

PUBLIC DRAFT

**INITIAL STUDY/
MITIGATED NEGATIVE DECLARATION
ESCALON-BELLOTA ROAD BRIDGE OVER
LITTLEJOHNS CREEK BRIDGE REPLACEMENT
PROJECT**

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Acronyms and Abbreviations

$\mu\text{g}/\text{m}^3$	micrograms per cubic meter
AAQA	ambient air quality analysis
AASHTO	American Association of State Highway and Transportation Officials
AB	Assembly Bill
ADA	Americans with Disabilities Act
ADL	aerially deposited lead
ADT	average daily traffic
Alquist-Priolo Act	Alquist-Priolo Earthquake Fault Zoning Act
ARB	California Air Resources Board
Basin Plans	Water Quality Control Basin Plans
BMPs	best management practices
BP	before present
BPS	Best Performance Standards
BSA	biological study area
CAA	Clean Air Act
CAAQS	California ambient air quality standards
CalEPA	California Environmental Protection Agency
Cal-IPC	California Invasive Plant Council
Cal-OSHA	California Occupational Safety and Health Administration
Caltrans	California Department of Transportation
CCAA	California Clean Air Act
CCR	California Code of Regulations
CCV	California Central Valley
CDFA	California Department of Food and Agriculture
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFGF	California Fish and Game Code
CFR	Code of Federal Regulations
CH ₄	methane
CNDDDB	California Natural Diversity Database
CNPPA	California Native Plant Protection Act
CNPS	California Native Plant Society
CO	carbon monoxide
CO ₂	carbon dioxide
CUPA	Certified Unified Program Agency
CVFPB	Central Valley Flood Protection Board
CWA	Clean Water Act
Delta	San Joaquin–Sacramento Rivers Delta
DHS	California Department of Health Services
DOC	California Department of Conservation

DPM	diesel particulate matter
DPR	California Department of Parks and Recreation
DWR	California Department of Water Resources
EFH	essential fish habitat
EHD	Environmental Health Department
EIR	Environmental Impact Report
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ESA	federal Endangered Species Act
Farmland	Prime Farmland, Unique Farmland, or Farmland of Statewide Importance
FHWA	Federal Highway Administration
Fire	Cal Fire San Joaquin County Natural Hazard Disclosure
FMMP	Farmland Mapping and Monitoring Program
GAMAQI	Guidance for Assessing and Mitigating Air Quality Impacts
General Permit	General Permit Order 2010-0014-DWQ
GHG	greenhouse gas
Guidelines	<i>Conservation Guidelines for the Valley Elderberry Longhorn Beetle</i>
GWR	gross vehicle weight rating
HBP	Highway Bridge Program
HFCs	hydrofluorocarbons
Hot Spots Act	Air Toxics Hot Spots Information and Assessment Act of 1987
HUC	hydrologic unit code
LIM	Land Inventory and Monitoring
LSAA	Lake or Streambed Alteration Agreement
MBGR	metal beam guard rail
MBTA	Migratory Bird Treaty Act
MLD	Most Likely Descendant
MOU	memorandum of understanding
MS4	municipal separate storm sewer system
MSA	Magnuson-Stevens Fishery Management and Conservation Act
N ₂ O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NCCP	Natural Community Conservation Plan
NEPA	National Environmental Policy Act
NES	Natural Environmental Study
NO ₂	nitrogen dioxide
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
OHWM	ordinary high water mark
OSHA	Occupational Safety and Health Administration
PC-PS	Pre-Cast Pre-Stressed
PFCs	perfluorinated carbons
PGA	Peak Ground Acceleration
PM	particulate matter
Porter-Cologne Act	Porter-Cologne Water Quality Control Act
ppm	parts per million
PPV	peak particle velocity
PRC	Public Resources Code
RCEM	Road Construction Emissions Model
RCRA	Resource Conservation and Recovery Act
Regional Water Boards	Regional Water Quality Control Boards
ROG	reactive organic gases
ROW	right-of-way
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SF ₆	sulfur hexafluoride
SIP	State Implementation Plan
SJCOG	San Joaquin Council of Governments
SJVAB	San Joaquin Valley air basin
SJVAPCD	San Joaquin Valley Air Pollution Control District
SMAQMD	Sacramento Metropolitan Air Quality Management District
SO ₂	sulfur dioxide
SSSP	Standard Specifications and Special Provisions
State Water Board	State Water Resources Control Board
SVP	Society of Vertebrate Paleontology
SWMP	storm water management program
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TACs	toxic air contaminants
Tanner Act	Toxic Air Contaminant Identification and Control Act
TMDL	total maximum daily loads
TNW	traditional navigable water
USC	U.S. Code
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WDRs	waste discharge requirements

Introduction

San Joaquin County, in coordination with the California Department of Transportation (Caltrans) and the Federal Highway Administration (FHWA), proposes to replace the Escalon-Bellota Bridge (29C0038) over Littlejohns Creek. The project is located just south of the town of Farmington, at the crossing of Escalon-Bellota Road over Littlejohns Creek in San Joaquin County (Figure 1-1). Due to narrow deck width, the bridge is classified as functionally obsolete and has a bridge sufficiency rating of 68.8, which qualifies it for rehabilitation under the FHWA Highway Bridge Program (HBP). Given the constraints posed by the existing steel through girder structure type, the rehabilitation strategy is full replacement. The new bridge would be approximately 133 feet long and 35 feet wide with adequate shoulders to accommodate a Class III bicycle route and barrier railing on both sides. The project limits begin approximately 0.5 mile south of the intersection of Escalon-Bellota Road and State Route 4 and end approximately 0.3 mile south of the same intersection.

The project is subject to federal as well as state environmental review requirements because San Joaquin County proposes the use of federal funds from the HBP. Caltrans is the lead agency under the National Environmental Policy Act (NEPA), through NEPA Assignment under Section 6005 of SAFETEA-LU¹ codified at U.S. Code (USC), Title 23, Section 327(a)(2)(A). San Joaquin County is the lead agency under the California Environmental Quality Act (CEQA).

Background

Escalon-Bellota Road is a rural major collector located in the unincorporated area of San Joaquin County, California. The road accommodates two lanes and runs north-south from Highway 26 near Linden, through the town of Farmington, and turns into McHenry Avenue in the City of Escalon. It is federally classified as a Major Collector (rural). In 2011, the average daily traffic (ADT) on the bridge was 3,681, of which 10 percent of traffic was trucks (California Department of Transportation, Bridge Inspection Report, No. 29C-0038, 2012).

The bridge was originally constructed in 1948 and partially replaced in 1968; the existing bridge has an overall length of approximately 137 feet and a width that varies between 24 and 28 feet. The bridge consists of a 97-foot steel through girder main channel span plus three reinforced concrete slab spans on the north approach.

Because it is rated as functionally obsolete, the bridge is slated to be replaced and funded under the HBP. The proposed project would replace the existing bridge with a two-lane bridge that is consistent with the existing adjacent two-lane roadway.

¹ Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users.

Purpose and Need

Purpose

The purpose of the project is to replace the existing bridge with a safer two-lane bridge that is compliant with current American Association of State Highway and Transportation Officials (AASHTO) design standard, construction, and funding guidelines. The new bridge would address the following.

- Remove the functionally obsolete designation, and remove the bridge from the Eligible Bridge List of the National Bridge Inventory by providing a minimum horizontal clearance on the bridge deck of 32 feet curb-to-curb and increasing the sufficiency rating to 80 or higher.
- Provide roadway geometric features that meet current design standards.
- Provide shoulders along both sides of the roadway that meet current design standards and are sufficient for a Class III bicycle route.
- Provide waterway clearance sufficient to convey the base flood and provide adequate freeboard for the 100-year flood event.
- Maintain traffic with a temporary detour bridge adjacent to the existing bridge during construction to avoid excessive detour distances and travel delays.
- Preserve access to the channel banks for inspection and maintenance.

Need

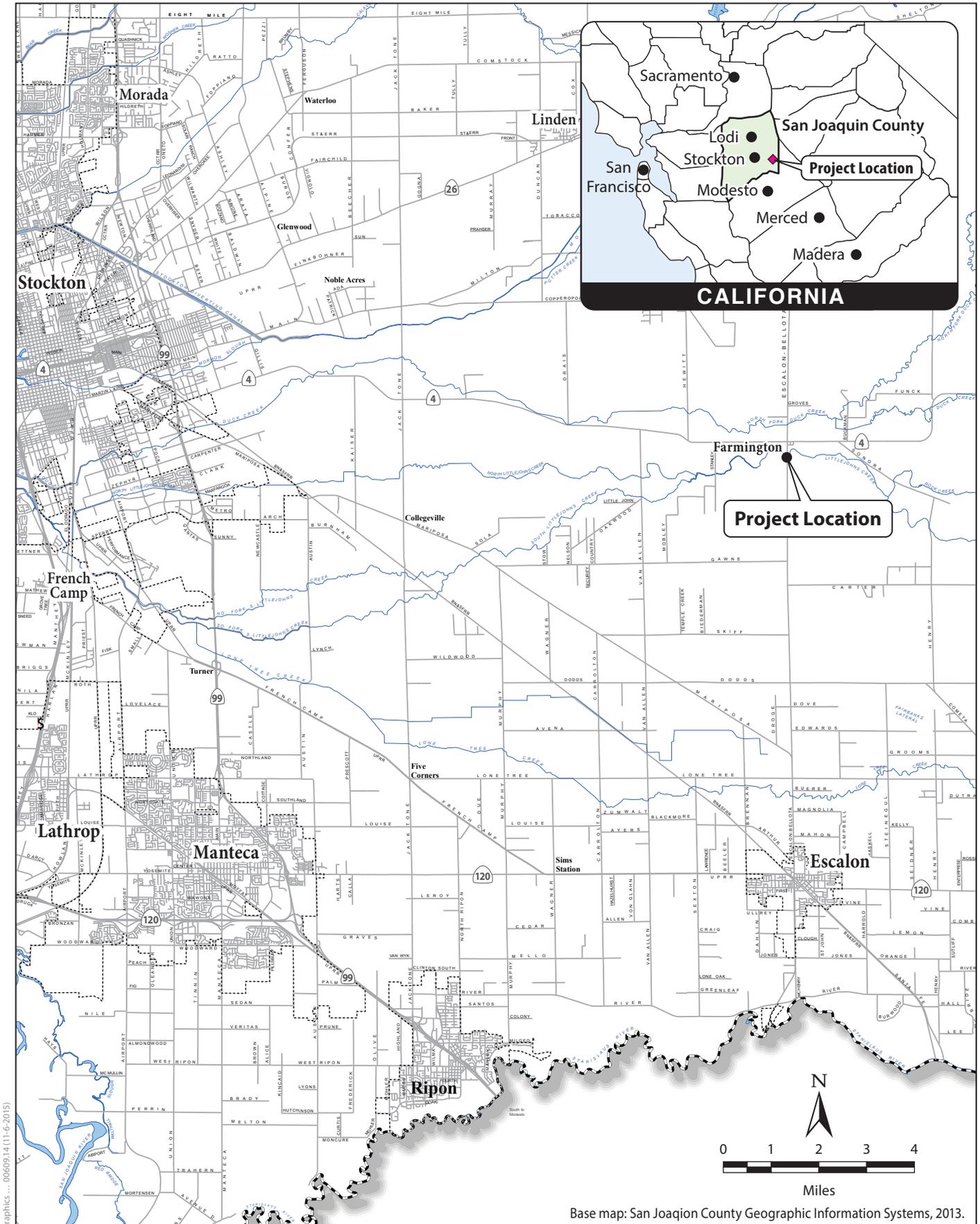
The project is needed in order to correct several deficiencies on Escalon-Bellota Road bridge and the roadway approaches to the bridge. The primary deficiency is the substandard horizontal clearance of the existing bridge deck, which renders the bridge functionally obsolete. The main span of the bridge is a non-redundant structural system that is fracture critical and subject to metal fatigue, which requires special maintenance inspections to ensure the absence of cracking that could lead to a catastrophic failure if left unchecked.

The existing bridge is slightly offset from the alignment of the approach roadways, resulting in angle breaks that do not comply with a safe operating speed meeting the 60 mile-per-hour design speed. The vertical profile also has grade breaks that do not meet current standards.

Escalon-Bellota Road is designated as a Class III Bicycle Route in the San Joaquin County Bicycle Master Plan (2010) and the San Joaquin Council of Governments (SJCOG) Regional Bicycle, Pedestrian, and Safe Routes to School Master Plan (2012). The bridge and approach roadways do not currently provide adequate shoulder width to comply with the Class III designation.

