination for river rafting, inner tubing, kayaking, and other river recreation. Several commercial whitewater rafting outfitters have operations that use the South Fork American River, and these commercial trips make up the majority of river use (El Dorado County 2014). According to the El Dorado County River Management Plan 2014 and 2015 Annual Reports, the South Fork American River generally attracts over 100,000 users annually, but 2014 and 2015 were the two lowest use years within the last 10 years with fewer than 90,000 recreational visitors in each year. The reduction in use from 2013 counts is attributed to drought-related reductions in water volumes released for recreational purposes (El Dorado County 2014, 2015).

The County manages the South Fork American River Whitewater Recreation Program and River Management Plan from Chili Bar to the Salmon Falls parking area in coordination with the BLM, California Department of Parks and Recreation, and the El Dorado County Sheriff's Boating Unit. However, the River Management Plan planning area is downstream of the Project site.

According to the Sacramento Municipal Utility District (SMUD), which releases water from the Slab Creek Reservoir (approximately 3 miles upstream from the Project site) for downstream recreational purposes, the river immediately below Slab Creek Dam is seldom used for recreation because of the steep terrain that limits access and opportunity (Sacramento Municipal Utility District 2015). However, SMUD has recently completed an Initial Study and Mitigated Negative Declaration for a new Slab Creek powerhouse and boating flow release valve project, which includes an improved boat put-in area near the Slab Creek Reservoir (Sacramento Municipal Utility District 2015).

3.12.2 Environmental Impacts

3.12.2.1 Methods of Analysis

The analysis of the Project's impacts on recreational resources was conducted through a review of local recreation planning documents, including the County General Plan Parks and Recreation Element, and the County South Fork American River Program and River Management Plan and evaluating the potential for changes to existing recreation resources based on anticipated Project construction and operation.

3.12.2.2 Thresholds of Significance

In accordance with Appendix G of the State CEQA Guidelines, the proposed Project would be considered to have a significant effect if it would result in any of the conditions listed below.

- 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.
- Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment.

3.12.2.3 Impacts and Mitigation Measures

Impact REC-1: 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 (less than significant)

Replacement of the Mosquito Road Bridge would not increase the use of any existing parks or recreational facilities that could lead to physical deterioration. The existing Mosquito Road Bridge location is informally used as a boat take-out point. Vehicle access to the existing bridge site would be restricted once construction of the replacement bridge is complete. Access to the old roadway segments on each side of the river would be controlled by pipe gates, which would be closed once the new bridge is open for use. The location of the pipe gate on the Mosquito/Swansboro side of the river would change to be on the old roadway near where it meets the newly realigned road. Although public vehicle access to the existing Mosquito Road boat informal take-out point would be precluded, non-motorized access to the river would continue, as under existing conditions. These

changes would not result in a substantial physical deterioration of the area. The impact would be less than significant. No mitigation is required.

Impact REC-2: Construction or expansion of recreational facilities that might have an adverse physical effect on the environment (no impact)

The proposed Project does not include the construction or expansion of recreational facilities that could result in adverse environmental impacts. There would be no impact.

3.12.3 References

El Dorado County. 2004. *El Dorado County General Plan*. July.

El Dorado County. 2014. *El Dorado County River Management Plan 2014 Annual Report*.

El Dorado County. 2015. *El Dorado County River Management Plan 2015 Annual Report*

3.13 Traffic and Circulation

This section describes the existing conditions related to transportation and discusses impacts associated with implementation of the proposed Project.

3.13.1 Existing Conditions

3.13.1.1 Regulatory Setting

Regional

Sacramento Area Council of Governments

SACOG is an association of local governments in the six-county Sacramento region. Its members consist of the counties of Sacramento, El Dorado, Placer, Sutter, Yolo, and Yuba as well as 22 cities. SACOG provides transportation planning and funding for the region and serves as a forum for the study and resolution of regional issues. In addition to preparing the region's long-range transportation plan, SACOG assists with planning related to transit, bicycle networks, clean air, and airport land uses.

The MTP/SCS (Sacramento Area Council of Governments 2016) is a federally mandated long-range, fiscally constrained transportation plan for the six-county area. To receive federal funding, transportation projects nominated by cities, counties, and agencies must be consistent with the MTP/SCS.

The MTIP is a list of transportation projects and programs to be funded and implemented over the next 3 years (Sacramento Area Council of Governments 2014). SACOG submits the MTIP to Caltrans and amends the program on a quarterly cycle. Only projects listed in the MTP/SCS may be included in the MTIP.

Local

El Dorado County Transportation Commission

The El Dorado County Transportation Commission (EDCTC) is the Regional Transportation Planning Agency for the County, except for that portion of the County within the Tahoe Basin, which is under the jurisdiction of the Tahoe Regional Planning Agency.

The EDCTC prepares the County's RTP. The RTP is designed to be a blueprint for the systematic development of a balanced, comprehensive, multimodal transportation system (El Dorado County Transportation Commission 2015). The EDCTC submits the RTP to SACOG for inclusion in the MTP/SCS process. The proposed Project is included in the current RTP.

El Dorado County

The Transportation and Circulation Element of the County General Plan establishes standards that guide development of the transportation system, including access to the road and highway system required by new development. The Transportation and Circulation Element identifies Mosquito

Road through the Project limits as a two-lane regional road which may undergo spot improvements (El Dorado County 2015).

3.13.1.2 Environmental Setting

Mosquito Road is a rural narrow roadway. The segment of roadway within the South Fork American River canyon has a width less than the current standard 24-foot two-way travelway, and is reduced to a single lane near the bridge on both roadway approaches.

The existing span across the river is a one-lane, 9-foot-wide, limited-capacity timber suspension bridge. The existing bridge is posted to limit vehicle loads to 5 tons. There are sharp, nearly 90-degree angled turns onto the bridge, and the speeds across the bridge are generally less than 10 mph due to the bridge's narrow width.

Transportation Facilities

As identified in the October 2015 Traffic and Transportation Technical Memorandum prepared for the proposed Project and shown in Table 3.13-1, ADT within the Project area has varied over recent years, with the most recent measurements showing 1,256 vehicles per day. Approximately 1 percent of ADT is composed of truck traffic. By 2034, ADT in the Project vicinity is expected to approximately double, but the percentage of trucks making up ADT would remain at approximately 1 percent (Quincy Engineering 2015).

Table 3.13-1. Average Daily Traffic in the Project Vicinity (2009–2015)

Date Measured	Average Daily Traffic	Source
July 17, 2015	1,256 ^a	El Dorado County, Community Development Agency: Transportation Division, Traffic Count Summary
March 4, 2015	1,133	
March 2014	1,172	
March 2013	1,169	El Dorado County, Community Development Agency: Transportation Division, Five Year Traffic Summary 2009–2014
March 2012	1,055	
March 2011	1,402	
March 2010	1,211	
March 2009	1,238	

^a Value based on July 17 count on Rock Creek Road with ADT 1535 during Mosquito Road Closure (all traffic detoured to Rock Creek Road) less count on Rock Creek Road with ADT of 279 on August 2, 2015.

Source: Quincy Engineering 2015

Access, Circulation, and Parking

At present, access across the South Fork American River is intermittently disrupted by the maintenance of the existing bridge and approaches. In addition, the nonstandard width of the bridge and approaches make travel difficult for emergency services and other larger vehicles. No formal parking is currently provided in the vicinity of the crossing, but the Mosquito Road Bridge is used as a take-out point for South Fork American River users and vehicles park to the side of the roadway.

Public Transportation

There are no public transportation services, including dial-a-ride, offered in the study area and there are no known plans for new routes that would extend into the Project area.

Bicycle and Pedestrian Facilities

Given the rural location of the Project, the large distances between destination points in the study area, and the lack of formal facilities such as sidewalks and bike lanes, bicycle and pedestrian travel is not a common mode of transportation. However, bicycle and pedestrian travel along Mosquito Road is not prohibited.

3.13.2 Environmental Impacts

3.13.2.1 Methods of Analysis

The impact analysis for traffic and circulation was conducted by evaluating the potential changes to the existing bridge, roadway approaches, and other transportation conditions based on the anticipated Project construction activities and proposed Project design. Relevant policies and plans related to transportation and circulation issues were also reviewed.

3.13.2.2 Thresholds of Significance

In accordance with Appendix G of the State CEQA Guidelines, the proposed Project would be considered to have a potentially significant impact on transportation and circulation if it would result in any of the conditions listed below.

- Conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation, including mass transit and non-motorized travel, and relevant components of the circulation system, including intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit.
- Conflict with an applicable congestion management program, including, but not limited to, LOS standards and travel demand measures or other standards established by the County congestion management agency for designated roads or highways.
- Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks.
- Substantially increase hazards because of a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).
- Result in inadequate emergency access.
- Conflict with adopted policies, plans, or programs regarding public transit or bicycle or pedestrian facilities or otherwise decrease the performance or safety of such facilities.
- Conflict with adopted policies, plans, or programs regarding the delivery of goods and services.

3.13.2.3 Impacts and Mitigation Measures

Impact TRA-1: Conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation, including mass transit and non-motorized travel, and relevant components of the circulation system, including, but not limited to, intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit (less than significant)

Transportation Facilities

The proposed Project would realign Mosquito Road to bypass nonstandard portions of the roadway. These improvements are anticipated to reduce the extent and duration of maintenance, improve safety, and make roadway operations more efficient. During the construction period, short-term closures of the existing bridge may be required, but would coincide with the County's planned maintenance and would not preclude travel along Mosquito Road for extended durations. As discussed in Chapter 2, *Project Description*, the construction contractor will prepare and implement a Traffic Management Plan and any required road closures will be communicated in advance through outreach to residents and through the use of portable message signs.

As shown in Table 3.13-2, traffic volumes are anticipated to nearly double by 2034, but no difference in ADT or truck volumes is anticipated between the proposed Project and No Project scenarios.

Table 3.13-2. Existing and Future Traffic Volumes

Year	Scenario	Car		Truck	
		AM Peak Hour	ADT	AM Peak Hour Count	AM Peak Hour %
2015	Proposed Project	1,256	13	0.4	0.34%
	No Project	1,256	13	0	0%
2034	Proposed Project	2,521	26	0.8	0.34%
	No Project	2,521	26	0	0%

Access, Circulation, and Parking

Project improvements are anticipated to reduce the extent and duration of the maintenance requirements for crossing the South Fork American River, improve safety, and make roadway operations more efficient, all of which would improve access and circulation in the Project vicinity. With respect to parking, no public vehicular access beyond the bypassed portions of Mosquito Road would be permitted, because these sections would be barricaded. Parking on the side of the road and off-road in the bypassed section of Mosquito Road would not be allowed, but would be permitted elsewhere, pursuant to all applicable County rules.

Plan Consistency

The proposed Project is listed in the MTP/SCS as a project that would be implemented. The Project is also consistent with the goals, policies and performance standards of the El Dorado County General Plan. The design of the proposed Project complies with the applicable road design standards. The proposed Project would bypass a nonstandard bridge and approaches, thereby improving the operational efficiency. And, the proposed Project would result in safety

improvements, which would support the General Plan provision of a unified, coordinated, and cost-efficient countywide road and highway system that ensures the safe, orderly, and efficient movement of people and goods.

Impact TRA-2: Conflict with an applicable congestion management program, including, but not limited to, level-of-service standards and travel demand measures or other standards established by the County congestion management agency for designated roads or highways (no impact)

Mosquito Road is not part of a congestion management program. However, the proposed Project would improve traffic and circulation conditions in the study area. Project improvements would reduce the extent and duration of the maintenance requirements for the existing bridge, improve safety, and make roadway operations more efficient, all of which would improve access and circulation in the Project vicinity. There would be no impact.

Impact TRA-3: Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks (no impact)

The closest public airport is the county-owned Placerville Airport, more than 3 miles south of the Project area. The closest private airport is the Swansboro Country Airport located approximately 1.6 miles north of the Project area. The Project would construct a bridge at a higher elevation in the South Fork American River canyon than the existing bridge, but its elevation would not result in a safety hazard for people utilizing the private airstrip, or people residing or working in the Project area. There would be no change in air traffic patterns. There would be no impact.