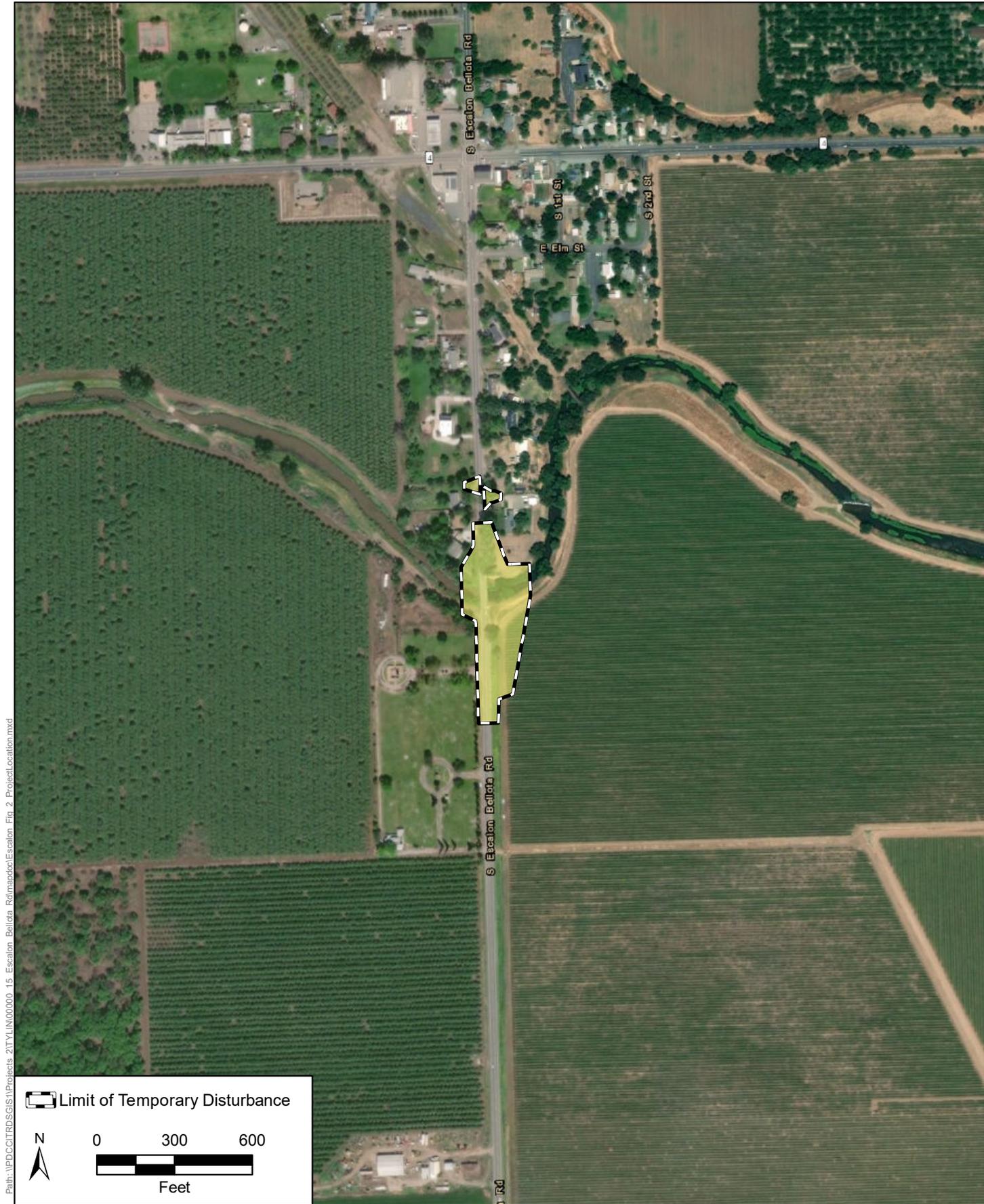
Project Description—Build Alternative

The proposed project would remove the existing bridge and replace it with a wider two-span, cast-in-place prestressed concrete slab bridge, meeting current standards. The project area is depicted on Figure 1-2. The bridge would be constructed on the existing alignment, and new approach roadways would be constructed to connect the bridge to the existing roadway section. The new



Base map: San Joaquin County Geographic Information Systems, 2013.

**Figure 1-1
Project Vicinity**



Path: \\PDC\ITRDS\GIS\Projects\21Y\LIN\000000_15_Escalton_Bellota_Rd\mapdoc\Escalton_Fig 2_ProjectLocation.mxd

Figure 1-2
Project Location

bridge would be approximately 133 feet in length and 35 feet in width to accommodate two traffic lanes with adequate shoulders sufficient to accommodate a Class III bicycle route plus barrier railing along both sides. The new bridge would consist of a concrete slab supported on a concrete pile bent and on concrete abutments constructed on piles at each end of the bridge.

The profile of the bridge would satisfy waterway opening requirements and provide positive drainage off the structure to avoid discharges directly into Littlejohn Creek. The project area is located in Special Flood Hazard Zone AE, which represents areas subject to flooding by the 100-year flood event. The proposed project would be designed for the 100-year flow with 2 feet of drift clearance (freeboard). Rock slope protection may be required on creek banks at the bridge abutments to minimize erosion of the channel slopes and exposure of the abutment foundations.

Stormwater runoff from Escalon-Bellota Road would be collected in ditches adjacent to the new roadway and conveyed back into Littlejohns Creek.

Construction Methodology

The primary elements of the project include the following operations.

- Temporarily relocate conflicting utility lines for construction purposes.
- Clear and grub to remove vegetation within the footprint of the new improvements, including removal of up to 16 trees.
- Install a temporary detour bridge east of the existing bridge and associated approach roadway.
- Install a temporary creek diversion system
- Remove the existing bridge structure (which may require cofferdams).
- Perform rough grading for the new approach road connections.
- Excavate and install bridge foundation piling.
- Construct new substructures (reinforced concrete in rigid forms).
- Erect falsework (temporary scaffolding) and construct bridge deck.
- Prestress the bridge deck.
- Remove falsework and construct barriers and railings.
- Remove temporary creek diversion system as required to restore the creek to its preconstruction condition.
- Construct bridge approach slabs and install joint seals.
- Pave new approach road connections.
- Shift traffic to new bridge and remove detour bridge and approaches.
- Restore detour footprint area.

Pre-Cast Pre-Stressed (PC-PS) reinforced concrete piles are proposed at Abutments 1 and 3. Modified PC-PS concrete pile extensions are proposed to support Bent 2. Pile driving will be required to install concrete piles and may be required for a temporary detour bridge, temporary creek diversion system (access over the creek), and the falsework (temporary scaffolding).

The temporary creek diversion system may be required to facilitate construction access for workers, equipment, and materials. This system may be used for bridge demolition and construction of the new bridge supports, and temporary falsework—designed to convey stream flow—would be required for casting of the concrete bridge deck. Upon completion of construction, the temporary creek diversion system would be removed and any disturbance of the creek banks would be returned to preconstruction conditions.

The existing bridge would be demolished and disposed by the construction contractor. Existing foundations would be removed to a depth below finished grades.

Anticipated Construction Equipment

Typical construction equipment would include the following.

- Crane
- Backhoe
- Excavator
- Concrete saw (partial removal of existing bridge and approach for stage construction)
- Mounted impact hammer Hoe ram (bridge removal)
- Impact pile driver/vibratory pile driver
- Air compressor
- Cement truck
- Cement pump truck
- Flatbed truck
- Paver
- Rollers
- Motor grader
- Various dump trucks
- Various light tools (saws, jack hammer, etc.)
- Front end loader

Staging Areas

Equipment and construction materials would be temporarily stored and staged on the existing roadway and/or adjacent to the project site in a designated staging area north and south of the bridge, within the existing public right-of-way. The staging areas would be accessed directly from Escalon-Bellota Road, north and south of the existing bridge. The staging areas would be fully restored to their original condition after construction activities are completed.

Borrow and Disposal Sites

The construction contractor would be required to dispose of waste materials at a legal disposal facility. Very little imported borrow soil material would be required for the project, and the contractor would be required to obtain materials from existing permitted sources.

Utilities Relocation

Existing utilities include overhead electrical lines, overhead telephone lines, an underground water main, and a U.S. Army Corps of Engineers gauging station (450 feet downstream of the bridge). Overhead utility lines in conflict with the proposed project would be temporarily relocated to the east of the proposed construction. The underground water line would be protected in place. Underground electrical and/or communication lines for the gauging station may cross through the project site.

Right-of-way Acquisition and Easements

Right-of-way on the west and east side of the road may be required to accommodate the permanent improvements. Temporary construction easements would be required along the east side of the road to accommodate the temporary detour and along the west side of the road for construction of embankment slope and drainage ditch.

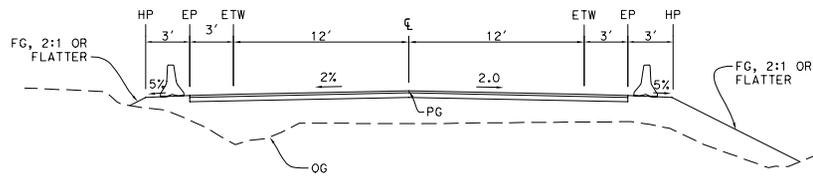
Traffic Management

Escalon-Bellota Road would remain open during construction of the new bridge. Traffic would be maintained by means of a temporary detour bridge located along the east side of the new bridge to avoid an existing underground utility and the cemetery south of Littlejohn Creek. The temporary bridge is depicted in Figure 1-3. Temporary approach roadways approximately 450 feet in length to the south and 200 feet to the north would connect each end of the temporary bridge to the existing roadway.

Construction Phasing and Duration

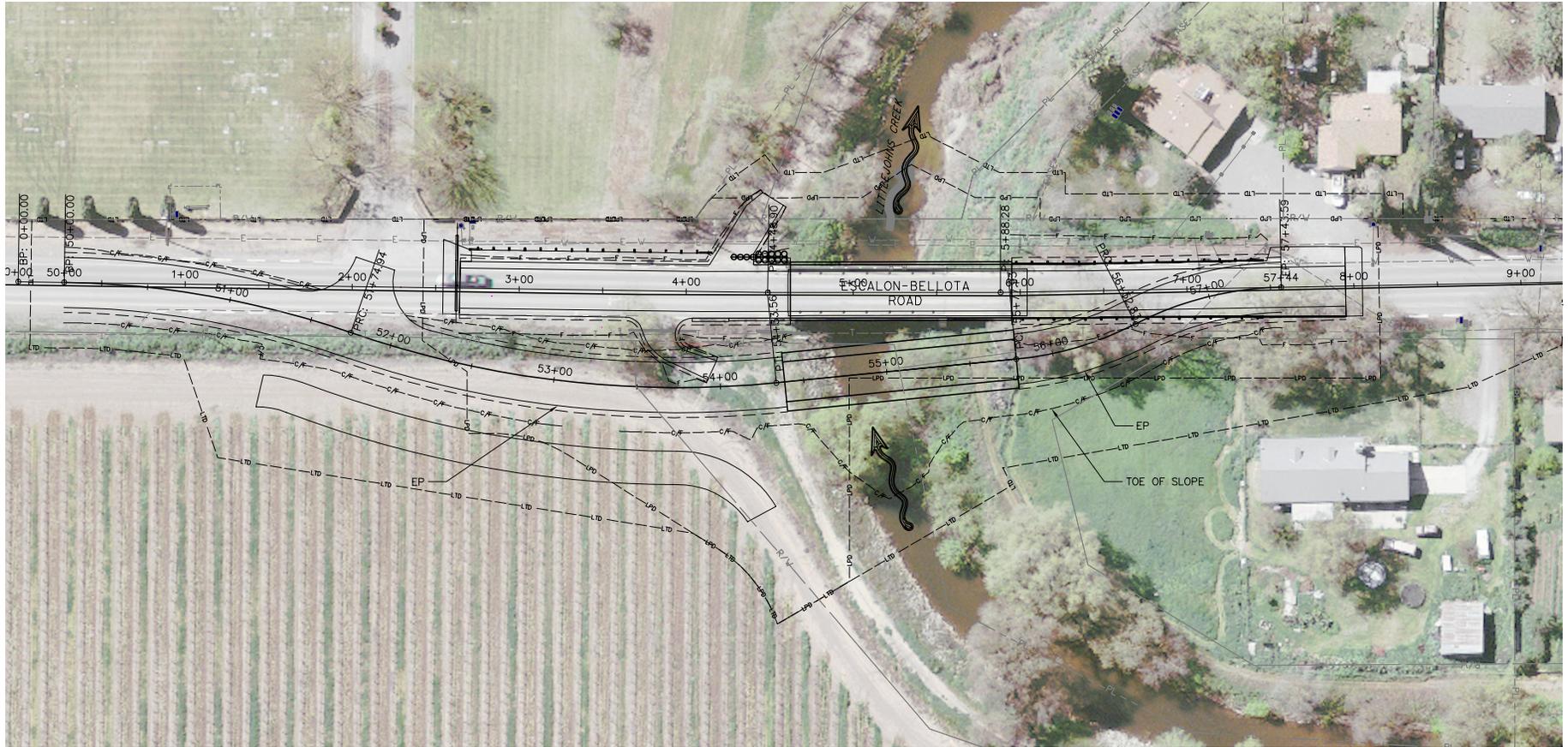
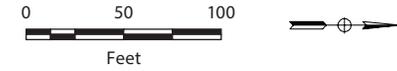
Construction is expected to require approximately 9 months with approximately 5 months required for work within the creek. Some night and weekend work may be required depending on seasonal restrictions for work within the creek. Construction would generally involve the activities listed below and would be phased as follows.

1. Phase 1 (March)
 - Furnish piling.
 - Relocate utilities.
 - Install detour bridge, traffic handling, and detour signs/markings.
 - Close existing bridge.
 - Clear and grub/install temporary erosion control.



**DETOUR ROAD
TYPICAL SECTION**

- LEGEND:**
- PL — — — — — PROPERTY LINE
 - x — — — — — FENCE
 - C/A — — — — — TOE OF SLOPE



ESCALON-BELLOTA ROAD BRIDGE REPLACEMENT

Source: TY Lin International, 2015.