Impact TRA-4: Substantially increase hazards because of a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment) (no impact)

As described in Chapter 2, *Project Description*, the existing Mosquito Road Bridge is structurally deficient and functionally obsolete and the roadway approaches to the bridge are substandard. The proposed Project would replace the bridge with a new structure and eliminate substandard roadway approaches that currently restrict vehicle access to the bridge. Five hairpin turns—the one hairpin on the Placerville side of the canyon and the four hairpins on the Mosquito/Swansboro side of the canyon would be bypassed. These hairpin turns and the sharp, nearly 90-degree turns onto the narrow single-lane bridge restrict bridge access to smaller vehicles. The replacement bridge would also provide a standard-width bridge for two-way traffic and improve efficiency and safety of travel for larger emergency vehicles and trucks that currently are not able to access the bridge.

Based on the ADT, the roadway's functional classification, and the terrain, the design speed per AASHTO's report *A Policy on Geometric Design of Highways and Streets* (2011) is 40 mph. However, El Dorado County's adopted design standard for this roadway is 30 mph. Given the site-specific nature of a steep and deep canyon, and the 20-mph advisory speed signs (suggested reduced speeds) all along the corridor leading to and from the bridge, the County has determined that this stretch of Mosquito Road should be considered for a design speed of 25 mph. The design speed is used to determine the geometric features of the roadway and bridge and is not the same as the posted speed limit. The Project would likely include additional posted advisory speed signs of 20 mph for consistency.

No new hazards would be introduced. The removal of these existing hazardous and restricted conditions would be an improvement relative to existing conditions. There would be no impact. No mitigation is required.

Impact TRA-5: Result in inadequate emergency access (less than significant)

Short-term closures of the existing bridge that may be required during the construction period would coincide with the County's planned maintenance and would not preclude travel along Mosquito Road for extended durations. With the exception of occasional short-term closures of up to approximately 2 to 4 weeks, the existing bridge would remain open during construction of the new bridge. The County or its construction contractors will conduct early coordination regarding any required road closures with emergency service providers, including fire and police, to ensure minimal disruption and access through the Project area would be maintained at all times. Traffic controls would be implemented during construction, although relatively minimal traffic restrictions are anticipated. If needed, temporary single-lane traffic controls would be implemented. The Project contractor would be required to prepare a traffic management plan that must be approved by El Dorado County. Access for emergency vehicles through the Project area would be maintained at current conditions at all times. When a closure is implemented, traffic would be rerouted on Rock Creek Road, a detour of as much as 20 miles, which is the current route used by large emergency vehicles because the existing Mosquito Road Bridge cannot accommodate them. This impact would be less than significant, and no mitigation is required.

Project operation would make the Mosquito Road crossing over the South Fork American River more reliable, safer, and more efficient for travelers and for emergency service providers. This would be a beneficial effect of the Project.

Impact TRA-6: Conflict with adopted policies, plans, or programs regarding public transit, bicycle or pedestrian facilities or otherwise decrease the performance or safety of such facilities (no impact)

There are no public transportation services, including dial-a-ride, offered in the study area and there are no known plans for new routes that would extend into the Project area.

Walking and bicycling are not common modes of transportation in the study area, but are not prohibited. No bicycle or pedestrian facilities are found in the study area and none would be introduced as a Project component. Therefore, travel by bicyclists and pedestrians would not be affected. Accordingly, the proposed Project would not conflict with any policies or plans and would not decrease the performance or safety conditions.

Overall, the replacement bridge would provide an improved, safer route for crossing the river compared to the existing structure. There would be no impact on public transit, bicycle, or pedestrian facilities.

3.13.3 References

El Dorado County. 2015. El Dorado County General Plan, Transportation and Circulation Element. Adopted July 2004 and last amended December 2015.

El Dorado County Transportation Commission. 2015. Final El Dorado County Regional Transportation Plan 2015-2035. September.

Quincy Engineering. 2015. Traffic and Transportation Technical Memorandum. November 6.

Sacramento Area Council of Governments. 2014. 2015/2018 Metropolitan Transportation Improvement Program. September.

Sacramento Area Council of Governments. 2016. 2016 Metropolitan Transportation Plan/Sustainable Communities Strategy. Adopted February 18, 2016.

4.1 Alternatives Overview

CEQA requires that an EIR include a reasonable range of feasible alternatives to the proposed Project 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 allow a reasoned choice. An EIR need not consider every conceivable alternative to a project. Instead, the discussion of alternatives must “focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project.” Where a potential alternative is examined but not chosen as one of alternatives, the State CEQA Guidelines require that an EIR briefly discuss the reasons the alternative was dismissed. An EIR is not required to consider alternatives which are infeasible. In addition to a range of alternatives, an 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 (PRC § 21002).

This chapter describes the alternatives to the Mosquito Road Bridge Replacement Project and compares the anticipated environmental impacts of the alternatives to those of the proposed Project, analyzed in Chapter 3, *Impact Analysis*, Sections 3.1 through 3.13.

4.2 Alternatives Development

The County began studying the bridge replacement alternatives in 1991. A 1993 summary report considered five alignment alternatives including low-, mid-, and high-level alignments in various locations within the canyon. The study conducted for the proposed Project expanded on the 1993 study and considered many more alternatives—28 alignments in various locations extending over approximately 0.25 mile of river. The following screening criteria were established to review and rate each alternative.

- *Viability of alternatives* in terms of funding, consistency with the General Plan, consistency with the Project’s objectives, and avoiding geologically sensitive areas such as critical slide zones.
- *Safety and operations* related to accidents, emergency response, evacuation routes, standard geometry, various transportation modes, recreation and river access, bridge washout, and long-term maintenance.

- *Construction traffic handling* including the need for an off-site detour or on-site detour, maximizing ability to keep the existing bridge open during construction, and access to Project area for construction equipment.
- *Community character* related to blending the bridge placement and design into existing rural setting.
- *Environmental/geotechnical resources* and minimizing effects such as minimizing impacts on wildlife habitat; avoiding geologically sensitive areas; minimizing the visual impacts from, and of, the new bridge (with a focus on location and not bridge type); and minimizing impacts on cultural/historic resources.
- *Right-of-way* minimizations such as for the impacts on private land owners, the area of acquisition on private property and the total number of acquisitions necessary, and avoiding properties with underlying mineral rights.
- *Alternative benefit/cost* considerations to minimize Project cost while maximizing Project cost benefits and ensuring full funding through the Local Highway Bridge Program.

Many of the alternative alignments were eliminated at early stages in the investigation based on the high engineering design risk and long-term maintenance concerns they would pose by trying to accommodate the geologic conditions (e.g., slides complexes) at their locations in the canyon. Both rehabilitation and replacement options for the existing bridge were evaluated by the County. Following further study and refinement of alignments, it was determined that replacement of the bridge is the most cost-effective approach for correcting the structural deficiency and functional obsolescence of the bridge. The alternatives were evaluated against the Project's purpose and objectives, design criteria and similarity to each other, and were reduced to nine alignments to be studied further. The resulting alignments were catalogued into three corridors—high-level, mid-level, and low-level—based on their elevation within the river canyon.

The nine alternatives, shown in Figure 4-1, below, were assessed further against the screening criterion and then processed through a risk assessment. The public was engaged, and meetings were held with Caltrans and FHWA to present study results and obtain input. Through this process the alignments were further reduced to one high-, mid-, and low-level alternative—three alternatives total. These alignments are numbered 1, 6, and 8, respectively, on Figure 4-1. FHWA and Caltrans Headquarters agreed to these three primary alternatives being carried forward for final analyses in the environmental process. The public consensus is for a high-level alignment (Alternative 1) because it best addresses the *safety and operations* criterion as noted above.

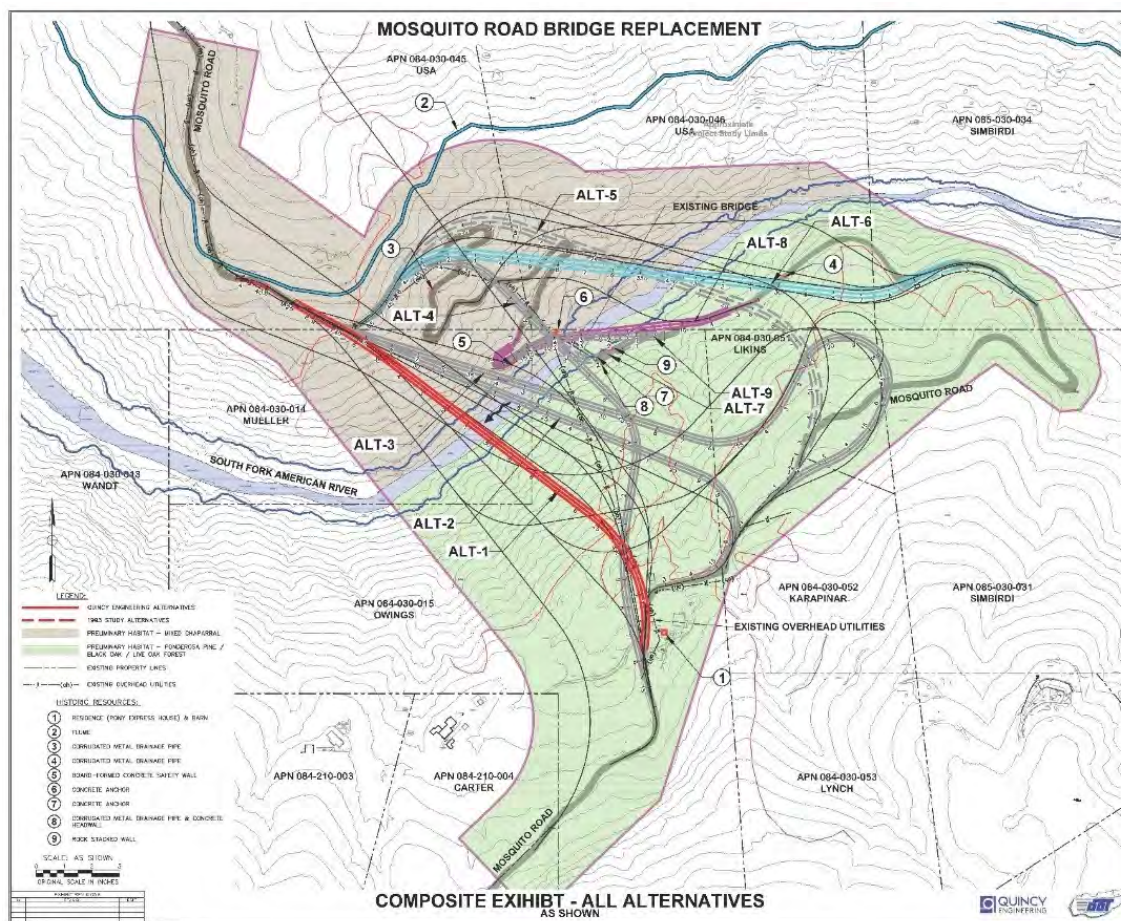


Figure 4-1. Nine Alternative Alignments Considered

The High-level Alternative (Alternative 1) would eliminate the four hairpin turns on the Mosquito/Swansboro side of the canyon and the one hairpin turn on the Placerville side of the canyon. The Mid-level Alternative (Alternative 6) addresses the screening criterion fairly well although results in reasonably high vulnerability related to an existing landslide complex. The Mid-level Alternative would only eliminate the four hairpins on the Mosquito/Swansboro side of the canyon, while the Low-level Alternative (Alternative 8) results in maintaining very narrow roadway approaches and maintains constricted access to the bridge. The Low-level Alternative would not eliminate any hairpin turns and would result in an underutilized bridge that is unable to service the transportation needs as designed and constructed. Based on the results of refined engineering design, preliminary assessments of potential environmental effects, and public input, the County identified the High-level Alternative (Alternative 1) as the proposed Project.

4.3 Alternatives Analysis

After the screening process, the County determined that in addition to the proposed Project, the two build alternatives—Mid-level (mid-elevation in the canyon) and Low-level (lowest canyon elevation)—would fulfill the CEQA requirements of meeting many of the project objectives, would be fairly feasible, and reduce or eliminate project impacts. In addition, a No-Project Alternative must

be considered in an EIR. Therefore, the following alternatives are evaluated in comparison with the proposed Project.

- No-Project Alternative
- Mid-level Alternative (Alternative 6)
- Low-level Alternative (Alternative 8)

Table 4-1 provides a general comparison of the key features associated with the proposed Project and the No-Project, Mid-level and Low-level Alternatives.

Table 4-1. Key Aspects of Project Alternatives

Key Aspect	Proposed Project	No-Project Alternative	Mid-level Alternative	Low-level Alternative
Hairpin Turns Removed	5	0	4	0
Addresses high accident history	Yes	No	Yes	No
Bridge Elevation above South Fork American River (approximate)	400 feet	60 feet	250 feet	90 feet
Bridge Length (approximate)	1200 feet	140 feet	1200 feet	700 feet
Allows vehicles over 5 tons and 25 feet in length, and vehicles towing trailers allowed	Yes	No	Yes	No
Accommodates emergency vehicle access and evacuation route	Yes	No	Mostly	No
Susceptibility to future landslide	Negligible	Very likely	Very likely	Very likely
Temporary Construction Detour	up to 2 to 4 weeks	1 month each year for annual maintenance	Up to 4 months	Up to 8 months
Roadway Improvements on Rock Creek Road	No	No	Yes	Yes
Overall Construction Duration (approximate)	30 months	n/a	36 months	40 months

Each of the alternatives analyzed is further described in Sections 4.3.1 through 4.3.3. The impacts of each alternative are qualitative compared to the impacts of the proposed Project in terms of impact type and severity.

4.3.1 No-Project Alternative

4.3.1.1 Description

Section 15126.6(e)(2) of the State CEQA Guidelines requires an EIR to include an analysis of the No-Project Alternative. Evaluation of the No-Project Alternative allows decision makers to compare the impacts of approving the proposed Project with the impacts of not approving the proposed Project. The No-Project Alternative assumes that the proposed Project would not be implemented but does not necessarily preclude use or development of the Project site. Rather, the No-Project Alternative evaluated in this Draft EIR considers “what would be reasonably expected to occur in the foreseeable future if the proposed Project were not approved, based on current plans and consistent with available infrastructure and community services” (State CEQA Guidelines § 15126.6 [e][2]).

For this Draft EIR, the No-Project Alternative assumes that the existing bridge would remain and continue to be maintained. As discussed in Chapter 2, *Project Description*, Section 2.2, the existing narrow single-lane bridge is structurally deficient and functionally obsolete and has substandard roadway approaches. The accident rate of 2.24 per million vehicle miles is 1.6 times greater than the El Dorado County average. The bridge restricts vehicle access, and emergency responders and evacuees have one way in and out of the communities of Mosquito and Swansboro. Bridge maintenance costs average \$75,000 per year. Under the No-Project Alternative these issues and annual costs would continue.

4.3.1.2 Impact Analysis

Aesthetics

The No-Project Alternative would result in no impacts on aesthetics because use of the existing bridge would not change. There would be no construction-related removal of the existing bridge structure or vegetation or change in views from the roadway, residential uses, or from the South Fork American River. No new roadway or bridge structure would be introduced to the visual setting. The No-Project Alternative, like the proposed Project, would not result in impacts on scenic vistas or resources because there are no designated scenic highways or other resources in the Project area.

Air Quality

The No-Project Alternative would result in no impacts on air quality. Short-term construction emissions would not be generated and there would be no potential to exceed EDCAQMD's thresholds or expose sensitive receptors to substantial pollutant concentrations. There would likewise be no change in VMT or traffic conditions, relative to existing conditions, and as a result, no change in operational criteria pollutant emissions. Since the existing bridge would not be demolished, there would be no potential for exposure to structural asbestos, lead-based paint, or nuisance odors. Impacts would be less than the proposed Project.

Biological Resources

Under the No-Project Alternative, annual maintenance activities would potentially result in temporary disturbances to nesting migratory birds. However, no ground disturbance or loss of habitat or wetlands would occur. Impacts would be less than the proposed Project.

Cultural Resources

The potential for impacts on cultural resources would remain unchanged from existing conditions under the No-Project Alternative. Ground disturbing construction activities would not occur and the location of the existing Mosquito Road Bridge would remain the same. The potential to disturb or destroy buried archaeological resources or previously unknown human remains would remain unchanged. Further, operation and maintenance of the existing bridge and roads would not affect previously identified historical resources. Impacts would be less than the proposed Project.

Geology, Soils, Minerals, and Paleontological Resources

Under the No-Project Alternative, there would be no immediate impacts related to geologic hazards, such as those associated with fault rupture, strong ground shaking, and soil erosion, because the project would not be built. However, numerous slope failures of different types and indications of slope instability exist in the area. Notwithstanding the ground-disturbing activities of the Project, a landslide could impact the existing bridge, thereby exposing people and structures, including the risk of loss, injury, or death. The impact would be significant compared to the proposed Project.

Because there would be no ground-disturbing construction activities, the No-Project Alternative would not impact mineral or paleontological resources. Impacts would be less than the proposed Project.

Greenhouse Gas Emissions

The No-Project Alternative would result in no new impacts to GHG emissions. Short-term construction emissions would not be generated and there would be no potential to exceed regional draft threshold of 1,100 metric tons CO₂e. There would likewise be no change in VMT or traffic conditions, relative to existing conditions, and as a result, no impact on operational GHG emissions. Impacts would be less than the proposed Project.

Hazards and Hazardous Materials

There would be no construction activity under the No-Project Alternative, which would lead to fewer overall impacts as a result of regular maintenance activities related to the potential for hazardous material releases compared to the proposed Project. This alternative would not introduce new fire hazards or risk to people and structures in the Project area. As a result the risk of people and structures being exposed to fire would be less under the No-Project Alternative than under the proposed Project. Impacts would be less than the proposed Project.

Hydrology/Water Quality

The No-Project Alternative would result in no impacts to hydrology and water quality. Construction impacts related to land disturbing activities would not occur and there would be no potential for temporary increases in sediment loads and pollutants to the South Fork American River, or degradation of water quality. There would be no increase in the use of chemicals or pollutants associated with construction activities and as a result, no increase in hazardous materials in stormwater and no change in flow rates and drainage patterns of stormwater runoff. Impacts would be less than the proposed Project.

Land Use Planning and Agricultural Resources

The No-Project Alternative would result in no changes to land use or agricultural resources in the study area. Because a replacement bridge would not be constructed there would be no need to acquire temporary or permanent easements of private lands for transportation uses and there would be no impact on lands designated or zoned for agricultural use or timber preserves. The No-Project Alternative would be inconsistent with the SACOG MTP/SCS which identifies the proposed project as one that would be implemented. Impacts would be less than the proposed Project.

Noise and Vibration

The No-Project Alternative would result in no new noise or vibration related impacts. Short-term construction noise would not be generated and there would be no potential to exceed the County construction noise thresholds. There would likewise be no change traffic conditions, relative to existing conditions, and as a result, no impact on operational noise levels. Impacts would be less than the proposed Project.

Public Services and Utilities

The No-Project Alternative would result in no impacts on public services or utilities. Similar to the proposed Project, there would be no impact on community facilities because none are present in the study area. However, the current substandard roadway approach and bridge conditions would remain and access for larger vehicles, including emergency responders and delivery trucks would remain restricted. The AT&T and PG&E telecommunication lines would not need to be relocated. There would be no construction-related increase in fuel consumption. Similar to the proposed project, there would be no associated change in demand for electricity or other energy sources and there would be no inefficient or wasteful use of energy resources. Impacts would be less than the proposed Project.

Recreation

The No-Project Alternative would result in no impacts on recreation. Although there are no formal local, state, or federal recreation facilities in the study area, the Mosquito Road Bridge is used as an informal river take-out location. Under the No-Project Alternative vehicular access would remain unchanged. Impacts would be less than the proposed Project.

Traffic and Circulation

The No-Project Alternative would result in no construction-related impacts on traffic or circulation conditions in the study area. However, traffic volumes are anticipated to nearly double in the Project area by 2034 with or without the Project (ICF International 2016). Because no improvements would be made to the bridge or roadway approaches, the route would remain substandard and structurally deficient. Annual maintenance requirements would continue resulting in up to 1 month of road closures each summer. Access for larger vehicles, including emergency response vehicles and delivery trucks would remain restricted. Compared to the proposed Project, traffic conditions would be worse thus accident rates, including deaths, would likely increase.

As with the proposed Project, there are no public transportation services in the study area. Infrequent bicycle or pedestrian use in the study area likely would continue but would not benefit from an improved crossing structure and roadway approaches.

4.3.2 Mid-Level Alternative

4.3.2.1 Description

The Mid-level Alternative would replace the existing structurally deficient and functionally obsolete, very narrow single-lane bridge and substandard roadway approaches. The accident rate of 2.24 per million vehicle miles, which is 1.6 times greater than the El Dorado County average, and fatalities would be addressed with the greatly improved river crossing proposed by the Mid-level Alternative. Vehicle access would be much less constricted (the one southerly remaining hairpin poses some constriction), offering access to emergency responders and evacuees. Bridge maintenance costs would remain an issue as the road and bridge alignment proposed by this alternative lies within the slide-riddled canyon on the north and could experience blocking debris and damage due to slides. Such events could render the road impassible and the risk of long-term closures exists. This would perpetuate emergency opening exercises and repairs totaling in the many millions of dollars. Because of the instability of the canyon, there is the possibility of a rock slide large enough to wipe out the bridge, which would require a replacement similar to the proposed Project. The Mid-level Alternative would only eliminate the four hairpins on the Mosquito/Swansboro side of the canyon, but maintains the one hairpin on the Placerville side (Figure 4-2). The one remaining hairpin is less restricting to vehicles than those eliminated.

Bridge Design and Construction

The Mid-level Alternative proposes to raise the bridge profile to approximately 250 feet over the river. This proposed mid-level bridge is not as direct an alignment across the river as the proposed Project and results in a longer bridge due to its skewed alignment that results in a bridge length of approximately 1,200 feet. It is anticipated that the structure would be a multi-span, CIP prestressed concrete box girder, concrete arch, or network arch type bridge. .

The cantilever segmental or arch construction method would eliminate the need for falsework in the South Fork American River, avoiding the river channel and the need to divert river flows. Some falsework may be required, depending on the bridge type determined during final design.. Also, a pair of temporary shoring towers may be required adjacent to each bridge support to assist with bridge construction. Bridge supports would be placed outside the floodplain of the river.

Like the proposed Project, segmental/arch or similar bridge construction would be used. Since the bridge would be constructed off of the existing roadway alignment, the existing Mosquito Road and bridge could remain largely open to traffic with traffic delays related to equipment and materials mobilization, northerly abutment and retaining wall construction, and final roadway tie-ins. An up to four month roadway closure and 20-mile detour to Rock Creek Road is anticipated.

The Mid-level Alternative would not require a temporary bridge structure because the existing bridge can be used during construction. Like the proposed Project, the existing bridge may be removed once traffic is shifted onto the new bridge.

Bridge Abutments

The Mid-level Alternative may have a longer bridge length and higher roadway profile, as compared to the Low-level Alternative, which would allow the new bridge abutments to be higher up the canyon from the river. Based on shallow rock conditions expected at the upper canyon areas, it is anticipated that the bridge abutments would be constructed on spread footings. If suitable rock is not encountered at shallow depths short (10 to 20 foot long) CIDH piles socketed into the rock may be required. Construction of abutments would be similar to the methods included for the proposed Project. Rock slope protection (RSP) is not anticipated at the abutment areas since they are exceedingly above flow levels.

Bridge Supports

Based on shallow rock conditions expected near the lower canyon areas, it is anticipated that the bridge supports will be founded on either spread footings with rock tie-down anchors or deep mined shafts into the rock. The spread footings could be up to 40 feet square and require excavations up to 20 feet average depth. The mined shafts could be up to 30 feet square and possibly as deep as 100 feet depending on subsurface conditions. Driven piles are not expected; however, pile driving could be implemented. Excavation of the mined shafts could include impact hammers to break up the rock as work progresses downward.

RSP is not anticipated at the bridge support areas because they are above flow levels.

Roadway Design and Construction

The Mid-level Alternative would involve a realignment of approximately 2,200 feet of roadway. The departure from the existing roadway on the Placerville side of the canyon involves approximately 550 feet of roadway approach to the nearly 1,200-foot-long bridge, then 350-foot northerly roadway approach where the alignment converges back to the existing roadway on the Swansboro side.