**Figure 1-3
East Detour**

2. Phase 2 (May)
 - Install temporary creek diversion and construction access to the creek.
 - Demolish and remove the existing bridge, including deck, girders, abutments, concrete spans, and piers.
 - Regrade abutments.
3. Phase 3 (May–September)
 - Construct piles.
 - Construct abutments.
 - Construct bridge superstructure.
4. Phase 4 (June–September)
 - Excavate roadway.
 - Construct northern roadway approach.
 - Construct southern roadway approach.
5. Phase 5 (September–October)
 - Install metal beam guard rail (MBGR).
 - Finish pavement delineation and markings.
 - Finish roadway.
 - Remove detour bridge, traffic handling, and detour signs and markings.

No-Project (No-Build) Alternative

The No-Project Alternative would leave the Escalon-Bellota Road Bridge and approach roadways in their current conditions. The substandard horizontal clearance, fracture-critical structural system, offset alignment, and lack of width for a Class III bicycle route would not be corrected. No project-related effects on the creek or adjacent properties and farmland would occur under the No-Project Alternative. Special maintenance inspections would continue to ensure the absence of cracking that could lead to a catastrophic failure if left unchecked.

Permits, Reviews and Approvals

The permits, reviews, and approvals listed in Table 1-1 would be required for project construction.

Table 1-1. Required Permits, Reviews, and Approvals

Agency	Permit/Approval	Status
U.S. Fish and Wildlife Service	Endangered Species Act Section 7 coordination regarding threatened and endangered species	Not yet initiated
U.S. Army Corps of Engineers	Clean Water Act Section 404 authorization for fill of waters of the United States	Not yet initiated
California Department of Fish and Wildlife	California Fish and Game Code Section 1602 streambed alteration agreement	Not yet initiated
Central Valley Regional Water Quality Control Board	Clean Water Action Section 401 water quality certification	Not yet initiated
Central Valley Flood Protection Board	Floodway encroachment permit	Not yet initiated
San Joaquin Valley Air Pollution Control District	Formal notification prior to construction	Not yet initiated
California Department of Conservation	Effects on parcel enrolled under California Land Conservation Act (Williamson Act) contract	Not yet initiated
San Joaquin County Flood Management	Endorsement Letter for Central Valley Flood Protection Board Encroachment Permit Application	Not yet initiated

Chapter 2 Environmental Checklist

1. Project Title:	Escalon-Bellota Road Bridge over Littlejohns Creek Bridge Replacement Project
2. Lead Agency Name and Address:	San Joaquin County Department of Public Works, 1810 E Hazelton Street, Stockton, CA 95205
3. Contact Person and Phone Number:	Mahmoud Saqqa, Project Manager
4. Project Location:	Escalon-Bellota Bridge (29C0038) over Littlejohns Creek just south of the town of Farmington, at the crossing of Escalon-Bellota Road over Littlejohns Creek in unincorporated San Joaquin County
5. Project Sponsor's Name and Address:	San Joaquin County Department of Public Works, 1810 E Hazelton Street, Stockton, CA 95205
6. General Plan Designation:	The project area is designated as a rural community within the Linden Planning Area. The General Plan land use designations for the project area include "Rural" north of Littlejohns Creek, "Other" (a cemetery) south of Littlejohns Creek, and "General Agriculture" surrounding the rest of the project area
7. Zoning:	Agricultural Preserve
8. Description of Project:	The proposed project would remove the existing bridge and replace it with a wider two-span, cast-in-place prestressed concrete slab bridge to meet current standards. The bridge would be constructed on the existing alignment, and new approach roadways would be constructed to connect the bridge to the existing roadway section.
9. Surrounding Land Uses and Setting:	Agricultural and Rural Residential
10. Other Public Agencies Whose Approval is Required:	USACE, State Water Board, CDFWS, USFWS, SJVAPCD, CDC, SJCFM, CVFPB
11. Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code Section 21080.3.1? If so, has consultation begun?	<p><i>Note: Conducting consultation early in the CEQA process allows tribal governments, lead agencies, and project proponents to discuss the level of environmental review, identify and address potential adverse impacts to tribal cultural resources, and reduce the potential for delay and conflict in the environmental review process. (See Public Resources Code Section 21083.3.2.) Information may also be available from the California Native American Heritage Commission's Sacred Lands File per Public Resources Code Section 5097.96 and the California Historical Resources Information System administered by the California Office of Historic Preservation. Please also note that Public Resources Code Section 21082.3(c) contains provisions specific to confidentiality.</i></p> <p>No California Native American tribes traditionally and culturally affiliated with the project area have requested consultation. However, consultation pursuant to Public Resources Code Section 21080.3.1 has occurred.</p>

Environmental Factors Potentially Affected

The environmental factors checked below would potentially be affected by this project (i.e., the project would involve at least one impact that is a "Potentially Significant Impact"), as indicated by the checklist on the following pages.

- | | | |
|--|---|--|
| <input checked="" type="checkbox"/> Aesthetics | <input checked="" type="checkbox"/> Agricultural and Forestry | <input type="checkbox"/> Air Quality |
| <input checked="" type="checkbox"/> Biological Resources | <input checked="" type="checkbox"/> Cultural Resources | <input checked="" type="checkbox"/> Geology/Soils |
| <input type="checkbox"/> Greenhouse Gas Emissions | <input checked="" type="checkbox"/> Hazards and Hazardous Materials | <input type="checkbox"/> Hydrology/Water Quality |
| <input type="checkbox"/> Land Use/Planning | <input type="checkbox"/> Mineral Resources | <input checked="" type="checkbox"/> Noise |
| <input type="checkbox"/> Population/Housing | <input type="checkbox"/> Public Services | <input type="checkbox"/> Recreation |
| <input type="checkbox"/> Transportation/Traffic | <input type="checkbox"/> Utilities/Service Systems | <input checked="" type="checkbox"/> Mandatory Findings of Significance |

Determination

On the basis of this initial evaluation:

- I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions to the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- I find that the proposed project MAY have an impact on the environment that is "potentially significant" or "potentially significant unless mitigated" but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards and (2) has been addressed by mitigation measures based on the earlier analysis, as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
- I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the project, nothing further is required.

Michael Chung
Signature

4/1/19
Date

Michael Chung
Printed Name

Date

Evaluation of Environmental Impacts

1. A brief explanation is required for all answers except “No Impact” answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A “No Impact” answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A “No Impact” answer should be explained if it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).
2. All answers must take account of the whole action involved, including offsite as well as onsite, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.
3. Once the lead agency has determined that a particular physical impact may occur, the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. “Potentially Significant Impact” is appropriate if there is substantial evidence that an effect may be significant. If there are one or more “Potentially Significant Impact” entries when the determination is made, an Environmental Impact Report (EIR) is required.
4. “Negative Declaration: Less than Significant with Mitigation Incorporated” applies when the incorporation of mitigation measures has reduced an effect from a “Potentially Significant Impact” to a “Less-than-Significant Impact”. The lead agency must describe the mitigation measures and briefly explain how they reduce the effect to a less-than-significant level. (Mitigation measures from Section XVII, “Earlier Analyses”, may be cross-referenced.)
5. Earlier analyses may be used if, pursuant to tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration [Section 15063(c)(3)(D)]. In this case, a brief discussion should identify the following:
 - a. Earlier Analysis Used. Identify and state where earlier analyses are available for review.
 - b. Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards and state whether such effects were addressed by mitigation measures based on the earlier analysis.
 - c. Mitigation Measures. For effects that are “Less than Significant with Mitigation Incorporated,” describe the mitigation measures that were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.
6. Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, when appropriate, include a reference to the page or pages where the statement is substantiated.
7. Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.
8. This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project’s environmental effects in whatever format is selected.
9. The explanation of each issue should identify:
 - a. the significance criteria or threshold, if any, used to evaluate each question; and
 - b. the mitigation measure identified, if any, to reduce the impact to a less-than-significant level.

I. Aesthetics	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings along a scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Affected Environment

The project area lies in northern San Joaquin County near the town of Farmington in the San Joaquin Valley, and the project crosses Littlejohns Creek along Escalon-Bellota Road. The landform in, and surrounding, the project area is characterized by flat valley floor that is largely in agricultural production. The rural landscape and agricultural fields allow for expansive, long-range views to the middleground and background. The Sierra Nevada Mountain Range can be seen in the background to the east, rising above the flat valley floor and is visible to varying degrees due to atmospheric conditions such as haze or the presence or absence of vegetation and infrastructure that can obscure views. The only development adjacent to the project site includes rural residential development along the north side of the bridge, a vineyard to the east, and Highland View Memorial Gardens (a cemetery) to the south west.

Escalon-Bellota Road bridge over Littlejohns Creek is viewed daily by motorists using the roadway for commuting and accessing businesses and rural residences located directly adjacent to and north of the bridge. Motorists are the largest viewer group that would be affected by the proposed project as they come in direct visual contact with the bridge in passing. Rural residential viewers do not have direct views while indoors and have mostly indirect views from outdoors due to landscaping that serves as screening to obscure views of the roadway and bridge. However, the residential property directly adjacent to the northwest of the bridge has views of the project from the front yard. The project site is viewed less frequently by intermittent agricultural workers working in the vineyards near the bridge and by visitors of Highland View Memorial Gardens, who have indirect views of the project due to large trees in the northeast corner of the property. Viewer sensitivity to changes associated with the project are expected to be moderate-low to moderate due to the limited nature of available views.

Discussion

As described above, the proposed project involves replacing the existing Escalon-Bellota Bridge over Littlejohns Creek with a slightly wider, two-lane bridge to accommodate two lanes of traffic, a Class III bicycle route, and barrier railing on both sides. While the bridge would be replaced, all of the proposed features are existing visual elements of the project site, and the proposed project would not significantly alter the existing visual character of the project area as seen by all viewer groups. All additions would be similar in appearance to existing facilities in the area. Construction of the proposed project would use a staging area on the existing roadway and/or adjacent to the project site within the existing public right-of-way, and would not damage any scenic resources.

Checklist items: a, b

Escalon-Bellota Road is not a state or San Joaquin County designated scenic highway, and there are no scenic vistas or historic structures that would be affected by the project. Therefore, there would be no impact to scenic vistas or scenic highways.

Checklist item: c

Construction would remove vegetation within the footprint of the new improvements, including removal of up to 16 trees. This vegetation provides an attractive visual resource and improves the aesthetics of the existing roadway corridor. Landscaping is not proposed as part of the proposed project, and removal of these trees would negatively affect existing visual resources (e.g., views of trees). The compensatory mitigation identified in the *Natural Environmental Study* (NES) prepared for the project (ICF International 2016) would partially mitigate for visual impacts associated with the removal of trees to construct the proposed project. The mitigation identified in the NES requires onsite and/or offsite restoration including replanting of trees. Staging areas and the creek bed would be restored to their original conditions after construction activities are completed. With implementation of Mitigation Measure VIS-1, potential impacts on the existing visual character and quality of the site and surroundings would be reduced to a less-than-significant level.

Mitigation Measure VIS-1: Replace or Relocate Site Features and Landscaping Affected by the Project

Where appropriate and to the degree possible, landscaping and related appurtenances, fencing and other similar features removed from private properties as a result of construction will be replaced or restored in place and in kind to mitigate for visual impacts resulting from the loss of such features. If the site cannot accommodate this, then the County or Caltrans will compensate parcel owners for features that would be removed or damaged as a result of the project.

Replacement would be of value at least equal to that of existing features. A person(s) qualified in evaluating landscape features, such as trees, fencing or other similar features, will be used to determine compensation values for the loss of those features at such locations as part of the right-of-way negotiation process.

Checklist item: d

The proposed project would not involve improvements that would increase daytime glare, and no lighting is proposed. Therefore, this impact would be less than significant.

II. Agricultural and Forestry Resources	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
<p>In determining whether impacts on agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts on forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state’s inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project, and forest carbon measurement methodology provided in the Forest Protocols adopted by the California Air Resources Board. Would the project:</p>				
<p>a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p>b. Conflict with existing zoning for agricultural use or conflict with a Williamson Act contract?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p>c. Conflict with existing zoning for, or cause rezoning of forest land (as defined in Public Resources Code Section 12220[g]), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104[g])?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>d. Result in the loss of forest land or conversion of forest land to non-forest use?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>e. Involve other changes in the existing environment that, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Affected Environment

Regulatory Setting

State

The California Land Conservation Act of 1965

The California Land Conservation Act of 1965, commonly referred to as the Williamson Act, is the state's primary program for the conservation of private land in agricultural and open space use (Government Code Section 51200 et seq.). It is a voluntary, locally administered program that offers reduced property taxes on lands that have enforceable restrictions on their use through contracts between individual landowners and the County.

Farmland Mapping and Monitoring Program Classification

The California Department of Conservation (DOC) Farmland Mapping and Monitoring Program (FMMP) prepares Important Farmland maps periodically for most of the state's agricultural areas based on information from Natural Resources Conservation Service (NRCS) soil survey maps, Land Inventory and Monitoring (LIM) criteria developed by NRCS, and land use information mapped by the California Department of Water Resources (DWR). These criteria generally are expressed as definitions that characterize the land's suitability for agricultural production, physical and chemical characteristics of the soil, and actual land use. Important Farmland maps generally are updated every 2 years. The FMMP thereby provides information about the quality of farmland in San Joaquin County.