Utility Relocation

Similar to the proposed Project, it is not yet known if the aerial telecommunications for AT&T and PG&E would need to be relocated for the Mid-level Alternative. If the utilities remain in their current location, the roadway to the existing bridge location would likely be used for access by the utility agencies. Segments of roadway may then require transfer of title to the utility companies that require access. If the utilities are relocated, access roadways would need to be provided on the canyon slopes to remove the facilities. This would also require titles or easements for new utility poles along the proposed roadway and placement of utilities on (within) the new bridge.

Right-of-way and Temporary Easements

The Mid-level Alternative alignment traverses through the privately-owned APN 085-030-034 and BLM land on APN 084-030-046 and APN 084-030-045, requiring right-of-way acquisition for the roadway, cuts and fills, retaining walls, drainage culverts, possible utilities, and the bridge. Temporary easements would be needed for construction staging and possibly for temporary access roads for bridge abutments and supports. Permanent easements may be needed for future maintenance of the bridge abutments and supports. If access roadways are necessary, such access roadways would be permanently barricaded (blocked) from general public access. This could be accomplished by means of steel pipe gates that would normally be locked or by placing large

boulders or earthen mounds at the access points to such temporary access roadways. If boulders are used, they would be obtained from the rock excavation proposed for the permanent roadway approaches to the bridge or access roadways.

Traffic Management during Construction

Like the proposed Project, traffic controls would be implemented during construction of the Mid-level Alternative and it is anticipated that four months of roadway closure would be required during multiple project stages and construction seasons, which would result in a 20-mile detour on Rock Creek Road. The additional use of Rock Creek Road could result in deterioration of the roadway, requiring pavement rehabilitation in the form of a slurry seal or an overlay of asphalt.

Construction Schedule

The Mid-level Alternative bridge is anticipated to be constructed within three construction seasons and require approximately 36 months to complete.

4.3.2.2 Impact Analysis

Aesthetics

The Mid-level Alternative would potentially result in larger temporary disturbance areas than the proposed Project and Low-level Alternative, potentially resulting in removal of more trees than the proposed Project. Permanent disturbance areas would be less than proposed Project but more than the Low-level Alternative. As for the proposed Project, the least number of trees would be removed and on-site revegetation of cleared areas, required for soil stabilization and to mitigate the loss of mature vegetation, would reduce the visual effects of the Mid-level Alternative. Other project effects would be similar to the proposed Project and Low-level Alternative.

Air Quality

The types of air quality impacts under the Mid-level Alternative would be similar to those under the proposed Project, but of a greater magnitude due to extensive abutment retaining wall and possible slide confinement retaining wall construction on the Swansboro side as well as a four month detour. The Mid-level Alternative could require more construction activity due to its longer construction duration compared to the proposed Project and the need for improvements on Rock Creek Road. And, additional construction activity would be needed if a retaining wall is deemed necessary on the north slope to confine the large slide complex that could be activated from roadway approach excavation or if deemed necessary to protect against slide impacts on the new roadway and bridge. This would result in higher short-term criteria pollutant emission levels than the proposed Project. Given the level of additional construction activity and overall longer construction duration, activity could exceed the EDCAQMD's mass emission and/or fuel thresholds. Similar to the proposed Project, the Mid-level Alternative would be required to comply with Caltrans Standard Specifications 14-9 to control fugitive dust.

Since the general Project area is the same under the Mid-level Alternative and proposed Project, and should the existing bridge would be removed at some point after traffic is shifted onto the new bridge, the potential for receptor exposure to naturally occurring asbestos (NOA), structural asbestos, lead-based paint, and nuisance odors would be the same as the proposed Project. Likewise, since VMT and traffic conditions would be identical to the proposed Project, the Mid-level

Alternative would result in a negligible change to operational criteria pollutant emissions, relative to the No-Project Alternative.

Biological Resources

Similar biological resources would be affected by the Mid-level Alternative as compared to the proposed Project but for some resources the effects would be different. Bridge removal activities would result in the same potential to affect the Foothill yellow-legged frog. Temporary loss of suitable habitat for Blainville's horned lizard would also occur, but the Mid-level Alternative would require less permanent loss than the proposed Project. The same mitigation measures would be necessary, as for the proposed Project to reduce the effect to less-than-significant levels.

The potential for disturbance or mortality of nesting bald eagles would be generally the same as the proposed Project. But because of the greater overall temporary impact area, the Mid-level Alternative would have a greater potential to affect nesting migratory birds. The permanent impact area is expected to be less than the proposed Project. Similarly, the potential for loss or disturbance of habitat for roosting special-status bats relates to the greater overall temporary impact area but smaller permanent impact area. The mitigation measures identified for the proposed Project would also reduce the significance of impacts for the Mid-level Alternative.

The Mid-level Alternative would result in both permanent and temporary impacts on interior live oak woodland and likely also on ponderosa pine forest because of the need for improvements on Rock Creek Road. The total impact area of the Mid-level Alternative would be similar but slightly less than the proposed Project with less of a permanent impact area and more of a temporary impact area than the proposed Project.

This alternative would avoid permanent impacts on the willow thicket wetland. Temporary impacts would be similar to the proposed Project as a result of proposed disturbance for the construction staging area. There would be the potential for temporary effects on intermittent stream, but less than for the proposed Project.

There would be no substantial difference in effects on movement of wildlife species between the alternatives and no difference in consistency with local policies, ordinances, or plans.

The Mid-level Alternative has a slightly greater potential to introduce or spread invasive plant species because of the larger temporary disturbance area compared to the proposed Project.

Cultural Resources

Impacts under the Mid-level Alternative would be similar as under the proposed Project. Although the Mid-level Alternative would result in less total impacts (and possibly less ground disturbance) overall, the area is not considered sensitive for archaeological resources. According to previous and current cultural resources investigations, cultural resources identified in the area are well outside (0.5 to 1 mile) the footprint and would not be affected under this alternative. Cultural resources identified within the area (Owings Property and Mosquito Road Bridge) are not considered to be historical resources for the purposes of CEQA. The same BMPs and regulatory scheme under the proposed Project would apply under the Mid-level Alternative. Therefore, impacts on cultural resources would be less than significant.

Geology, Soils, Minerals, and Paleontological Resources

The impacts on geology and soils under the Mid-level Alternative would be similar to those under the proposed Project. However, under this alternative, the construction footprint would be somewhat reduced. Although less area would be affected, there would be a greater need for site-specific investigation to address issues such as slope stability given the alignment of this alternative. However, expansive soils, and earthquake safety considerations are the same as for the proposed Project. Numerous slope failures of different types and indications of slope instability exist in the area. As compared to the proposed Project, the Mid-level Alternative is still susceptible to future landslides, thereby exposing people and structures, including the risk of loss, injury, or death. The impact would be significant. However, the overall types of potential impacts would not be different under the Mid-level Alternative than under the proposed Project, and Mitigation Measure GEO-3, as identified for the proposed Project, would be needed to reduce the impacts to a less-than-significant level.

The impacts on mineral resources under the Mid-level Alternative would be similar to those under the proposed Project. Although the construction footprint under this alternative is slightly less as compared to the proposed Project, the area is within the same MRZs which indicate there would be no impact on the availability of important mineral resource sites. For the same reasons, impacts on paleontological resources under this alternative would be similar as the Mid-level Alternative and proposed Project areas are underlain by igneous rocks (which have no potential to contain paleontological resources). Therefore, there would be no impact on mineral or paleontological resources.

Greenhouse Gas Emissions

The types of GHG impacts under the Mid-level Alternative would be similar to those under the proposed Project, but of a greater magnitude due to extensive abutment retaining wall and possible slide confinement retaining wall construction on the Swansboro side as well as a four month detour. The Mid-level Alternative would require more construction activity that would result in higher short-term GHG emission levels than the proposed Project. Accordingly, emissions may exceed the regional draft threshold of 1,100 metric tons CO₂e. Under this alternative VMT and traffic conditions would be identical to the proposed Project.

Hazards and Hazardous Materials

Impacts relating to hazards under the Mid-level Alternative would be similar to the proposed Project. The duration of construction activities under the Mid-level Alternative would be approximately 7 months greater which could increase the risk of accidental spills and human-caused fire hazards during construction. A construction detour would be in place longer than the proposed Project.

Similar to the proposed Project, the Mid-level Alternative would remove existing hazardous and restricted conditions in the Project area, although this alternative would retain one of the hairpin turns on the south side of the study area. No new hazards would be introduced.

Due to the increased duration of construction activities (6 months) the Mid-level Alternative, potential impacts relating to construction-related wildland fires would be greater. However, as for the proposed Project, implementation of BMPs, and a measure similar to Mitigation Measure HAZ-8

that would require a fire protection plan could lessen impacts relating to the potential for wildland fires during construction.

Hydrology/Water Quality

The types of hydrology and water quality impacts under the Mid-level Alternative would be similar to those under the proposed Project, but of a slightly greater magnitude. The Mid-level Alternative would require more construction activity, relative to the proposed Project, which would result in the greater potential for temporary increases in sediment loads and pollutants to the South Fork American River and degradation of water quality. The temporary construction disturbance area for the Mid-level Alternative is greater than the proposed Project and therefore a greater potential for the use of chemicals or pollutants associated with construction activities or erosion or siltation may occur at the site. The increased disturbance area may also result in temporary changes in flow rates and drainage patterns, flooding onsite or offsite, contribute runoff water that could exceed the capacity of existing or planned stormwater drainage systems, or provide substantial additional sources of polluted runoff. The Mid-level Alternative has small temporary and permanent construction disturbance areas within the 100-year flood-hazard area. Construction BMPs and federal, state, and local regulations would apply to this alternative addressing hydrological and water quality impacts. However, the potential for impacts is greater for the Mid-level Alternative compared to the proposed Project.

Land Use Planning and Agricultural Resources

Similar to the proposed Project, the Mid-level Alternative would not result in a physical division of an established community and would improve the safety and efficiency of the roadway between these communities. The Mid-level Alternative also would be consistent with policies adopted for the purposes of avoiding or minimizing impacts on environmental resources. No habitat conservation plan or natural community conservation plan covers the Project site. The Mid-level Alternative improvements would require only temporary easements on land designated as Farmland of Local Importance by the DOC FMMP and would not result in a permanent impact on these lands, which is a smaller impact than under the proposed Project. The Mid-level Alternative would require a permanent easement of approximately 0.83 acre and temporary easement of approximately 0.49 acre of County lands zoned Timberland Preserve Zones which would require consultation with the BLM and County Agricultural Commissioner to determine mitigation if required. This would be a greater impact than under the proposed Project. The Mid-level Alternative would not result in conversion of agricultural lands to nonagricultural use.

Noise and Vibration

Under the Mid-level Alternative, noise and vibration impacts would be similar as compared to the proposed Project, but of a slightly greater magnitude. Because of the longer construction duration, the Mid-level Alternative may require more construction activity relative to the proposed Project. And, should the slide zone retaining walls be needed, greater short-term noise impacts, relative to the proposed Project, would result. Sensitive receptors in the area consist of one rural single-family residence. Implementation of Mitigation Measure NOI-4, as under the proposed Project, would reduce temporary construction noise impacts to a less-than-significant level.

Public Services and Utilities

Similar to the proposed Project, the Mid-level Alternative would not require new government facilities or alter existing facilities. The Mid-level Alternative bridge would be constructed off of the current roadway alignment and the existing bridge would remain open to traffic with fewer and shorter traffic delays than under the proposed Project. These closures would also be less than under current County maintenance practices. This alternative would eliminate long-term closures of Mosquito Road and reduce the amount of traffic disruption during construction. This would be a lesser impact than under the proposed Project. However, both alternatives would include implementation of a traffic management plan that would reduce potential effects on access, including for emergency service responders, to less than significant.

As for the proposed Project, the Mid-level Alternative would not generate wastewater or require water supplies and there would be no impact on these facilities or services. The realignment of the roadway approaches and bridges would include storm water drainage facilities that would tie into the existing system. Construction debris would be similar as under the proposed Project and would not adversely affect landfill capacity. Solid waste generated by the proposed Project would be disposed of at a permitted landfill in compliance with federal, state, and local regulations.

Similar to the proposed Project, it is not yet known if the aerial telecommunications for AT&T and PG&E would need to be relocated under the Mid-level Alternative. Should relocation be required, the agencies would develop and implement a procedure to minimize the effects on affected lines and transition to the new system as quickly as possible to ensure no long-term disruption of services would occur.

The energy use associated with construction and operation of the Mid-level Alternative would be similar to the proposed Project but of a slightly greater magnitude. The Mid-level Alternative would require more construction activity and longer construction duration relative to the proposed Project and would have a correspondingly higher level of fuel consumption. As for the proposed Project, this increased energy use would be short-term and there would not be a long-term continuous increased use of fuel, electricity, or other energy source. The Mid-level Alternative would not conflict with applicable state or local energy legislation, policies, or standards and would not be considered wasteful, inefficient, or unnecessary.

Recreation

The Mid-level Alternative impacts on recreation would be essentially the same as the proposed Project. The existing Mosquito Road Bridge location is informally used as a boat take-out point for expert Class IV/V white water enthusiasts during limited high water flows. Vehicle access to the existing bridge site would be restricted once construction of the replacement bridge is complete. Access to the old roadway segments on each side of the river would be controlled by pipe gates, which would be closed once the new bridge is open for use. These changes would not result in a substantial physical deterioration of the area. There would be no construction or expansion of recreational facilities.

Traffic and Circulation

The Mid-level Alternative would be similar to the proposed Project in that it would realign Mosquito road to bypass all hairpins on the north side of the study area. However, this alternative would not bypass the one hairpin on the south side of the study area. During the construction period, long-

term closures of the existing bridge would be required. As for the proposed Project, the construction contractor would need to prepare and implement a Traffic Management Plan to include road closures would be communicated in advance through outreach to residents and through the use of portable message signs, email notifications, website notices, newspaper notices, and direct mailings. The road closures under the Mid-level Alternative would be greater than under the proposed Project. Mosquito Road would be closed for four months to permit the construction of the northerly roadway approach and abutment retaining walls. Beyond this time period, the existing Mosquito Road and bridge could remain open to traffic with traffic delays only related to equipment and materials mobilization and final roadway tie-ins. Some short-term closures may be required that would be less than normally experienced when the County maintains the existing bridge and thus could be scheduled with planned maintenance closures.

The Mid-level Alternative would improve traffic and circulation conditions in the study area, as under the proposed Project. There would be no impact on air traffic patterns. Similar to the proposed Project, the Mid-level Alternative would remove existing hazardous and restricted conditions in the Project area, although this alternative would retain the one hairpin turn on the south side of the study area. No new hazards would be introduced.

The impact on emergency service provider access during construction under the Mid-level Alternative would be similar to the proposed Project, and conditions would not be improved for larger emergency response vehicles that currently cannot use the bridge. The Mid-level Alternative would make the Mosquito Road crossing over the South Fork American River more reliable, safer, and more efficient for travelers and for emergency service providers.

There would be no impact on public transportation services because they do not exist in the study area. Overall, the Mid-level Alternative replacement bridge would provide an improved, safer route for crossing the river for the infrequent bicycle or pedestrian use compared to the existing structure, similar to the proposed Project.

4.3.3 Low-level Alternative

4.3.3.1 Description

The Low-level Alternative would replace the existing structurally deficient and functionally obsolete, very narrow single-lane bridge but the very narrow substandard roadway approaches would remain. The accident rate of 2.24 per million vehicle miles and associated fatalities would not be addressed with the river crossing proposed by the Low-level Alternative as the existing roadway approaches would remain in use. The roadway approaches would also continue to greatly constrict access for emergency responders and evacuees. Bridge maintenance costs would remain an issue as the road and bridge alignment proposed by this alternative lies within the slide-riddled canyon on both sides of the canyon and could experience blocking debris and damage due to slides. As with the Mid-level Alternative, such events could render the road impassible and the risk of long-term closures exists. This would perpetuate emergency opening exercises and repairs totaling in the many millions of dollars. Given the massive granite boulders in the river thalweg, such boulders could dislodge and impact the new bridge. Because of the instability of the canyon, there is the possibility of a rock slide large enough to wipe out the bridge, which would require a replacement similar to the proposed Project. A temporary bridge would be required to convey traffic through the site to avoid a nearly 2.5 year full roadway closure. The Low-level Alternative would not eliminate any hairpin turns (Figure 4-3).

Bridge Design and Construction

The Low-level Alternative proposes to raise the bridge profile to approximately 90 feet over the river, which is approximately 25 to 30 feet higher than existing. To adhere to current alignment design standards, and to better accommodate vehicular passage over the bridge, this low-level bridge would be on a very high skew across the South Fork American River, and would result in a bridge length of approximately 700 feet. The new structure could be a multi-span, CIP prestressed concrete box girder or multi-span on single arch type bridge with a maximum span of approximately 280 feet. This bridge could be constructed using the typical falsework shoring systems given its lower level. However, a river diversion would be likely. Additionally, temporary construction platforms would need to be erected adjacent to bridge construction to give the contractor usable work area. These platforms would be necessary because flat usable space along the existing road and bridge is extremely limited. The cantilever segmental, concrete arch or network arch construction method could also be used. Some falsework and the temporary platforms would still be required for this alternative, along with a temporary traffic detour bridge to maintain traffic on Mosquito Road during construction. Both the low-level bridge and the temporary detour bridge would require bridge support construction in the river floodplain.

The Low-level Alternative requires construction of a temporary bridge over the river because the existing bridge would be inaccessible during construction of the new bridge. This temporary bridge would require piers in the floodplain and would be in use for 2 to 3 years. The existing bridge must be removed to allow construction of this low-level bridge. The existing bridge would be removed once traffic is shifted onto the temporary detour bridge.

Bridge Abutments

Under the Low-level Alternative, the new bridge abutments would be positioned on the banks above the river floodplain. Based on shallow rock conditions expected at the upper canyon areas, it is anticipated that the bridge abutments would be constructed on spread footings. Like for the Mid-level Alternative, if suitable rock is not encountered at shallow depths CIDH piles socketed into the rock may be required.

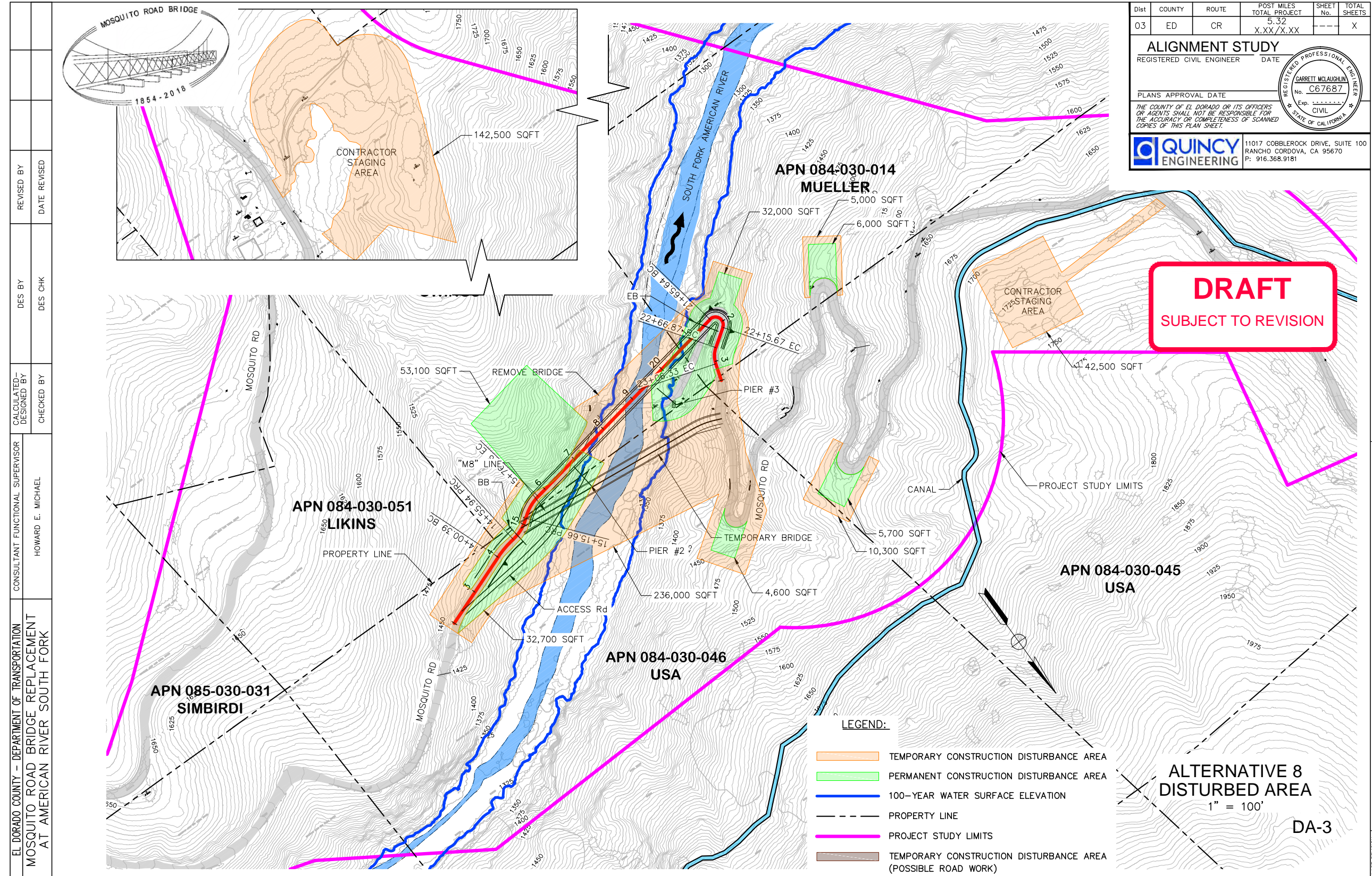
Construction of abutments would be similar to the methods included for the proposed Project. RSP is not anticipated at the abutment areas because they are above flow levels.

Bridge Supports

Under the Low-level Alternative two concrete supports, one on each side of the river and in the floodway, would range from 38 to 78 feet tall. Final bridge span layout may require support height adjustments; however, this alternative is expected to be a multi-span bridge with as few as two supports. The outside dimensions are expected to be as large as 10 feet by 15 feet.

Based on shallow rock conditions expected in the lower canyon areas, it is anticipated that the bridge supports will be founded on either spread footings with rock tie-down anchors or deep mined shafts into the rock. The spread footings could be up to 30 feet square and require excavations up to 10 feet average depth. Rock excavation could include impact hammers to break up the rock as work progresses.

RSP is anticipated at the support areas because they are in the river floodway.



DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	ED	CR	5.32 X.XX/X.XX	---	X

ALIGNMENT STUDY
 REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

THE COUNTY OF EL DORADO OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

QUINCY ENGINEERING
 11017 COBBLEROCK DRIVE, SUITE 100
 RANCHO CORDOVA, CA 95670
 P: 916.368.9181

REGISTERED PROFESSIONAL ENGINEER
 GARRETT MCLAUGHLIN
 No. C67687
 Exp.
 CIVIL
 STATE OF CALIFORNIA

DRAFT
 SUBJECT TO REVISION

BORDER LAST REVISED 7/2/2010 USERNAME Garrettm DWG FILE S:\Client\El Dorado\E01-619 MOSQUITO Rd Br Replace PA&E\650 -

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 UNIT -- PROJECT NUMBER & PHASE E01-619 - 0000

TIME PLOTTED: 1:42:47 PM, Garrett McLaughlin
 DATE PLOTTED: 7/19/2016

Graphics...0049614 (8/8/16) AB



Figure 4-3
Low-Level Alternative

Roadway Design and Construction

The Low-level Alternative would involve a slight realignment of approximately 1,000 feet of roadway. The departure from the existing roadway on the Placerville side of the canyon involves approximately 150 feet of roadway approach to the nearly 700-foot-long bridge, then a 150-foot northerly roadway approach where the alignment converges back to the existing roadway into a tight, steep hairpin on the Swansboro side.

Utility Relocations

Similar to the proposed Project and the Mid-level Alternative, it is not yet known if the aerial telecommunications for AT&T and PG&E would need to be relocated under the Low-level Alternative. If the utilities remain in their current location, the roadway to the existing bridge location would likely be used for access by the utility agencies. Segments of roadway may then require transfer of title to the utility companies that require access. If the utilities are relocated, access roadways would need to be provided on the canyon slopes to remove the facilities. This would also require titles or easements for new utility poles along the proposed roadway and placement of utilities on (within) the new bridge.