The Important Farmland mapping system incorporates eight mapping categories, five categories relating to farmlands and three categories associated with lands used for non-agricultural purposes. The five farmland mapping categories are summarized below.

- **Prime Farmland:** Lands with the combination of physical and chemical features best able to sustain long-term production of agricultural crops. The land must be supported by a developed irrigation water supply that is dependable and of adequate quality during the growing season. It also must have been used for the production of irrigated crops at some time during the 4 years before mapping data were collected.
- **Farmland of Statewide Importance:** Lands with agricultural land use characteristics, irrigation water supplies, and physical characteristics similar to those of Prime Farmland but with minor shortcomings, such as steeper slopes or less ability to retain moisture.
- **Unique Farmland:** Lands with lesser quality soils used for the production of California's leading agricultural cash crops. These lands usually are irrigated but may include non-irrigated orchards or vineyards, as found in some of the state's climatic zones.
- **Farmland of Local Importance:** Lands of importance to the local agricultural economy, as determined by each county's board of supervisors and a local advisory committee.
- **Grazing Land:** Lands in which the existing vegetation is suited to the grazing of livestock.

Local***San Joaquin County General Plan***

The Agricultural Lands section of the San Joaquin County General Plan Resources Element (1992:VI-10–VI-13) includes the following objectives and policies that pertain to agricultural and agricultural resources.

Objectives

1. To protect agricultural lands needed for the continuation of commercial agricultural enterprises, small-scale farming operations and the preservation of open space.
2. To recognize agricultural lands that contain concentrations of small-scale agricultural operations and dwellings.
3. To minimize the impact on agriculture in the transition of agricultural areas to urban development.

Policies***Preservation of Agricultural Lands/Compatible Uses***

6. All lands designated for agricultural uses and those lands designated for non-agricultural use but not needed for development for 10 years shall be placed in an agricultural preserve and shall be eligible for Williamson Act contracts. Parcels eligible for Williamson Act contracts shall be 20 or more acres in size in the case of prime land or 40 or more acres in the case of non-prime land.
7. There shall be no further fragmentation of land designated for agricultural use, except in the following cases:
 - (a) Parcels for homesites may be created, provided that the General Plan density is not exceeded.
 - (b) A parcel may be created for the purpose of separating existing dwellings on a lot, provided the Development Title regulations are met.
 - (c) A parcel may be created for a use granted a permit in the A-G zone, provided that conflicts with surrounding agricultural operations are mitigated.

Existing Conditions

The dominant land use in the project area is agriculture. The parcels surrounding the project limits are zoned as Agricultural Preserve. According to the FMMP, the land surrounding the project area is classified as Rural Residential Land. The parcels east of Escalon-Bellota Road and south of Littlejohns Creek are classified as Prime Farmland. In addition, the parcel west of the existing bridge on the west (APN 18711023) is enrolled in a Williamson Act contract (Figure 2-1).

The project area is designated as a rural community within the Linden Planning Area. The General Plan land use designations for the project area include “Rural” north of Littlejohns Creek, “Other” (a cemetery) south of Littlejohns Creek, and “General Agriculture” surrounding the rest of the project area.

Right-of-way on the west and east side of the road may be required to accommodate the permanent improvements. Temporary construction easements would be required along the east side of the road to accommodate the temporary detour and along the west side of the road for construction of embankment slopes and drainage ditches.

Path: \\PDCC\TRD\S\GIS1\Projects_2\TY\LIN\000000_15_Escalon_Bellota_Rd\mapdoc\CA\Figure2_StudyArea_Williamson.mxd; User: 19016; Date: 3/8/2019

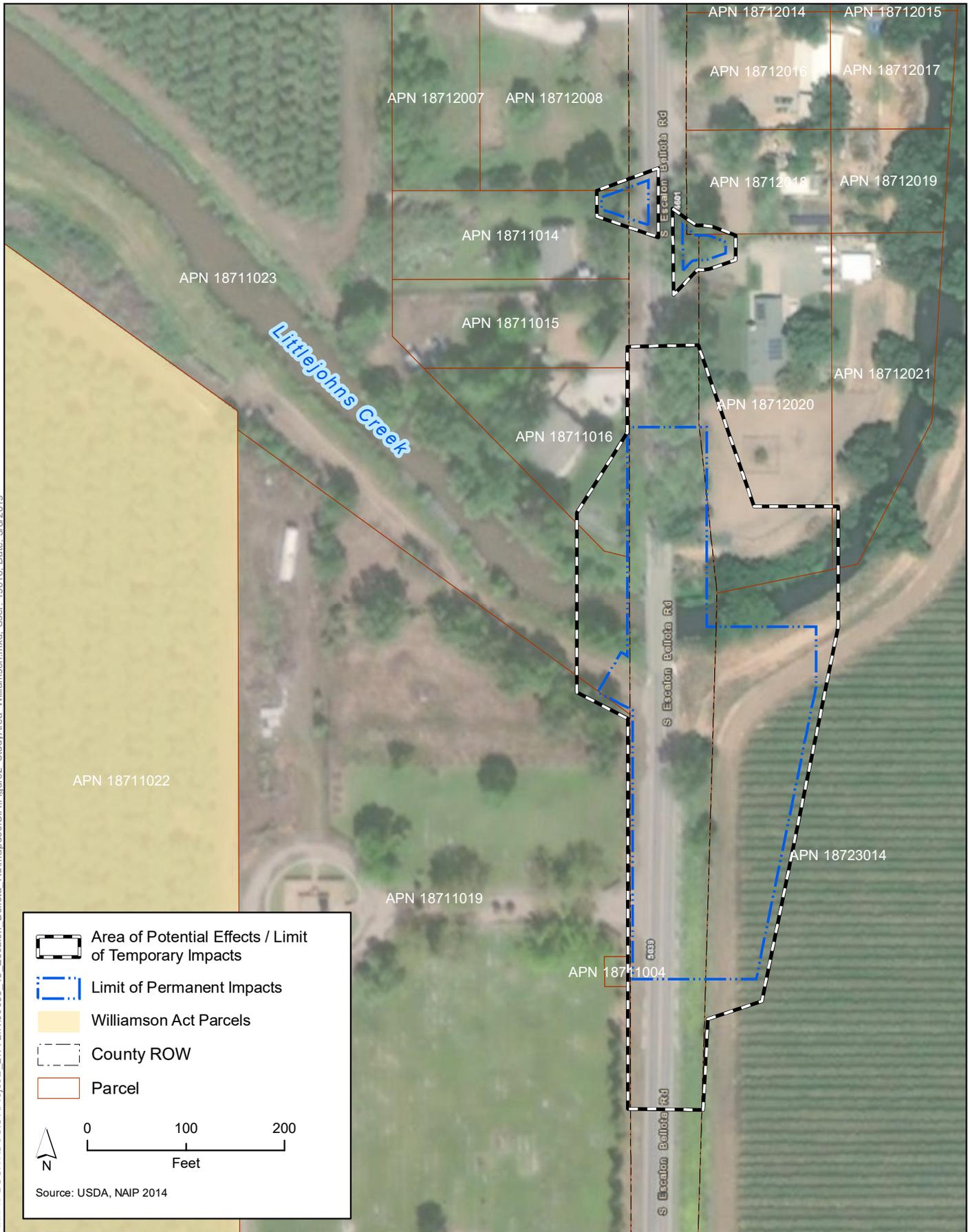


Figure 2-1
Williamson Act Parcel Impacts
Escalon-Bellota Bridge Replacement Project

There are no timberlands or forests within the project area.

Discussion

Checklist item: a

The proposed project entails replacing the Escalon-Bellota Road bridge to improve safety as the bridge is functionally obsolete. Right-of-way on the west and east side of the road would be required to accommodate the permanent improvements. The parcel east of Escalon-Bellota Road and south of Littlejohns Creek is classified as prime farmland. The rest of the project area is classified as urban/built-up land by the FMMP. Some temporary easements and permanent acquisitions would be required to construct the proposed project. Table 2-1 below shows the amount of temporary and permanent impacts to land designated as farmland, and land that is currently being farmed.

Table 2-1. Farmland Impacts in the Project Area

Prime Farmland	1.264
Limit of Permanent Disturbance	0.787
Limit of Temporary Disturbance	0.478
Urban and Built-up Land	2.499
Limit of Permanent Disturbance	1.789
Limit of Temporary Disturbance	0.710
Total	3.764

Of the farmland being permanently acquired, only a small portion is in active farmland use. The rest of the land designated as farmland is adjacent to the existing roadway and primarily contains the creek and creek beds and is not in active agricultural use.

A land evaluation and site assessment was performed using Form AD-1006 because prime farmland would be converted to expand the right-of-way (ROW). The scoring of 146 total points out of 260 points on Form AD-1006 finds the acquisition of 0.787 acre not to be substantial, largely due to the location of the acquisition and the small size relative to the rest of the parcel. With acquisition as proposed, the rest of each parcel could continue to be used for agricultural purposes. This impact would be less than significant.

Checklist item: b

Parcel 18711023 is enrolled in a Williamson Act contract. However, these proposed project would avoid this parcel and acquisitions would not be required. This impact would be less than significant.

Checklist item: c

No forest land or timberland exists within the project area and therefore there would be no impact. No mitigation is required.

Checklist item: d

No forest land or timberland exists within the project area and therefore there would be no impact. No mitigation is required.

Checklist item: e

No forestland or timberland exists within the project area. Permanent and temporary easement acquisitions would convert land currently in agricultural use to a non-agricultural use. The maximum amount of land currently in agricultural use that would be affected is minimal. As discussed above, the loss of agricultural production land would not be substantial and this would represent a less-than-significant impact.

III. Air Quality	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
When available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a. Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. 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)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e. Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Affected Environment

Existing Conditions

Regulatory Setting

This section summarizes federal, state, and local regulations that apply to air quality and GHG emissions. The project is located in San Joaquin County within the San Joaquin Valley air basin (SJVAB). The air quality management agencies of direct importance in the area are the U.S. Environmental Protection Agency (EPA), California Air Resources Board (ARB), and the San Joaquin Valley Air Pollution Control District (SJVAPCD). EPA has established federal air quality standards for which ARB and SJVAPCD have primary implementation responsibility. ARB and SJVAPCD are also responsible for ensuring that state air quality standards are met.

Federal Regulations

Clean Air Act

The 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), for six criteria pollutants 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 2-2 shows the NAAQS currently in effect for each criteria pollutant, as well as the California ambient air quality standards (CAAQS) (discussed below).

Table 2-2. Federal 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 µg/m ³
Carbon Monoxide	8-hour	9.0 ppm	9 ppm	None
	1-hour	20 ppm	35 ppm	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	0.014 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.

ppm = parts per million.

µg/m³ = micrograms per cubic meter.

^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 National Ambient Air Quality Standards for Sulfur Dioxide only apply for 1 year after designation of the new 1-hour standard to those areas that were previously in nonattainment for 24-hour and annual National Ambient Air Quality Standards.

^d California Ambient Air Quality Standards 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%.

Nonroad Diesel Rule

EPA has established a series of increasingly strict emission standards for new offroad diesel equipment, onroad diesel trucks, and locomotives. New construction equipment used for the proposed project, including heavy-duty trucks and offroad construction equipment, would be required to comply with the emission standards.

State Regulations

California Clean Air Act

In 1988, the state legislature adopted the California Clean Air Act (CCAA), which established a statewide air pollution control program. The CCAA requires all air districts in the state to endeavor to meet the CAAQS by the earliest practical date. Unlike the 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, hydrogen sulfide, visibility-reducing particles, and vinyl chloride. The CAAQS and NAAQS are shown in Table 2-2.

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 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.

Statewide Truck and Bus Regulation

Originally adopted in 2005, the on-road truck and bus regulation requires heavy trucks to be retrofitted with PM filters. The regulation applies to privately and federally owned diesel fueled trucks with a gross vehicle weight rating (GWR) greater than 14,000 pounds. Compliance with the regulation can be reached through one of two paths: 1) vehicle retrofits according to engine year or 2) phase-in schedule. Compliance paths ensure that by January 2023, nearly all trucks and buses will have 2010 model year engines or newer.

State Tailpipe Emission Standards

ARB has established a series of increasingly strict emission standards for new offroad diesel equipment, onroad diesel trucks, and harbor craft. New construction equipment used for the project, including heavy duty trucks and offroad construction equipment would be required to comply with the standards.

Toxic Air Contaminant Regulations

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.

In August 1998, ARB identified particulate emissions from diesel-fueled engines (i.e., diesel particulate matter [DPM]) as TACs. In September 2000, ARB approved a comprehensive *Diesel Risk Reduction Plan* to reduce emissions from both new and existing diesel-fueled engines and vehicles. The goal of the plan is to reduce DPM (respirable particulate matter) emissions and the associated health risk by 75% by 2010 and by 85% by 2020. The plan identifies 14 measures that ARB will implement over the next several years. Because the ARB measures would be enacted before any phase of construction, the proposed project would be required to comply with applicable diesel control measures.

Regional Regulations

San Joaquin Air Pollution Control District

At the regional level, responsibilities of air quality districts include overseeing stationary-source emissions, approving permits, maintaining emissions inventories, maintaining air quality stations, overseeing agricultural burning permits, and reviewing air quality–related sections of environmental documents required by CEQA. The air quality districts are also responsible for establishing and enforcing local air quality rules and regulations that address the requirements of federal and state air quality laws and for ensuring that NAAQS and CAAQS are met.

The air quality study area falls under the jurisdiction of SJVAPCD. SJVAPCD (2015) has adopted CEQA emission thresholds in its *Guide for Assessing and Mitigating Air Quality Impacts* to assist lead agencies in determining the level of significance of project-related emissions. According to the SJVAPCD handbook, emissions that exceed the recommended threshold levels are considered potentially significant and should be mitigated where feasible.

Under the CCAA, SJVAPCD is required to develop an air quality plan for nonattainment criteria pollutants in the air district. The air district has adopted attainment plans to address ozone, particulate matter (PM), and carbon monoxide (CO). The *2016 Ozone Plan* contains a comprehensive list of regulatory and incentive-based measures to reduce reactive organic gases (ROG) and nitrogen oxides (NO_x) emissions. In particular, the plan proposes a 60% reduction in NO_x by 2031. SJVAPCD’s *2007 PM10 Maintenance Plan* and *2016 Moderate Area Plan for the 2012 PM2.5 Standard* likewise include strategies to reduce PM emissions throughout the air basin. Finally, the *2004 California State Implementation Plan for Carbon Monoxide* addresses CO emissions throughout the state.

The Project may be subject to the following district rules. This list of rules may not be all encompassing, as additional SJVAPCD rules may apply to the alternatives as specific components are identified. These are rules that have been adopted by SJVAPCD to reduce emissions throughout the San Joaquin Valley.

- Rule 3135 (Dust Control Plan Fees). This rule requires the applicant to submit a fee in addition to a dust control plan. The purpose of this rule is to recover SJVAPCD's cost for reviewing these plans and conducting compliance inspections.
- Rule 4101 (Visible Emissions). This rule prohibits emissions of visible air contaminants to the atmosphere and applies to any source operation that emits or may emit air contaminants.
- Rule 4102 (Nuisance). This rule applies to any source operation that emits or may emit air contaminants or other materials. In the event that the project or construction of the project creates a public nuisance, it could be in violation and subject to SJVAPCD enforcement action.
- Rule 4641 (Cutback, Slow-Cure, and Emulsified Asphalt, Paving, and Maintenance Operations). This rule applies to the manufacture and use of cutback asphalt, slow-cure asphalt, and emulsified asphalt for paving and maintenance operations.
- Rule 4701 (Internal Combustion Engines—Phase 1). This rule limits the emissions of NO_x, CO, and ROG from internal combustion engines. These limits are not applicable to standby engines as long as they are used fewer than 200 hours per year (e.g., for testing during non-emergencies).
- Rule 4702 (Internal Combustion Engines—Phase 2). This rule limits the emissions of NO_x, CO, and ROG from spark-ignited internal combustion engines.
- Rule 9510 (Indirect Source Review). This rule fulfills the SJVAPCD's emission reduction commitments in the PM and ozone attainment plans through emission reductions from the construction and use of development projects. Compliance with Rule 9510 is discussed further below.
- Regulation VIII (Fugitive PM10 Prohibitions). This is a series of rules (Rules 8011–8081) designed to reduce PM emissions (predominantly dust/dirt) generated by human activity, including construction, road construction, bulk materials storage, landfill operations, and other activities.

SJVAPCD Rule 9510—Indirect Source Review

Rule 9510 requires project-level emission reductions of construction and operational emissions through design features and onsite measures. For construction emissions, Rule 9510 requires a 20% reduction of total NO_x emissions and a 45% reduction of the total PM10 exhaust emissions. If the required emissions reductions are not achieved through traditional means, projects may purchase offsets on a per ton basis from the SJVAPCD through Rule 9510's offsite emission reduction fee program to comply with the requirements of Rule 9510. Rule 9510 applies to any transportation or transit project where construction exhaust emissions equal or exceed two tons of NO_x or two tons of PM10.

Environmental Setting

Ambient air quality is affected by climatological conditions, topography, and the types and amounts of pollutants emitted. The area potentially affected by the project is within the SJVAB. The following discussion describes relevant characteristics of the SJVAB, describes key pollutants of concern, summarizes existing ambient pollutant concentrations, and identifies sensitive receptors.

Climate and Meteorology

The SJVAB contains all of San Joaquin, Stanislaus, Merced, Madera, Fresno, Kings, and Tulare Counties, as well as the western portion of Kern County. Climate within the SJVAB is characterized by sparse rainfall, which occurs mainly in winter. Summers are hot and dry. Summertime maximum temperatures often exceed 100 degrees Fahrenheit.

Climate is modified by topography. The bowl shaped topography inhibits movement of pollutants out of the San Joaquin Valley and creates climatic conditions that are particularly conducive to air pollution formation. Wind speed and direction play an important role in dispersion and transport of air pollutants. Wind at the surface and aloft can disperse pollution by mixing and by transporting the pollution to other locations. Two significant diurnal wind cycles that occur frequently in the Valley are the sea breeze and mountain-valley upslope and drainage flows. The sea breeze can accentuate the northwest wind flow, especially on summer afternoons. Nighttime drainage flows can accentuate the southeast movement of air down the valley.

The vertical dispersion of air pollutants in the San Joaquin Valley can be limited by persistent temperature inversions. Air temperature in the lowest layer of the atmosphere typically decreases with altitude. A reversal of this atmospheric state, where the air temperature increases with height, is termed an inversion. The height of the base of the inversion is known as the “mixing height”. This is the level to which pollutants can mix vertically. Mixing of air is minimized above and below the inversion base. The inversion base represents an abrupt density change where little air movement occurs.

Inversion layers are significant in determining pollutant concentrations. Concentration levels can be related to the amount of mixing space below the inversion. Temperature inversions that occur on the summer days are usually encountered 2,000 to 2,500 feet above the valley floor. In winter months, overnight inversions occur 500 to 1,500 feet above the valley floor (San Joaquin Valley Air Pollution Control District 2015).

Pollutants of Concern

Criteria Pollutants

As discussed above, the federal and state governments have established NAAQS and CAAQS, respectively, for six criteria pollutants: ozone, lead, CO, nitrogen dioxide (NO₂), sulfur dioxide (SO₂), PM₁₀, and PM_{2.5}. 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 lead are considered local pollutants that tend to accumulate in the air locally. The primary pollutants of concern in the project vicinity are ozone (including NO_x and ROG), CO, SO₂, and PM.

Toxic Air Contaminants

Although NAAQS and CAAQS have been established for criteria pollutants, no ambient standards exist for TACs. Many pollutants are identified as TACs because of their potential to increase the risk of developing cancer or because of their acute or chronic health risks. For TACs that are known or suspected carcinogens, ARB has consistently found that there are no levels or thresholds below which exposure is risk-free. Individual TACs vary greatly in the risks they present. At a given level of exposure, one TAC may pose a hazard that is many times greater than another. TACs are identified and their toxicity is studied by the California Office of Environmental Health Hazard Assessment.

Air toxics are generated by a number of sources, including: stationary sources, such as dry cleaners, gas stations, auto body shops, and combustion sources; mobile sources, such as diesel trucks, ships, and trains; and area sources, such as farms, landfills, and construction sites. Adverse health effects of TACs can be carcinogenic (cancer-causing), short-term (acute) noncarcinogenic, and long-term (chronic) noncarcinogenic. Direct exposure to these pollutants has been shown to cause cancer, birth defects, damage to the brain and nervous system, and respiratory disorders. The principal TAC associated with the proposed project is DPM, which was identified as a TAC by ARB in 1998.

Valley Fever

Although not considered a criteria pollutant, the Valley Fever (also known as Coccidioidomycosis), an infectious disease caused by the fungus *Coccidioides immitis* commonly found in the San Joaquin Valley, is transmitted through the air and poses a significant health risk to local residents. Valley Fever is caused by inhalation of *Coccidioides immitis* spores that have become airborne when dry, dusty soil or dirt is disturbed by wind, construction, farming, or other activities.

Existing Air Quality Conditions

The existing air quality conditions in the project vicinity can be characterized by monitoring data collected in the region. Table 2-3 summarizes data for criteria air pollutant levels from the Stockton-Hazelton Street monitoring station, which is approximately 15 miles northwest of the project site and the closest station to the proposed project, for the last 3 years for which complete data are available (2015–2017). Air quality concentrations are expressed in terms of parts per million (ppm) or micrograms per cubic meter ($\mu\text{g}/\text{m}^3$). As shown in Table 2-3, the monitoring station has detected numerous violations of the PM and ozone NAAQS and CAAQS. No violations of CO or NO₂ NAAQS and CAAQS were reported during the monitoring period.

Attainment Status

Local monitoring data (Table 2-3) are used to designate areas as nonattainment, maintenance, attainment, or unclassified for the NAAQS and CAAQS. The four designations are further defined as shown below.

- 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 2-3. Ambient Air Quality Monitoring Data from the Stockton-Hazelton Street Monitoring Station (2014–2016)

Pollutant	2015	2016	2017
Ozone (O₃)			
Maximum 1-hour concentration (ppm)	0.094	0.102	0.085
Maximum 8-hour concentration (ppm)	0.079	0.079	0.080
Number of days standard exceeded ^a			
CAAQS 1-hour (>0.09 ppm)	0	2	0
CAAQS 8-hour (>0.070 ppm)	3	2	2
NAAQS 8-hour (>0.070 ppm)	2	2	2
Carbon Monoxide (CO)			
Maximum 8-hour concentration (ppm)	1.5	1.3	1.9
Maximum 1-hour concentration (ppm)	2.3	1.7	2.3
Number of days standard exceeded ^a			
NAAQS 8-hour (≥9 ppm)	0	0	0
CAAQS 8-hour (≥9.0 ppm)	0	0	0
NAAQS 1-hour (≥35 ppm)	0	0	0
CAAQS 1-hour (≥20 ppm)	0	0	0
Nitrogen Dioxide (NO₂)			
State maximum 1-hour concentration (ppm)	0.058	0.064	0.060
State second-highest 1-hour concentration (ppm)	0.056	0.058	0.059
Annual average concentration (ppm)	0.011	0.012	0.011
Number of days standard exceeded			
CAAQS 1-hour (0.18 ppm)	0	0	0
Particulate Matter (PM₁₀)^c			
National ^b maximum 24-hour concentration (µg/m ³)	54.1	65.9	89.9
National ^b second-highest 24-hour concentration (µg/m ³)	51.8	54.1	86.9
State ^c maximum 24-hour concentration (µg/m ³)	55.3	66.5	92.6
State ^c second-highest 24-hour concentration (µg/m ³)	52.9	58.6	88.4
National annual average concentration (µg/m ³)	27.4	26.0	28.2
State annual average concentration (µg/m ³) ^d	28.0	26.5	28.8
Number of days standard exceeded ^a			
NAAQS 24-hour (>150 µg/m ³) ^e	0	0	0
CAAQS 24-hour (>50 µg/m ³) ^e	4	5	7
Particulate Matter (PM_{2.5})			
National ^b maximum 24-hour concentration (µg/m ³)	58.8	43.7	53.7
National ^b second-highest 24-hour concentration (µg/m ³)	44.0	41.6	50.4
State ^c maximum 24-hour concentration (µg/m ³)	58.8	43.7	53.7
State ^c second-highest 24-hour concentration (µg/m ³)	44.0	41.6	51.5
National annual average concentration (µg/m ³)	14.2	12.2	12.2
State annual average concentration (µg/m ³) ^d	12.3	*	*
Number of days standard exceeded ^a			
NAAQS 24-hour (>35 µg/m ³) ^e	12	4	16

Pollutant	2015	2016	2017
Sulfur Dioxide (SO₂)			
No data available			
Sources: California Air Resources Board 2017a; U.S. Environmental Protection Agency 2017a.			
ppm = parts per million.			
NAAQS = National Ambient Air Quality Standards.			
CAAQS = California Ambient Air Quality Standards.			
µg/m ³ = micrograms per cubic meter.			
mg/m ³ = milligrams per cubic meter.			
> = greater than.			
* = insufficient data.			
a An exceedance is not necessarily a violation.			
b National statistics are based on standard conditions data. In addition, national statistics are based on samplers using federal reference or equivalent methods.			
c State statistics are based on local conditions data, except in the South Coast Air Basin, for which statistics are based on standard conditions data. In addition, State statistics are based on California approved samplers.			
d State criteria for ensuring that data are sufficiently complete for calculating valid annual averages are more stringent than the national criteria.			
e 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 2-4 summarizes the attainment status of San Joaquin County for the primary pollutants of concern in the project vicinity.

Table 2-4. Federal and State Attainment Status of San Joaquin County

Pollutant	Federal	State
Ozone (8 hr)	Nonattainment—Extreme	Nonattainment
CO	Maintenance (P)	Attainment
SO ₂	Attainment	Attainment
PM10	Maintenance—Serious	Nonattainment
PM2.5	Nonattainment—Moderate	Nonattainment

Sources: U.S. Environmental Protection Agency 2017b; California Air Resources Board 2017b.
(P) Designation applies to the Project area portion of the County.