Right-of-way and Temporary Easements

The Low-level Alternative alignment traverses through BLM-owned property (APNs 084-030-045 and 084-030-046) and two privately owned parcels (APNs 084-030-014 and 084-030-015) requiring right-of-way acquisition for the roadway, cuts and fills, retaining walls, drainage culverts, possible utilities, and the bridge. Temporary easements would be needed for construction staging and possibly for temporary access roads for bridge supports. Permanent easements may be needed for future maintenance of the bridge abutments and supports. If access roadways are necessary, such access roadways would be permanently barricaded (blocked) from general public access. This could be by means of steel pipe gates that would normally be locked or by placing large boulders or earthen mounds at the access points to such temporary access roadways. If boulders are used, they would be obtained from the rock excavation proposed for the permanent roadway approaches to the bridge or access roadways.

Traffic Management during Construction

Like for the proposed Project, the Low-level Alternative would include implementation of traffic controls during construction. Roadway closures would occur and traffic would be rerouted on Rock Creek Road—a detour as much as 20 miles. Closure duration could be up to 8 months during multiple project stages and construction seasons. The long-term nature of this closure could require improvements to various critical points on Rock Creek Road to address safety concerns experienced during the 2014 King Fire where trucks and vehicles were not able to pass. The additional use of Rock Creek Road could result in deterioration of the roadway, requiring pavement rehabilitation in the form of a slurry seal or an overlay of asphalt.

Construction Schedule

Due to the location of the Low-level Alternative in the deepest and steepest part of the canyon, access will be far more difficult. Additionally, given the need to construct and deconstruct a temporary bridge, the alternative is anticipated to be constructed in just over three construction seasons and require approximately in 40 months to complete.

4.3.3.2 Impact Analysis

Aesthetics

The Low-level Alternative would potentially result in less temporary disturbance areas than the proposed Project and the Mid-level Alternative. Permanent disturbance areas would be slightly less than the Mid-level Alternative but slightly more than the proposed Project. As for the proposed Project, the least number of trees would be removed and on-site revegetation of cleared areas, required for soil stabilization and to mitigate the loss of mature vegetation, would reduce the visual effects of the Low-level Alternative. Other effects of the Low-level Alternative would be similar to the proposed Project and Mid-level Alternative.

Air Quality

The types of air quality impacts under the Low-level Alternative would be similar to those under the proposed Project, but of a greater magnitude given the temporary bridge and eight month detour. The Low-level Alternative would require construction and removal of a temporary bridge, as well as improvements on Rock Creek Road, which would result in higher short-term criteria pollutant emission levels. Given the level of additional construction activity and overall longer construction duration, activity could exceed the EDCAQMD's mass emission and/or fuel thresholds. Similar to the proposed Project, the Low-level Alternative would be required to comply with Caltrans Standard Specifications 14-9 to control fugitive dust.

Since the general Project area is the same under the Low-level Alternative and Proposed project, and the Low-level Alternative would require demolition of the existing bridge, the potential for receptor exposure to NOA, structural asbestos, lead-based paint, and nuisance odors would be the same as the proposed Project. Likewise, since VMT and traffic conditions would be identical to the proposed Project, the Low-level Alternative would result in a negligible change to operational criteria pollutant emissions, relative to the No-Project Alternative.

Biological Resources

As discussed for the Mid-level Alternative, under the Low-level Alternative similar biological resources would be affected as compared to the proposed Project but for some resources the effects would be different. Bridge removal activities would result in the same potential to affect the Foothill yellow-legged frog. Temporary loss of suitable habitat for Blainville's horned lizard would also occur. The Low-level Alternative would require less permanent loss than both the proposed Project and the Mid-level Alternative. The same or similar mitigation measures would be necessary, as for the proposed Project to reduce the effect to less-than-significant levels.

The potential for the Low-level Alternative to result in disturbance or mortality of nesting bald eagles would be generally the same as the proposed Project. But because of the greater overall temporary impact area, the Low-level Alternative would have a greater potential to affect nesting migratory birds compared to the proposed Project. Similarly, the potential for loss or disturbance of habitat for roosting special-status bats relates to having the largest overall temporary impact area but relatively smaller permanent impact area. The mitigation measures identified for the proposed Project would also reduce the significance of impacts for the Low-level Alternative.

The Low-level Alternative would result in both permanent and temporary impacts on interior live oak woodland, and, like the Mid-level Alternative, also on ponderosa pine forest because of the need

for improvements on Rock Creek Road. The Low-level Alternative would have the smallest total impact area, though still very similar to the proposed Project. It would result in less permanent impact area than the proposed Project and the Mid-level Alternative. It would also result in more of a temporary impact on interior live oak woodland than both the proposed Project and Mid-level Alternative.

Like the Mid-level Alternative, the Low-level Alternative would avoid permanent impacts on the willow thicket wetland. Temporary impacts would be similar to the proposed Project as a result of proposed disturbance for the construction staging area. There would be the potential for temporary effects on an intermittent stream, but less than the proposed Project.

There would be no substantial difference in effects on movement of wildlife species between the alternatives and no difference in consistency with local policies, ordinances, or plans.

The Low-level Alternative has the potential to introduce or spread invasive plant species because of having a larger temporary disturbance area compared to the proposed Project.

Cultural Resources

Impacts under the Low-level Alternative would be similar as under the proposed Project. Although the Low-level Alternative would result in less total impacts (and possibly less ground disturbance), work would occur closer to the river which is considered more sensitive for archaeological resources than the steep slopes of the canyon. According to previous and current cultural resources investigations, cultural resources identified in the area are well outside (0.5 to 1 mile) the footprint and would not be affected under this alternative. Cultural resources identified within the area (Owings Property and Mosquito Road Bridge) are not considered to be historical resources for the purposes of CEQA. The same BMPs and regulatory scheme under the proposed Project would apply under this alternative. Therefore, impacts on cultural resources would be less than significant.

Geology, Soils, Minerals, and Paleontological Resources

The impacts on geology and soils under the Low-level Alternative would be greater to those under the proposed Project and similar to the Mid-level alternative. However, under this alternative, the construction footprint would be reduced. Although less area would be affected, there would be a greater need for site-specific investigation to address issues such as slope stability given the alignment of this alternative. However, expansive soils, and earthquake safety considerations are the same as for the proposed Project.

Numerous slope failures of different types and indications of slope instability exist in the area. As compared to the proposed Project, this alternative is still susceptible to future landslides, thereby exposing people and structures, including the risk of loss, injury, or death. The impact would be significant. However, the overall types of potential impacts would not be different under the Low-level Alternative than under the proposed project, and Mitigation Measure GEO-3, as identified for the proposed Project, would be needed to reduce the impacts to a less-than-significant level.

The impacts on mineral resources under the Low-level Alternative would be similar to those under the proposed Project. Although the construction footprint under this alternative is slightly less as compared to the proposed Project, the area is within the same MRZs which indicate there would be no impact on the availability of important mineral resource sites. For the same reasons, impacts on paleontological resources under this alternative would be similar because the Low-level Alternative

and proposed Project areas are underlain by igneous rocks (which have no potential to contain paleontological resources). Therefore, there would be no impact on mineral or paleontological resources,

Greenhouse Gas Emissions

The types of GHG impacts under the Low-level Alternative would be similar to those under the proposed Project, but of a greater magnitude given the temporary bridge and eight month detour. The Low-level Alternative would require construction and removal of a temporary bridge, which would result in higher short-term GHG emission levels. Accordingly, emissions may exceed the regional draft threshold of 1,100 metric tons CO₂e. Since VMT and traffic conditions would be identical to the proposed Project, the Low-level Alternative would result in a negligible change to operational GHG emissions, relative to the No-Project Alternative.

Hazards and Hazardous Materials

Impacts relating to hazards under the Low-level Alternative would be similar to the proposed Project. The duration of construction activities under this alternative would be up to 10 months longer than the proposed Project which could increase the risk of accidental spills and human-caused fire hazards during construction.

The impact on emergency service provider access during construction would be greater under the Low-level Alternative. Additionally, once the replacement bridge is constructed there would still remain limitations on access for larger emergency access vehicles and trucks because the approach roadways would not be improved.

Due to the increased duration of construction activities (up to 10 months) under the Low-level Alternative, potential impacts relating to construction-related wildland fires would be greater. However, as for the proposed Project, implementation of BMPs, and a measure similar to Mitigation Measure HAZ-8 that would require a fire protection plan could lessen impacts relating to the potential for wildland fires during construction.

Hydrology/Water Quality

The types of hydrology and water quality impacts under the Low-level Alternative would be similar to those under the proposed Project, but of a greater magnitude. Although the Low-level Alternative has the least permanent construction disturbance area, it has a larger temporary construction disturbance area compared to the proposed Project and slightly less as compared to the Mid-level Alternative. As compared to the proposed Project, this alternative has a higher potential for temporary increases in sediment loads and pollutants to the South Fork American River during construction activities. As a result, there is a greater potential for the use of chemicals or pollutants associated with construction activities or erosion to occur and potential for temporary changes in stormwater flow rates and drainage patterns. Construction will likely require a temporary river diversion. The bridge built under this alternative would be closer to the river thereby increasing flood impacts. In addition, the Low-level Alternative has the greatest temporary and permanent construction disturbance areas within the 100-year flood-hazard area compared to both the proposed Project and the Mid-level Alternative. However, construction BMPs and federal, state, and local regulations would apply to this alternative addressing hydrological and water quality impacts. Accordingly, as for the proposed Project, impacts under the Low-level Alternative would be less than significant.

Land Use Planning and Agricultural Resources

Similar to the proposed Project, the Low-level Alternative would not result in a physical division of an established community. The Low-level Alternative would improve the bridge crossing over the river. However, the Low-level Alternative overall would not improve the safety between these communities because the new bridge would be inaccessible by large vehicles including emergency vehicles and this route would remain unreliable. The Low-level Alternative would be consistent with policies adopted for the purposes of avoiding or minimizing impacts on environmental resources. No habitat conservation plan or natural community conservation plan covers the Project site. The Low-level Alternative improvements would require only temporary easements on land designated as Farmland of Local Importance by the DOC FMMP and would not result in a permanent impact on these lands, which is a smaller impact than under the proposed Project. The Low-level Alternative would not require any easement of County lands zoned Timberland Preserve Zones. The Low-level Alternative would not result in conversion of agricultural lands to nonagricultural use. Accordingly, as for the proposed Project, impacts under the Low-level Alternative would be less than significant.

Noise and Vibration

Under the Low-level Alternative, noise and vibration impacts would be similar to those under the proposed Project, but of a greater magnitude. The Low-level Alternative would require a longer construction duration as well as construction and removal of a temporary bridge, all which would result in increased construction noise impacts. However, this alternative would be further away from the closest sensitive receptor (Owings Residence). Also, implementation of Mitigation Measure NOI-4, as under the proposed Project, would reduce temporary construction noise impacts to a less-than-significant level.

Public Services and Utilities

Similar to the proposed Project, the Low-level Alternative would not require new government facilities or alter existing facilities. The new roadway alignment and bridge would not divide an existing community. This alternative would require construction of a temporary bridge to maintain access during construction. An alternative option to the temporary bridge would involve a detour route along Rock Creek Road; this would be a long-term detour (up to 40 months) and could have a greater impact on community and emergency service provider access than under the proposed Project. Additional roadway improvements would be required on Rock Creek Road. Traffic controls would be required during construction to reduce the level of impact and would include coordination with local emergency service providers to minimize the effect on provision of these services.

As for the proposed Project, the Low-level Alternative would not generate wastewater or require water supplies and there would be no impact on these facilities or services. The realignment of the bridge would include storm water drainage facilities that would tie into the existing system. Construction debris would be similar as under the proposed Project, although of greater magnitude because of the increased amount of construction activity. The Low-level Alternative would not adversely affect landfill capacity. As for the proposed Project, solid waste generated by the Low-level Alternative would be disposed of at a permitted landfill in compliance with federal, state, and local regulations.

Similar to the proposed Project, it is not yet known if the aerial telecommunications for AT&T and PG&E would need to be relocated under the Low-level Alternative. Should relocation be required, the agencies would develop and implement a procedure to minimize the effects on affected lines and

transition to the new system as quickly as possible to ensure no long-term disruption of services would occur.

The energy use associated with construction and operation of the Low-level Alternative would be similar to the proposed Project but of a slightly greater magnitude. The Low-level Alternative would require more construction activity and longer construction duration, relative to the proposed Project and would have a correspondingly higher level of fuel consumption. As for the proposed Project, this increased energy use would be short-term and there would not be a long-term continuous increased use of fuel, electricity, or other energy source. The Low-level Alternative would not conflict with applicable state or local energy legislation, policies or standards and would not be considered wasteful, inefficient, or unnecessary.

Recreation

Like the Mid-level Alternative, the Low-level Alternative impacts on recreation would be slightly worse than the proposed Project. Vehicle access to the existing bridge site would be restricted during construction (up to 40 months) as well as once construction of the replacement bridge is complete. The roadway approaches would not be substantially changed under this alternative and access would be similar to current conditions once construction is complete. The existing Mosquito Road Bridge location is informally used as a boat take-out point for expert Class IV/V white water enthusiasts during limited high water flows. Public vehicle access to the informal boat take-out point would be precluded during construction (up to 40 months) although non-motorized access to the river would continue, as under existing conditions. These changes would not result in a substantial physical deterioration of the area. There would be no construction or expansion of recreational facilities.

Traffic and Circulation

The Low-level Alternative would result in the greatest disruption of traffic and circulation conditions during construction and would provide the least overall functioning bridge. The Low-level Alternative would not provide new roadway approaches to the replacement bridge resulting in conditions which would still restrict emergency vehicle and truck access through the study area similar to existing conditions. Access during an emergency evacuation or for fire-fighting vehicles/equipment would not be improved.

Roadway closures during construction of the Low-level Alternative would be required to install the temporary construction platforms that need to be erected adjacent to the bridge construction area. Similar to the proposed Project, the construction contractor would be required to implement a Traffic Management Plan which would provide for emergency service provider access and coordination.

The Low-level Alternative would improve the bridge crossing over the river but would not satisfy the regional transportation needs for this facility. There would be no impact on air traffic patterns. The Low-level Alternative would not remove existing hazardous associated with the hairpin turns.

The impact on emergency service provider access during construction would be greater under the Low-level Alternative. Additionally, once the replacement bridge is constructed there would still be some limitations on access for emergency access vehicles large trucks, and truck trailers because the approach roadways would not be improved.

There would be no impact on public transportation services under the Low-level Alternative because they do not exist in the study area. Overall, the replacement bridge under the Low-level Alternative would only minimally improve conditions because the existing hazardous conditions along the roadway approaches would not be replaced. Bicycle and pedestrian access improvement would be less than under the proposed Project and only slightly better than under existing conditions.

4.4 Environmentally Superior Alternative

CEQA requires an EIR to examine a range of feasible alternatives to a proposed project. State CEQA Guidelines Section 15126.6(e)(2) requires that an EIR identify which of those alternatives is the environmentally superior alternative. The *environmentally superior alternative* is considered to be the alternative to the proposed project that has the least environmental impact, compared to the proposed project. If, in the course of identifying the environmentally superior alternative, the No-Project Alternative is found to be the environmentally superior alternative, then Section 15126.6(e)(2) of the State CEQA Guidelines further requires that an EIR identify which among the other alternatives is the environmentally superior alternative. Consequently, although the No-Project Alternative is evaluated and presented for comparison purposes, determination of the environmentally superior alternative in this chapter primarily reflects the differences in impacts among the remaining alternatives. Determination of the environmentally superior alternative uses the impact evaluations of the proposed Project and of each alternative in a comparative process. The impacts of each alternative are identified and compared to those of the proposed Project. The type and relative magnitude of each alternative's impacts are evaluated, and the alternative found to have the least impact, as compared to the others, is determined to be the environmentally superior alternative.

Table 4-2 provides a comparison of the level of impacts under the alternatives considered in this Draft EIR as compared to the proposed Project. Resource areas for which there would be no impact, regardless of alternative, are not included in the table. In some instances, the potential effects of the build alternatives would be similar, meaning that the overall outcome of implementing the proposed Project compared to one of the build alternatives would generally result in the same type and magnitude of effects on a specific resource even though the location of the alternatives differ in some ways from the proposed Project.

As shown in Table 4-2, the No-Project Alternative is environmentally superior because it does not result in ground disturbance, loss of habitat, or other temporary and permanent construction impacts. The State CEQA Guidelines require that, if the No-Project Alternative is identified as environmentally superior, the EIR must identify an environmentally superior alternative among the other alternatives (Section 15126.6[e][2]). Of the remaining alternatives, the proposed Project is determined to be the environmentally superior alternative because it would have the shortest detour duration and cause the least disruption to emergency response and evacuation during construction and operation, would not maintain any of the five hazardous roadway alignment features in the project limits, and would not result in construction impacts along Rock Creek Road.

Table 4-2. Comparison of Environmental Impacts of Alternatives to the Proposed Project

Resource Topic	Proposed Project	No-Project Alternative	Mid-level Alternative	Low-level Alternative
<u>Aesthetics</u>				
Scenic vistas	LTS	Lesser	Similar	Similar
Scenic resources	LTS	Lesser	Similar	Similar
Degrade visual character or quality	LTS	Lesser	Similar	Similar
New source of light or glare	LTS	Lesser	Same	Same
<u>Air Quality</u>				
Air quality plan conflict	LTS	Lesser	Similar	Similar
Air quality standard violations	LTS	Lesser	Greater	Greater
Cumulatively considerable net increase in criteria pollutant	LTS	Lesser	Greater	Greater
Sensitive receptors	LTS	Lesser	Similar	Similar
Objectionable odors	LTS	Lesser	Similar	Similar
<u>Biological Resources</u>				
Special-status species	LTS with Mitigation	Lesser	Similar	Similar
Sensitive natural communities	LTS with Mitigation	Lesser	Similar	Similar
Wetlands	LTS with Mitigation	Lesser	Lesser	Lesser
Wildlife movement and migration	LTS	Lesser	Same	Same
Local policies and ordinances	LTS	Lesser	Same	Same
Habitat conservation plan	LTS	Lesser	Same	Same
Spread of invasive species	LTS with Mitigation	Lesser	Similar	Similar
<u>Cultural Resources</u>				
Historical resources	LTS	Lesser	Similar	Similar
Archaeological resources	LTS	Lesser	Similar	Similar
Human remains	LTS	Lesser	Similar	Similar

Resource Topic	Proposed Project	No-Project Alternative	Mid-level Alternative	Low-level Alternative
<u>Geology, Soils, Minerals, and Paleontological Resources</u>				
Seismicity	LTS	Greater	Greater	Greater
Soil erosion	LTS	Lesser	Same	Same
Unstable geologic unit	LTS with Mitigation	Greater	Greater	Greater
Expansive soils	LTS	Lesser	Same	Same
<u>Greenhouse Gas Emissions</u>				
Greenhouse gas emissions	LTS	Lesser	Greater	Greater
Greenhouse gas plan conflict	LTS	Lesser	Similar	Similar
<u>Hazards and Hazardous Materials</u>				
Use, transport or disposal	LTS	Lesser	Same	Same
Accidental release	LTS	Lesser	Greater	Greater
Emergency response plan	LTS	Greater	Greater	Greater
Wildland fire	LTS with Mitigation	Lesser	Greater	Greater
<u>Hydrology/Water Quality</u>				
Water quality standard violations	LTS	Lesser	Greater	Greater
Alter drainage and result in erosion	LTS	Lesser	Similar	Similar
Alter drainage and result in flooding	LTS	Lesser	Same	Same
Degrade water quality	LTS	Lesser	Greater	Greater
Impede floodflows	LTS	Lesser	Same	Same
Exposure to flooding	LTS	Lesser	Same	Greater
<u>Land Use Planning and Agricultural Resources</u>				
Important farmland	LTS	Lesser	Lesser	Lesser
Zoning and Williamson Act	LTS	Lesser	Lesser	Lesser
Other farmland conversion	LTS	Lesser	Lesser	Lesser

Resource Topic	Proposed Project	No-Project Alternative	Mid-level Alternative	Low-level Alternative
<u>Noise and Vibration</u>				
Noise standards	LTS	Lesser	Greater	Greater
Groundborne vibration/noise	LTS	Lesser	Similar	Similar
Permanent increase	LTS	Lesser	Similar	Similar
Temporary increase	LTS with Mitigation	Lesser	Similar	Similar
<u>Public Services and Utilities</u>				
New/expanded facilities	LTS	Lesser	Similar	Greater
Landfill capacity	LTS	Lesser	Same	Same
Telecommunications disruption	LTS	Lesser	Similar	Similar
Energy	LTS	Lesser	Similar	Similar
<u>Recreation</u>				
Deterioration of existing	LTS	Lesser	Similar	Greater
<u>Traffic and Circulation</u>				
Performance standards conflict	LTS	Same	Same	Same
Design hazards	No impact	Greater	Greater	Greater
Emergency access	LTS	Greater	Greater	Greater
Alternative modes	No impact	Greater	Similar	Greater
<u>Impact Level</u>				
No impact	=	includes beneficial effects		
LTS	=	less-than-significant impact		
LTS with Mitigation	=	less-than-significant impact with mitigation incorporated		
<u>Impact Comparisons</u>				
Same	=	same as the proposed Project		
Similar	=	similar to proposed Project		
Lesser	=	lesser than the proposed Project		
Greater	=	greater than proposed Project		

4.5 Alternatives Considered but Eliminated from Further Analysis

Initially, 28 potential roadway and bridge alignments, developed based on canyon topography, were considered. Many of the alternative alignments were eliminated at early stages in the investigation based on infeasibility, substandard design, high engineering design risk, and long-term maintenance concerns they would pose by trying to accommodate the geologic conditions (e.g., slides complexes) at their locations in the canyon. The alignments were narrowed to nine (see Figure 4-1) that were more closely considered.

Using the process described in Section 4.2, *Alternatives Development*, the nine alternatives shown in Figure 4-1 were assessed against the screening criterion and then processed through a risk assessment. The risk assessment considered: Construction Risks, Design Risks, Environmental Risks, External Risks (funding, political, public acceptance, extreme hazards of wild fire and evacuation needs, bridge impacts from rock and debris slides), and Traffic Handling Risk (comingled with construction, long-term detours). The results of the screening and risk assessment led to the elimination of Alternatives 2, 3, 4, 5, 7, and 9, in favor of the proposed Project (Alternative 1), the Mid-level (Alternative 6) and the Low-level (Alternative 8) alternatives. The rejected alternatives were either very similar to other alternatives, had unfavorable geologic conditions, or would not allow a bridge type conducive to the steep and deep canyon. The County decided, and FHWA and Caltrans agreed, to eliminate the remaining six alternatives from further analysis.

4.5.1 References

ICF International. 2016. Community Impact Assessment Mosquito Bridge Replacement Project, El Dorado County. Federal Project No.: BRLO 5925 (098). April.

5.1 Overview

This chapter includes the following discussions and analyses required by CEQA.

- Cumulative impacts.
- Growth-inducing impacts.
- Significant and unavoidable environmental impacts.
- Significant irreversible environmental impacts.
- Mitigation measures with the potential for environmental effects.

5.2 Cumulative Impacts

The State CEQA Guidelines define a *cumulative impact* as two or more individual impacts that, when considered together, are significant or that 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 § 15355).

For the purpose of this EIR, significant cumulative impacts would occur if impacts related to the implementation of the Project, combined with related environmental impacts resulting from implementation of the adopted County General Plan, build-out of land and installation of infrastructure consistent with the General Plan Land Use Map and Circulation Map, as well as maintenance and upgrades to existing infrastructure, would result in an adverse significant effect. For an impact to be considered cumulative, these incremental impacts and potential incremental impacts must be related to the types of impacts caused by the Project and evaluated in Chapter 3, *Impact Analysis*.

5.2.1 Analysis

All resource areas were analyzed for cumulative impacts. It was determined that the proposed Project would not contribute to a cumulative impact in the resource areas listed below because either: (1) the resource is in generally good health and the Project would result in beneficial impacts, no impacts, or minor impacts that would be fully mitigated (to a less-than-significant level under CEQA; or (2) the resource is regulated in such a way that by implementing mitigation measures to fully compensate for the loss of the resource, and by obtaining the necessary permits and following the required regulations for impact avoidance or minimization and compensating for impacts, a significant contribution to a cumulative impact would not occur. Consequently, the contribution to a cumulative impact on the following resources would not be considerable.