Sensitive Receptors

The NAAQS and CAAQS apply at publicly accessible areas, regardless of whether those areas are populated. For the purposes of air quality analysis, sensitive land uses are defined as locations where human populations, especially children, seniors, and sick persons, are located and where there is reasonable expectation of continuous human exposure according to the averaging period for the air quality standards (i.e., 24-hour, 8-hour, and 1-hour). Typical sensitive receptors include residences, hospitals, and schools.

The nearest sensitive receptors to the Project site are single-family residences along Escalon-Bellota Road immediately north of Project site, approximately 40 feet away from the existing bridge. In addition, single-family residences are located north within 1,000 feet of the Project site. There are

no hospitals, religious facilities, educational facilities, and recreational facilities within the immediate vicinity.

Discussion

The Road Construction Emissions Model (RCEM) (version 8.1.0), developed by the Sacramento Metropolitan Air Quality Management District (SMAQMD), was used to quantify criteria pollutant emissions generated by project-related sources. The RCEM is used throughout the state and was designed to estimate construction activity and associated emissions from linear projects, including bridges. Because the proposed project is a transportation project, the RCEM can be used to estimate air quality emissions and impacts for the entire project. RCEM defaults were reviewed and revised based on project information provided by the project applicant (Wolohan pers. comm.). The proposed project would not affect vehicle miles traveled or traffic speeds in the project area. There would therefore be no change in operational criteria pollutant emissions, relative to existing conditions. As such, operational criteria pollutants were not quantified and are not discussed further as there would be no impact associated with the project operation.

Checklist item: a

A project is deemed inconsistent with air quality plans if it would result in population and/or employment growth that exceeds estimates used to develop applicable air quality plans. Projects that propose development that is consistent with the growth anticipated by the relevant land use plans would be consistent with the current SJVAPCD air quality plans. Likewise, projects that propose development that is less dense than anticipated within a general plan (or other governing land use document) would be consistent with the air quality plans because emissions would be less than estimated for the region.

The proposed project consists of a bridge replacement. The proposed project does not propose land use changes and proposed project activities would not result in land use changes. As discussed in Section X, *Land Use and Planning*, and Section XIII, *Population and Housing*, the proposed project would be consistent with current land use plans, natural community conservation plans, and policies and regulations applicable to the project site and would not induce growth or employment in the area. Accordingly, the proposed project would be consistent with recent growth projections for the region and would not conflict with the current SJVAPCD air quality plans. Accordingly, the proposed project would not conflict with or obstruct implementation of any applicable air quality plan or policy. Therefore, the impact would be less than significant.

Checklist item: b

Construction of the proposed project has the potential to create short-term air quality impacts through the use of heavy-duty construction equipment, construction worker vehicle trips, and truck hauling trips. In addition, fugitive dust emissions would result from grubbing/land clearing and grading/excavation. Construction emissions for the proposed project were estimated using SMAQMD's RCEM. It was assumed that construction would occur between May and December 2018. Please refer to Appendix A for assumptions used in the air quality analysis.

Table 2-5 presents construction-related emissions that would be generated in 2018. Emissions are compared to SJVAPCD's annual CEQA thresholds and their ambient air quality analysis (AAQA) trigger. The AAQA trigger is a screening-level threshold to help determine when an AAQA must be performed. An AAQA uses air dispersion modeling to determine whether emission increases from a

proposed project will cause or contribute to a violation of the CAAQS or NAAQS. The SJVAPCD's AAQA screening-level threshold is 100 pounds per day of any criteria pollutant; projects with emissions in excess of this threshold would require dispersion modeling, while projects below this threshold are presumed to not result in a violation of the CAAQS or NAAQS. While the SJVAPCD's AAQA screening-level threshold is presented in pounds per day, it has been annualized and converted to tons per year for comparison to the proposed project's annual emissions presented in Table 2-5. This annualization is based on the SJVAPCD's 100 pounds per day AAQA screening-level threshold assumed 250 day construction period, resulting in a calculated annual AAQA-equivalency threshold of 12.5 tons per year.

Table 2-5 also presents construction emissions prior to and with compliance with Rule 9510. As described in *Regional Regulations*, SJVAPCD Rule 9510 requires a 20% reduction of total NO_x emissions and a 45% reduction of total PM₁₀ exhaust emissions from construction activities, if construction exhaust emissions for a transportation project equal or exceed two tons of NO_x or two tons of PM₁₀ exhaust. As shown in Table 2-5, NO_x emissions during construction would exceed two tons of NO_x, and as such, the proposed project is subject to Rule 9510.

Table 2-5. Annual Construction Criteria Pollutant Emissions (tons/year)

Year	ROG	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
2018 (prior to compliance with Rule 9510)	0.3	3.4	2.2	<0.1	0.7	0.3
2018 (with compliance with Rule 9510)	0.3	2.8	2.2	<0.1	0.6	0.2
<i>SJVAPCD Annual Threshold</i>	<i>10</i>	<i>10</i>	<i>100</i>	<i>27</i>	<i>15</i>	<i>15</i>
<i>SJVAPCD AAQA trigger^a</i>	<i>12.5</i>	<i>12.5</i>	<i>12.5</i>	<i>12.5</i>	<i>12.5</i>	<i>12.5</i>
<i>SJVAPCD Threshold/AAQA Trigger Exceeded?</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>

ROG = reactive organic compounds.
 NO_x = nitrogen oxides.
 CO = carbon monoxide.
 SO_x = sulfur oxides.
 PM₁₀ = particulate matter.
 PM_{2.5} = fine particulate matter.

^a The SJVAPCD's 100 pounds of pollutant-per-day AAQA screening-level threshold has been annualized and converted to tons per year for comparison to the proposed project's annual emissions. The annualization is based on 100 pounds per day over the assumed 250 day construction period.

As indicated in Table 2-5, construction of the project would not generate emissions in excess of SJVAPCD's adopted numeric thresholds (annual and screening) and would also not result in a violation of the CAAQS or NAAQS or require an AAQA. Consequently, this would be a less than significant impact. Compliance with Rule 9510 would further reduce construction NO_x and PM emissions.

Fugitive Dust Emissions

As previously indicated, all construction projects must abide by Regulation VIII. Guidance from the SJVAPCD staff indicates that implementation of a dust control plan would satisfy all of the requirements of SJVAPCD Regulation VIII. Compliance with Regulation VIII (e.g., preparing and implementing a dust control plan) would help reduce construction-related fugitive dust emission. Therefore, this impact would be less than significant.

Checklist item c:

The SJVAPCD's GAMAQI indicates that a violation of the SJVAPCD's construction thresholds of significance would result in a project-level and cumulative impact. In addition, the SJVAPCD notes that compliance with the dust control requirements of SJVAPCD Regulation VIII substantially reduces project-specific fugitive dust emissions from construction activities (San Joaquin Valley Air Pollution Control District 2015).

As indicated in Table 2-5, construction emissions would not exceed SJVAPCD's significance thresholds. Consequently, a cumulatively considerable net increase of any nonattainment criteria pollutant is not anticipated, and this impact is considered less than significant. Compliance with air district rules and regulations, including Rule 9510 and Regulation VIII, would further reduce construction-related fugitive dust emissions.

Checklist item d:**Toxic Air Contaminants**

Project construction would generate DPM, resulting in the exposure of nearby existing sensitive receptors (e.g., residences) to increased DPM concentrations. Cancer health risks associated with exposure to diesel exhaust are typically associated with chronic exposure, in which a 30-year exposure period is assumed. Construction-related exhaust emissions would be minor and would not exceed 0.6 and 0.2 tons in 2018 for PM10 and PM2.5 (with compliance with Rule 9510), respectively. These emissions would dissipate as a function of distance and would be lower at the nearest sensitive receptor (approximately 40 feet from the existing bridge). Estimated construction emissions would also be short-term and occur for less than one year. This is significantly lower than the 30-year exposure period typically associated with chronic cancer health risks.

Given limited magnitude of construction emissions and short-duration of construction activities, the proposed project would not result in an elevated cancer or non-cancer risk to exposed sensitive receptors. Consequently, emissions of DPM are not expected to exceed the SJVAPCD's health risk thresholds. This impact would be less than significant.

Valley Fever

Disturbance of soil containing *Coccidioides* fungus could expose the general public to spores known to cause Valley Fever. In California, the number of reported Valley Fever cases has increased greatly since 2000, with more than 4,000 cases reported in 2012. Over 75% of Valley Fever cases in California have been in people who live in the San Joaquin Valley (California Health and Human Services Agency 2016). Construction activities in areas known to contain *Coccidioides* fungus may expose workers and the general public to spores that could result in Valley Fever. Compliance with SJVAPCD Regulation VIII would reduce the risk of contracting Valley Fever. This impact is considered less than significant.

Checklist item e:

While offensive odors rarely cause any physical harm, they can be unpleasant, leading to considerable distress among the public and often generating citizen complaints to local governments and air districts. Project-related odor emissions would be limited to construction activities when emissions from diesel equipment and asphalt paving may be evident in the immediately surrounding area. These activities would also be intermittent and temporary in

duration (approximately 7 months) and, therefore, would not result in nuisance odors that would violate SJVAPCD Rule 4102. Therefore, odor impacts are considered less than significant.

IV. Biological Resources	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. 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 the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marshes, vernal pools, coastal wetlands, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Affected Environment

Regulatory Setting

Federal Regulations

Federal Endangered Species Act

The federal Endangered Species Act (ESA) of 1973, and subsequent amendments, provides regulations for the conservation of endangered and threatened species and the ecosystems on which they depend. Section 7 of the ESA mandates all federal agencies to consult with USFWS and NMFS if they determine that a proposed project may affect a listed species or destroy or adversely modify

designated critical habitat. A Clean Water Act (CWA) Section 404 permit from the USACE will be required for project construction. Consequently, consultation under Section 7 for effects on federally listed species will be required.

Section 9 of the ESA prohibits the take of any fish or wildlife species listed as endangered, including the destruction of habitat that prevents the species' recovery. Take is defined as any action or attempt to hunt, harm, harass, pursue, shoot, wound, capture, kill, trap, or collect a species. Section 9 prohibits acts to remove, cut, dig up, damage, or destroy an endangered plant species in nonfederal areas in knowing violation of any state law or in the course of criminal trespass.

Two federally listed species—valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) and California Central Valley (CCV) steelhead (*Oncorhynchus mykiss*)—were identified as having the potential to occur in the biological study area (BSA) for the proposed project.

Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Management and Conservation Act (MSA) requires federal agencies to consult with NMFS on activities that may adversely affect essential fish habitat (EFH). The purpose of the MSA is to conserve and manage the fishery resources of the United States and to promote protection of EFH. The MSA requires the following.

- Federal agencies undertaking, permitting, or funding an activity that may adversely affect EFH are required to consult with NMFS.
- NMFS is required to provide conservation recommendations for any federal or state activity that may adversely affect EFH.
- Within 30 days of receiving conservation recommendations from NMFS, federal agencies must provide a detailed response in writing to NMFS regarding the conservation recommendations (the response must include a description of measures proposed by the agency for avoiding, mitigating, or offsetting the impact of the activity on EFH, or reasons for not following the recommendations).

Executive Orders 12962 and 13112

EO 12962, signed June 7, 1995, and amended by EO 13474 on September 26, 2008, directs all federal agencies to improve the quantity, function, sustainable productivity, and distribution of U.S. aquatic resources for increased recreational fishing opportunities—to the extent permitted by law and where practicable. This EO requires evaluation and documentation in NEPA analyses of the effects caused by federally funded, permitted, or authorized actions on aquatic systems, fishing access, and recreational fisheries. The proposed project may reduce the abundance of fish in the BSA; therefore, federal agencies are required to consider this EO prior to issuing permits.

Executive Order (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 proposed project may introduce or spread invasive species into the BSA; therefore, federal agencies are required to consider this EO prior to issuing permits.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) protects migratory bird species from take. Under the MBTA, take is defined as to (or attempt to) pursue, hunt, shoot, capture, collect, or kill (50 Code of Federal

Regulations [CFR] 10.12). The definition differentiates between intentional take (take that is the purpose of the activity in question) and unintentional take (take that results from, but is not the purpose of, the activity in question). EO 13186, signed January 10, 2001, directs each federal agency taking actions that would, or likely would, negatively affect migratory bird populations to work with USFWS to develop a memorandum of understanding (MOU) to promote the conservation of migratory bird populations. Protocols developed under the MOU 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.

The EO is designed to assist federal agencies in their efforts to comply with the MBTA; it does not constitute any legal authorization to take migratory birds. Migratory birds could nest in the BSA.

Clean Water Act

The CWA was passed by Congress in 1972 with a broad mandate “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.” The chief purpose of the CWA is to establish the basic structure for regulating discharges of pollutants into waters of the United States. 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. Aquatic resources (i.e., channelized features, wetlands) are present in the BSA and may be regulated under CWA Section 404 (described below).

Section 401: Water Quality Certification

Under CWA Section 401, applicants for a federal license or permit to conduct activities that may result in the discharge of a pollutant into waters of the United States must apply for water quality certification from the State. Therefore, all projects with a federal component that may affect state water quality (including projects that require federal agency approval, such as a Section 404 permit) must comply with CWA Section 401. Aquatic resources that appear to qualify as waters of the United States are present in the BSA.

As currently designed, bridge construction associated with the proposed project is expected to result in a discharge to waters of the United States; therefore, a Section 401 water quality certification from the Central Valley Regional Water Quality Control Board (RWQCB) will be required for the proposed project.

Section 402: Permits for Stormwater Discharge

CWA Section 402 regulates 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 Board) is authorized by EPA to oversee the NPDES program through the 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 Storm Water Pollution Prevention Plan (SWPPP). The SWPPP must include a site map, a description of proposed construction activities, and the best management practices (BMPs) that will be implemented to prevent soil erosion and discharge of other construction-related pollutants (e.g., petroleum products, solvents, paints, and cement) that could contaminate nearby water resources. 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. Because the proposed project would disturb more than 1 acre of land, a SWPPP will be required for temporary disturbances during construction and a NOI for coverage under the Construction General Permit NPDES will be required for the permanent condition.

Section 404: Permits for Fill Placement in Waters of the United States (including Wetlands)

Waters of the United States (including wetlands) are protected under Section 404 of the CWA. Any activity that involves a discharge of dredged or fill material into waters of the United States, including wetlands, is subject to regulation by the USACE. Waters of the United States is defined to encompass navigable waters of the United States; interstate waters; all other waters where their use, degradation, or destruction could affect interstate or foreign commerce; tributaries of any of these waters; and wetlands that meet any of these criteria or are adjacent to any of these waters or their tributaries. Wetlands are defined under Section 404 as those areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Jurisdictional wetlands must meet three wetland delineation criteria.

- They support hydrophytic vegetation (i.e., plants that grow in saturated soil).
- They have hydric soil types (i.e., soils that are wet or moist enough to develop anaerobic conditions).
- They have wetland hydrology.

As currently designed, bridge construction associated with the proposed project is expected to result in a discharge of fill material into potential waters of the United States; therefore, a Section 404 CWA permit will be required for the proposed project. A delineation of waters of the United States has been completed for the project. The wetland delineation report will be submitted to the USACE to support a preliminary jurisdictional determination for the project.

State Regulations

California Endangered Species Act

The California Endangered Species Act (CESA) (California Fish and Game Code [CFGF] Section 2050 et seq.) establishes state policy to conserve, protect, restore, and enhance threatened or endangered species and their habitats. CESA mandates that state agencies should not approve projects that jeopardize the continued existence of threatened or endangered species if reasonable and prudent alternatives are available that would avoid jeopardy. For projects that would affect a species on the federal and state lists, compliance with ESA satisfies CESA if the California Department of Fish and Wildlife (CDFW) determines that the federal incidental take authorization is consistent with CESA under CFGF Section 2080.1. For projects that would result in take of a species that is only state listed, the project proponent must apply for a take permit under Section 2081(b). One state-listed species, Swainson's hawk (*Buteo swainsoni*), has the potential to occur in the BSA and be affected by

the proposed project. Chapter 4 describes potential project-related impacts and identifies avoidance and minimization measures that will avoid direct impacts and minimize indirect impacts on this species.

California Native Plant Protection Act

The California Native Plant Protection Act (CNPPA) of 1977 prohibits importation of rare and endangered plants into California, take of rare and endangered plants, and sale of rare and endangered plants. CESA defers to the CNPPA, which ensures that state-listed plant species are protected when state agencies are involved in projects subject to CEQA. In this case, plants listed as rare under the CNPPA are not protected under CESA but rather under CEQA. Three special-status plant species known to occur in the project region (i.e., within a 10-mile radius of the BSA) are listed as rare under the CNPPA. None of these species were observed in the BSA during the field surveys.

California Fish and Game Code

Several sections of the CFGC apply to the proposed project, as described below.

Lake or Streambed Alteration (Section 1602)

CDFW regulates activities that would interfere with the natural flow of—or substantially alter the channel, bed, or bank of—a lake, river, or stream, including disturbance of riparian vegetation, under CFGC Sections 1600–1616. CDFW requires a Lake or Streambed Alteration Agreement (LSAA) permit for these activities. Requirements to protect the integrity of biological resources and water quality often are conditions of LSAs. CDFW may establish conditions that include avoiding or minimizing vegetation removal, using standard erosion control measures, limiting the use of heavy equipment, limiting work periods to avoid impacts on fisheries and wildlife resources, and restoring degraded sites or compensating for permanent habitat losses. Waters of the State (i.e., perennial, ephemeral, and intermittent streams) that would be regulated by CDFW are present in the BSA.

The proposed project as designed will result in modification of the bed, bank, or channel of Littlejohns Creek and removal of riparian vegetation adjacent to the creek; therefore, a LSAA will be required.

Protection of Birds and Raptors (Sections 3503 and 3503.5)

Section 3503 of the CFGC prohibits killing of birds and destruction of bird nests. Section 3503.5 prohibits killing of raptor species and destruction of raptor nests. Typical violations include destruction of active bird and raptor nests as a result of tree removal, and failure of nesting attempts (loss of eggs or young) as a result of disturbance of nesting pairs caused by nearby human activity.

The proposed project has the potential to adversely affect birds and raptors protected under Sections 3503 and 3503.5 of the CFGC. The project proponent will avoid violation of CFGC Sections 3503 and 3503.5 by implementing measures identified for nesting birds in Chapter 4.

Fully Protected Species (Sections 3511, 3513, 4700, and 5050)

CFGC Sections 3511, 3513, 4700, and 5050 pertain to fully protected wildlife species (birds in Sections 3511 and 3513, mammals in Section 4700, and reptiles and amphibians in Section 5050) and strictly prohibit take of these species. CDFW cannot issue a take permit for fully protected species, except under narrow conditions for scientific research or the protection of livestock, or if a

Natural Community Conservation Plan (NCCP) has been adopted. Specifically, Section 3513 prohibits any take or possession of birds designated by the MBTA as migratory nongame birds except as allowed by federal rules and regulations pursuant to the MBTA.

One fully protected bird species, white-tailed kite (*Elanus leucurus*), has the potential to nest in the BSA and be affected by the proposed project. The project proponent would avoid take of white-tailed kite by implementing measures identified for nesting birds in Chapter 4.

Porter-Cologne Water Quality Control Act

The California Water Code addresses the full range of water issues in the state and includes Division 7, known as the Porter-Cologne Water Quality Control Act (Porter-Cologne Act) (California Water Code Sections 13000–16104). 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 [WDRs])” with the appropriate RWQCB. Under this act, each of the nine RWQCBs must prepare and periodically update Water Quality Control Basin Plans (Basin Plans). Each Basin Plan sets forth water quality standards for surface water and groundwater, as well as actions to control nonpoint and point sources of pollution. Projects that affect waters of the State must meet the WDRs of the RWQCB. Pursuant to CWA Section 401, an applicant for a Section 404 permit to conduct any activity that may result in discharge into navigable waters must provide a certification from the RWQCB that such discharge will comply with state water quality standards. As part of the wetlands permitting process under Section 404, the project proponent will be required to apply for water quality certification from the Central Valley RWQCB.

Section 13050 of the Porter-Cologne Act authorizes the State Water Board and the relevant RWQCB to regulate biological pollutants. The California Water Code generally regulates more substances contained in discharges and defines discharges to receiving waters more broadly than does the CWA.

As currently designed, bridge construction associated with the proposed project is expected to result in a discharge of fill material into waters of the State; therefore, the RWQCB is likely to issue WDRs for the proposed project.

Local Regulations

Division 15: Natural Resource Regulations

San Joaquin County Title 9 (Development Title), Division 15 (Natural Resources Regulations), prescribes regulations for the protection, conservation, and managed use of natural resources. Division 15 regulates activities that would affect native oak trees, heritage oak trees, historical trees, and riparian habitat. Because the proposed project is considered a development project it is subject to the County’s Natural Resource Regulations as described in Chapters 9-1505 and 9-1510.

Existing Conditions

The extent of the biological study area (BSA), which includes all permanent and temporary project impact areas, is shown in Figure 1-2. The BSA has a relatively high level of historical and ongoing disturbance. The BSA is within the Littlejohns Creek watershed hydrologic unit (hydrologic unit code [HUC] 18040051) (U.S. Environmental Protection Agency 2016). Littlejohns Creek is tributary to French Camp Slough, which is tributary to the San Joaquin River, a traditional navigable water (TNW). Therefore, Littlejohns Creek is a water of the United States and a water of the State.

The natural communities in the BSA are interspersed with a roadway and residential development. Land cover types mapped during field surveys (Figure 2-2) include:

- Perennial Stream (Littlejohns Creek)
- Riparian Woodland
- Oak Woodland
- Ruderal
- Cropland/Landscaped

The BSA supports both common vegetation communities and natural communities of special concern. Common vegetation communities are habitats that are widespread and have a state rarity rank of S4 or S5, following NatureServe's standard heritage program rankings (Master et al. 2012). These communities generally are not protected by agencies unless the specific site is habitat for or supports special-status species (e.g., raptor foraging or nesting habitat, upland habitat in a wetland watershed). Common vegetation communities in the BSA include Ruderal, Cropland, and Landscaping.

The biological resources and potential impacts on these resources from the project were identified through a literature and database review.

- California Native Plant Society's (CNPS's) online Inventory of Rare and Endangered Plants of California records search of the Avena, Bachelor Valley, Escalon, Farmington, Jenny Lind, Linden, Manteca, Oakdale, Peters, Stockton East, Valley Springs, and Waterloo U.S. Geological Survey (USGS) 7.5-minute quadrangles (California Native Plant Society 2016).
- California Natural Diversity Database (CNDDDB) records search of the Avena, Bachelor Valley, Escalon, Farmington, Jenny Lind, Linden, Manteca, Oakdale, Peters, Stockton East, Valley Springs, and Waterloo USGS 7.5-minute quadrangles (California Department of Fish and Wildlife 2016).
- A list of federal endangered and threatened species that may occur in or be affected within the proposed project study limits.
- Lists of plants identified as noxious weeds or invasive plants by the U.S. Department of Agriculture (USDA) (Natural Resources Conservation Service 2014a), the California Department of Food and Agriculture (CDFA) (Natural Resources Conservation Service 2008) and the California Invasive Plant Council (Cal-IPC) (2006, 2007).
- Soil map unit descriptions for the BSA (Natural Resources Conservation Service 2014b).
- The San Joaquin County Multi-Species Habitat Conservation and Open Space Plan (San Joaquin Council of Governments 2000).

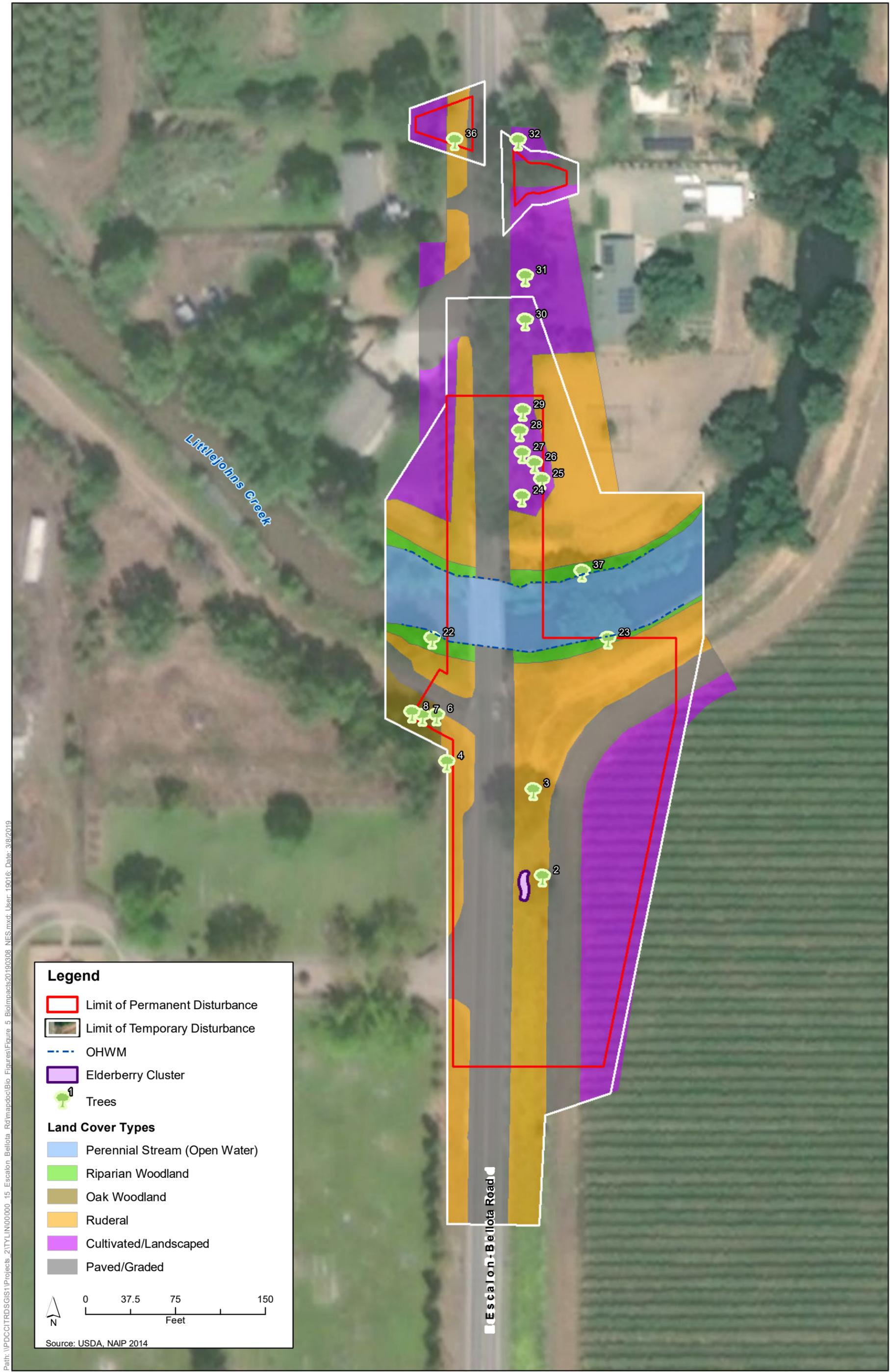
This information was used during the field review to determine if special-status species and vegetation communities of special concern could be present in the project vicinity, and to determine the potential for wetlands to occur in the project area.