- Aesthetics
- Air quality
- Biological resources (wetlands and other sensitive land cover types)
- Cultural resources
- Geology, soils, minerals, and paleontological resources
- Greenhouse gas emissions
- Hazards and hazardous materials
- Hydrology, water quality, and water resources
- Land use planning
- Noise and vibration
- Public services and utilities
- Recreation
- Traffic and circulation

5.2.1.1 Farmland

In 2012, the County contained approximately 1,358 farms. These farmlands totaled 128,365 acres, resulting in an average of 95 acres per farm (ICF International 2016). Each project that converts farmland to nonagricultural uses, including land classified as one of the three important farmland category types, considerably contributes to the cumulative loss of farmland. Conversion of farmland in the County to nonagricultural uses, consistent with the County General Plan Land Use Map, has and would contribute to a cumulatively considerable loss of farmland in El Dorado County.

As described in Section 3.9, *Land Use Planning and Agricultural Resources*, the proposed Project would require the acquisition of up to 36,000 square feet (0.83 acre) of Farmland of Local Importance for permanent roadway easements. This represents less than 0.001 percent of farmland in the County. Because no portion of the Project area designated as Farmland of Local Importance by the state is currently used as farmland, and much of it is on sloped land that would make agricultural activities difficult, the proposed Project's contribution to the cumulative loss of farmland is considered less than cumulatively considerable. No mitigation is required.

5.2.1.2 Biological Resources

Special-Status Wildlife Species

The Project area provides habitat for an assemblage of wildlife species typical of annual grassland, live oak woodland, and ponderosa pine forest communities. In addition, the South Fork American River canyon provides an important travel corridor for resident wildlife during daily foraging movements, as well as a dispersal and migration route for birds and large mammals. The Project area also provides habitat for the following special-status species.

- Foothill yellow-legged frog (*Rana boylei*)
- Blainville's (Coast) horned lizard (*Phrynosoma blainvillii*)

- Bald eagle (*Haliaeetus leucocephalus*)
- California spotted owl (*Strix occidentalis occidentalis*)
- Willow flycatcher (*Empidonax traillii*)
- Pallid bat (*Antrozous pallidus*)
- Townsend's big-eared bat (*Corynorhinus townsendii*)
- Silver-haired bat (*Lasionycteris noctivagans*)
- Western red bat (*Lasiurus blossevillii*)
- Hoary bat (*Lasiurus cinereus*)
- Fringed Myotis (*Myotis thysanodes*)
- Long-legged Myotis (*Myotis volans*)
- Yuma Myotis (*Myotis yumanensis*)

Section 3.3, *Biological Resources*, describes the habitat and distribution of these species in California. Projects consistent with the County General Plan have contributed and would considerably contribute to the cumulative loss of habitat for these species. The proposed Project would result in both temporary and permanent loss of natural habitats and habitat for special-status species. As described in Section 3.3, *Biological Resources*, with implementation of mitigation measures, the Project will not have a significant impact on federal or state-listed species. Though reduced to less-than-significant levels with mitigation, the Project has the potential to affect foothill yellow-legged frog, Blainville's horned lizard, bald eagle and special-status bat species and their habitat. However, the Project's contribution to the loss of habitat for these species is considered less than cumulatively considerable. No additional mitigation is required.

5.3 Growth-Inducing Impacts

Factors that influence land use and development in an area may include population and economic growth, desirability of locations, the costs and availability of developable land, physical and regulatory constraints, transportation, and the costs of sewer, water, and other utility services.

Transportation agencies play a role in land use changes by providing infrastructure that can improve mobility and/or open up access to new locations. New development generates travel to and from that location, and this additional travel creates demand for new transportation facilities. The relationship between transportation and land use and the degree to which one influences the other is a topic of ongoing debate. This section addresses the growth in the study area and larger region and the extent to which the proposed Project contributes to that growth.

5.3.1 Existing Conditions

As shown in Table 5-1, growth is expected to occur in the County and the zip code tabulation areas that are adjacent to the Project site. According to population projections prepared by SACOG for the purposes of the MTP/SCS 2035 adopted in April 2012, the County's population was projected to increase by 24 percent between 2008 and 2035. Over the same time period, the area around the Project site, as represented by the 95667 and 95709 zip code tabulation areas, which are largely

undeveloped, are anticipated to undergo more modest population increases. Zip code tabulation area 95667 is projected to have a population increase of just over 10 percent and zip code tabulation area 95709 is projected to experience a growth of less than 3 percent relative to the 2008 population. The 2013 population for each of these areas is also shown in Table 5-1 for reference.

Table 5-1. Project Area Population Growth Forecast

Area	2013 Population ^a	2008 Population ^b	Projected 2020 Population ^b	Projected 2035 Population ^b	Projected Population Change (2008 to 2035)
El Dorado County	180,441	151,258	161,914	187,849	24.2%
ZCTA 95667	35,924	35,980	36,814	39,631	10.1%
ZCTA 95709	4,942	4,215	4,202	4,335	2.8%

ZCTA = Zip code tabulation area

^a U.S. Census Bureau, ACS, 2013 5-Year Estimate, Table B01003

^b SACOG projections

In addition to the residential population growth anticipated to occur by 2035, the County and the areas surrounding the Project site are expected to experience employment growth (see Table 5-2). Employment is projected to rise by almost 40 percent in the County by 2035 and by 19 percent in zip code tabulation area 95667. Due to the smaller physical size and the undeveloped nature of zip code tabulation area 95709, no employment growth is expected.

Table 5-2. Project Area Employment Growth Forecast

Area	2008 Jobs ^a	Projected 2020 Jobs ^a	Projected 2035 Jobs ^a	Projected Change in Jobs (2008 to 2035)
El Dorado County	44,746	50,370	62,409	39.5%
ZCTA 95667	16,584	17,279	19,809	19.4%
ZCTA 95709	888	888	888	0%

ZCTA = Zip code tabulation area

^a SACOG projections

5.3.2 Impacts

5.3.2.1 Methodology

The proposed Project does not include construction of new housing that could directly induce population growth, nor does it include displacement of existing housing or people that would necessitate the construction of replacement housing elsewhere. The impact analysis focuses on the potential of the proposed Project to indirectly result in growth-inducing impacts and does so by answering the following questions.

- To what extent would travel times, travel cost, or accessibility to employment, shopping, or other destinations be changed? Would this change affect travel behavior, trip patterns, or the attractiveness of some areas to development over others?
- To what extent would change in accessibility affect growth or land use change—its location, rate, type, or amount?
- To what extent would resources of concern be affected by this growth or land use change?

5.3.2.2 Impact Discussion

- To what extent would travel times, travel cost, or accessibility to employment, shopping, or other destinations be changed? Would this change affect travel behavior, trip patterns, or the attractiveness of some areas to development over others?

Implementation of the proposed Project would change the alignment of Mosquito Road near the point at which it crosses the South Fork American River, which would involve bypassing a 1.3-mile stretch of Mosquito Road and the current river crossing through the construction of a structure approximately 0.25 mile in length 400 feet above the river. Because the current bridge has required extensive maintenance and rebuilding, the Project would increase accessibility in that it would reduce the amount of maintenance and associated closures required at the location. Plus, currently restricted vehicles would be able to access the bridge and cross the river. The Project would not provide access to new locations that are currently unreachable.

The proposed Project would also increase accessibility by reducing the length of the roadways crossing the South Fork American River, removing hairpin road geometrics, and creating a standard-width bridge with standard roadway approaches for two-way traffic. All of these changes would allow a more consistent speed through the canyon and over the river, as well as increase the efficiency with which vehicles are able to move through the Project vicinity, which contributes to enhanced accessibility of locations to the north and south of the Project.

In addition to the consistent speed and efficiency of roadway operations within the Project vicinity, the increased structural capacity that would be introduced by the Project could change the types of vehicles that access Mosquito Road. Given that there is an existing prohibition on vehicles greater than 5 tons in weight on the Mosquito Road bridge, increasing the weight limit on the new structure, and bypassing the hairpin turns as part of the new roadway realignment, would result in a facility that accommodates all modes of travel consistent with the corridor's functional classification and that satisfies the regional transportation needs. Larger vehicles currently use Rock Creek Road for travel to and from the Mosquito/Swansboro communities. The Project could change the distribution of truck trips between these roadways, with more trucks operating on Mosquito Road that would have otherwise traveled on Rock Creek Road. There would be no change in land use to generate new trips, but a redistribution of trips could occur.

Because Mosquito Road is an existing roadway connecting the Placerville area with the Mosquito/Swansboro area, the Project would not provide access to undeveloped areas. Rather, it would involve replacing and realigning a nonstandard roadway and bridge structure. Therefore, accessibility to employment, shopping, or other destinations is not expected to change.

- To what extent would the change in accessibility affect growth or land use change—its location, rate, type, or amount?

The Project would provide standard bridge and approach widths over the South Fork American River. With the exception of providing standard roadway widths to accommodate one travel lane in each direction, the Project would not create additional capacity on Mosquito Road. Given the location in a rural area, the introduction of new roadways is capable of exerting growth pressure in an area, but given that this Project would realign an existing roadway and would not provide access to undeveloped areas, the Project would exert little growth pressure. Due to the operational traffic efficiency benefits that would result from Project implementation, the Project would reduce commute and trip times for those traveling between the Placerville area and the Swansboro/Mosquito area, which could contribute to changed preferences in the employment and residential location decisions of individuals. The reduced travel times, however, would not be substantial and are unlikely to have an overall effect on employment and residential location decisions such that growth would occur.

- To what extent would resources of concern be affected by this growth or land use change?

Project-related growth is not reasonably foreseeable. Although the proposed Project would likely reduce the amount of maintenance-related closures, remove existing operational traffic and roadway deficiencies, and accommodate additional truck traffic relative to existing conditions, the Project would neither connect to undeveloped areas nor would it affect the underlying zoning in the area. The only land use change would be the incorporation of right-of-way for the bridge structure and abutments. As discussed above, the Project would increase the operational efficiency of Mosquito Road near the South Fork American River by realigning the roadway to avoid existing deficiencies and would therefore be responsible for increased travel speeds and decreased trip times. Such reductions in travel time, however, would be marginal and it would be remote and speculative to assume that growth would occur as a result of the increased efficiency of a relatively short segment of roadway.

Based on the analysis above, the proposed Project would not induce growth. No additional analysis related to growth is necessary.

5.4 Significant and Unavoidable Impacts

As summarized in Table S-1, all impacts that would result from the proposed Project are either less than significant or significant but reduced to less-than-significant levels after the implementation of mitigation measures. No impacts were identified that would remain significant and unavoidable after mitigation.

5.5 Significant Irreversible Environmental Impacts

State CEQA Guidelines Section 15126.2 requires the evaluation and discussion in EIRs of significant irreversible changes that would be caused by a proposed project. Implementation of the proposed Project would include construction of bridges (both major and minor in scale), roads, and other transportation-related infrastructure, which would be composed of a variety of nonrenewable materials (metal, gravel, concrete), and would be fueled using primarily nonrenewable fossil fuel sources. While these resources are nonrenewable, the amount needed for the proposed Project does not represent a significant commitment of resources nor is it inappropriate for the scale of the Project.

Irreversible environmental changes would also result from the conversion of undeveloped land to transportation infrastructure. Implementation of the mitigation identified to reduce the significance of impacts on biological resources to less-than-significant levels would ensure that this irreversible change would not be significant.

Once constructed, operation of the Project would not use any additional nonrenewable resources beyond those needed for regular maintenance. Also, maintenance of the new bridge would be less intensive than the substantial annual maintenance that occurs at the existing bridge.

No significant irreversible environmental impacts would occur.

5.6 Mitigation Measures with the Potential for Environmental Effects under CEQA

Section 15126.4(a)(1)(D) of the CEQA Guidelines provides that, “[i]f a mitigation measure would cause one or more significant effects in addition to those that would be caused by the project as proposed, the effects of the mitigation measure shall be discussed but in less detail than the significant effects of the project as proposed.” For each impact considered significant in this EIR, mitigation measures have been designed that would reduce the severity of the impact.

Mitigation to reduce the significant impacts to less-than-significant levels are identified in the impact analysis in Chapter 3 and summarized in Table S-1. None of the measures have the potential to themselves result in significant impacts. The measures are preventative in nature or involve compensation or other non-physical elements and do not require construction activities and/or ground disturbance.

5.7 References

ICF International. 2016. *Community Impact Assessment, Mosquito Road Bridge Replacement Project*. April.

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