Biologists conducted biological surveys in the BSA in 2013 and 2016. ICF botanist/wetland ecologist Robert Preston conducted delineation field work in the BSA on February 3, 2016. ICF botanist/wetland ecologist Robert Preston conducted botanical surveys in the BSA on July 25, 2013, and on February 3, 2016. The July survey coincided with the identification periods of special-status

plants with habitat present in the BSA. During the surveys, the botanist walked the entire BSA and compiled a list of plant species observed. The list of plant species observed in the BSA is included as Appendix B. Natural communities in the BSA also were identified and mapped during the botanical field surveys.

ICF wildlife biologist Leila Harris conducted an initial reconnaissance-level field assessment on July 25, 2013. ICF wildlife biologist Angela Alcala conducted a follow-up assessment on February 3, 2016, to document existing conditions, evaluate habitat for special-status wildlife, and to survey elderberry shrubs initially observed during the July 2013 survey. During the elderberry shrub survey, Ms. Alcala recorded information on the number and size of stems, presence or absence of exit holes, and habitat associations. A list of wildlife species observed during the field assessments in the BSA is provided in Appendix C.

The assessment to evaluate habitat for special-status fish in the vicinity of the BSA was based on information collected by Ms. Alcala during the wildlife habitat field survey, the examination of topographic maps and aerial photographs, and the professional judgement of ICF fish biologist Jeff Kozlowski.



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Figure 2-2

Impacts on Landcover Types and Sensitive Biological Resources in the Biological Study Area

Table 2-6. Invasive Plant Species Identified in the Biological Study Area

Species	CDFA	Cal-IPC
Wild oat (<i>Avena fatua</i>)	-	Moderate
Black mustard (<i>Brassica nigra</i>)	-	Moderate
Poison hemlock (<i>Conium maculatum</i>)	-	Moderate
Ripgut brome (<i>Bromus diandrus</i>)	-	Moderate
Italian thistle (<i>Carduus pycnocephalus</i>)	C	Moderate
Yellow star-thistle (<i>Centaurea solstitialis</i>)	C	High
Bindweed (<i>Convolvulus arvensis</i>)	C	-
Bermuda grass (<i>Cynodon dactylon</i>)	C	Moderate
Red-stemmed filaree (<i>Erodium cicutarium</i>)	-	Limited
Rattail fescue (<i>Festuca myuros</i>)	-	Moderate
Italian ryegrass (<i>Festuca perennis</i>)	-	Moderate
Fennel (<i>Foeniculum vulgare</i>)	-	High
Canary islands ivy (<i>Hedera canariensis</i>)	-	High
Bristly ox-tongue (<i>Helminthotheca echioides</i>)	-	Limited
Mediterranean mustard (<i>Hirschfeldia incana</i>)	-	Moderate
Horehound (<i>Marrubium vulgare</i>)	-	Limited
Kikuyu grass (<i>Pennisetum clandestinum</i>)	C	Limited
English plantain (<i>Plantago lanceolata</i>)	-	Limited
Wild radish (<i>Raphanus sativus</i>)	-	Limited
Curly dock (<i>Rumex crispus</i>)	-	Limited
Milk thistle (<i>Silybum marianum</i>)	-	Limited
Charlock (<i>Sinapis arvensis</i>)	-	Limited
Johnson grass (<i>Sorghum halepense</i>)	C	-
Smilo grass (<i>Stipa miliacea</i>)	-	Limited
Tall sock-destroyer (<i>Torilis arvensis</i>)	-	Moderate
Puncturevine (<i>Tribulus terrestris</i>)	C	-
Calla-lily (<i>Zantedeschia aethiopica</i>)	-	Limited
Periwinkle (<i>Vinca major</i>)	-	Moderate

Note: The California Department of Agriculture (CDFA) and California Invasive Plant Council (Cal-IPC) lists assign ratings that reflect the CDFA and Cal-IPC views of the statewide importance of the pest, likelihood that eradication or control efforts would be successful and present distribution of the pest in the state. These ratings are guidelines that indicate the most appropriate action to take against a pest under general circumstances. The Cal-IPC species list is more inclusive than the CDFA list.

The CDFA categories indicated in the table are defined as follows:

C: State-endorsed holding action and eradication only when found in a nursery; action to retard spread outside nurseries at the discretion of the county agricultural commissioner.

The Cal-IPC categories indicated in the table are defined as follows:

High: Species with severe ecological impacts, high rates of dispersal and establishment, and usually widely distributed.

Moderate: Species with substantial and apparent ecological impacts, moderate to high rates of dispersal, establishment dependent on disturbance, and limited to widespread distribution.

Limited: Species with minor ecological impacts, low to moderate rates of invasion, limited distribution, and locally persistent and problematic.

Table 2-7. Special-Status Plants Known or with Potential to Occur in the Project Region, or That May Be Affected by the Proposed Project

Common Name <i>Scientific Name</i>	Status ^a	General Habitat Description	Blooming Period	Habitat Present/ Absent	Rationale
	Federal/State/CRPR				
Henderson's bentgrass <i>Agrostis hendersonii</i>	-/-/3.2	Vernal pools, moist places in grasslands	Apr–May	Absent	No vernal pools or grasslands in BSA; nearest occurrence is 20 miles north of BSA
Ione manzanita <i>Arctostaphylos myrtifolia</i>	T/-/1B.2	Chaparral, generally on Ione Formation	Jan–Feb	Absent	No Ione Chaparral present in BSA; nearest occurrence is 21 miles northeast of BSA
Hoover's calycadenia <i>Calycadenia hooveri</i>	-/-/1B.3	Rocky, barren areas in grasslands and foothills woodlands	Jun–Sep	Absent	No grassland, foothill woodland, or rocky barren areas in BSA; nearest occurrence is 19.4 miles northeast of BSA
Succulent owl's-clover <i>Castilleja campestris</i> subsp. <i>succulenta</i>	T/E/1B.2	Vernal pools	Apr–May	Absent	No vernal pools present in BSA; nearest occurrence is 24.6 miles northwest of BSA
Recurved larkspur <i>Delphinium recurvatum</i>	-/-/1B.2	Subalkaline soils in annual grassland, saltbush scrub	Mar–May	Absent	No annual grassland or saltbush scrub in BSA; soils not subalkaline; nearest occurrence is 9.4 miles west of BSA
Tuolumne button-celery <i>Eryngium pinnatisectum</i>	-/-/1B.2	Vernal pools, seeps, and stream banks in oak woodland, lower montane coniferous forest	Jun–Aug	Absent	No vernal pools or seeps in BSA; BSA surveyed in July 2013, and no Tuolumne button-celery was observed; nearest occurrence is 15.3 miles northeast of BSA
Delta button-celery <i>Eryngium racemosum</i>	-/E/1B.1	Seasonally inundated depressions along floodplains	Jun–Oct	Absent	No floodplains or seasonal wetlands present; nearest occurrence is 7.3 miles northwest of BSA
Parry's horkelia <i>Horkelia parryi</i>	-/-/1B.2	Openings in chaparral or foothill woodlands	Apr–Jun	Absent	No grassland or foothill woodland in BSA; nearest occurrence is 22.5 miles northeast of BSA
Ahart's dwarf rush <i>Juncus leiospermus</i> var. <i>ahartii</i>	-/-/1B.2	Vernal pools	Mar–May	Absent	No vernal pools in BSA; nearest occurrence is 13 miles northeast of BSA
Legenere <i>Legenere limosa</i>	-/-/1B.1	Deep vernal pools and seasonal ponds	Apr–Jun	Absent	No vernal pools or seasonal ponds in BSA; nearest occurrence is 8.1 miles southeast of BSA
Pincushion navarretia <i>Navarretia myersii</i> subsp. <i>myersii</i>	-/-/1B.1	Vernal pools	May	Absent	No vernal pools in BSA; nearest occurrence is 12.5 miles northeast of the BSA

Common Name <i>Scientific Name</i>	Status ^a	General Habitat Description	Blooming Period	Habitat Present/ Absent	Rationale
	Federal/State/CRPR				
Colusa grass <i>Neostapfia colusana</i>	T/E/1B.1	Deep vernal pools	May–Aug	Absent	No vernal pools in BSA; nearest occurrence is 13.5 miles east of BSA
Sanford's arrowhead <i>Sagittaria sanfordii</i>	-/-/1B.2	Freshwater marshes, sloughs, canals, and other slow-moving water habitats	May–Oct	Absent	BSA surveyed in July 2013, and no Sanford's arrowhead was observed; nearest occurrence is 16.4 miles northwest of BSA
Suisun Marsh aster <i>Symphotrichum lentum</i>	-/-/1B.2	Brackish and freshwater marshes and swamps	May–Nov	Absent	No marsh or swamp in BSA; BSA surveyed in July 2013, and no Suisun Marsh aster was observed; nearest occurrence is 18 miles west of BSA
Greene's tuctoria <i>Tuctoria greenei</i>	E/R/1B.1	Large, deep vernal pools	May–Jun	Absent	No vernal pools in BSA; Green's tuctoria was historically known from Farmington, but it was last observed there in 1936

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

BSA = biological study area.

^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 = California Rare Plant Rank

1B = List 1B species: rare, threatened, or endangered in California and elsewhere.

3 = List 3 species: more information is needed about this plant.

.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).

.3 = Not very threatened in California (<20% of occurrences threatened/low degree and immediacy of threat or no current threats known).

Table 2-8. Special-Status Wildlife and Fish Known or with Potential to Occur in the Project Region, or That May Be Affected by the Proposed Project

Common Name <i>Scientific Name</i>	Legal Status (Federal/State)	General Habitat Description	Habitat Present/Absent	Rationale
Invertebrates				
Conservancy fairy shrimp <i>Branchinecta conservatio</i>	E/-	Typically found in large, turbid vernal pools but known to occur in other types of pools; occurs in scattered locations from Butte and Tehama Counties to Ventura County.	Habitat Absent	No suitable habitat (vernal or seasonal pools) is present within or adjacent to the BSA. No effect
Vernal pool fairy shrimp <i>Branchinecta lynchi</i>	T/-	Found in Central Valley, central and south Coast Ranges from Tehama to Santa Barbara County; isolated populations also in Riverside County; common in vernal pools; also found in sandstone rock outcrop pools.	Habitat Absent	No suitable habitat (vernal or seasonal pools) is present within or adjacent to the BSA. No effect
Vernal pool tadpole shrimp <i>Lepidurus packardii</i>	E/-	Found from Shasta County south to Merced County; occurs in vernal pools and ephemeral stock ponds.	Habitat Absent	No suitable habitat (vernal or seasonal pools) is present within or adjacent to the BSA. No effect
Valley elderberry longhorn beetle <i>Desmocerus californicus dimorphus</i>	T/-	Streamside habitats below 3,000 feet throughout the Central Valley; occurs in riparian and oak savanna habitats with elderberry shrubs; elderberries are the host plant.	Habitat Present	One cluster of elderberry shrubs (host plant) is present along the east side of Escalon-Bellota Road in the BSA. May affect, likely to adversely affect
Amphibians				
California tiger salamander <i>Ambystoma californiense</i>	T/T	Breeds during the wet season in vernal pools and ponds, with a minimum 10-week inundation period; adults spend most of the year in grassland oak woodland habitat, primarily in small mammal burrows; occurs from Yolo to Kern County in the Central Valley and in the Sierra Nevada foothills from Amador to Tulare County, and from Sonoma to Santa Barbara County on the coast.	Habitat Absent	No suitable breeding ponds or upland habitat are present in the BSA. Closest CNDDB is located 3 miles to the east along Waverly Road (occurrence #318; California Department of Fish and Wildlife 2016) in grassland habitat. No effect

Common Name <i>Scientific Name</i>	Legal Status (Federal/State)	General Habitat Description	Habitat Present/Absent	Rationale
California red-legged frog <i>Rana draytonii</i>	T/SSC	Found along the coast and coastal mountain ranges of California from Mendocino to San Diego County and in the Sierra Nevada from Butte to Tuolumne County; occurs in permanent and semipermanent aquatic habitats, such as creeks and ponds, with emergent and submergent vegetation; uses upland areas for cover (burrows, logs, rocks, and crevices) and dispersal.	Habitat Absent	No suitable breeding ponds or slack-moving stream habitat are present in the BSA. Littlejohns Creek functions as a flood-control drainage that is characteristic of swift and high water flows during the winter when California red-legged frogs breed. Therefore, Littlejohns Creek would not provide suitable conditions for egg laying. The closest CNDDDB record is 23 miles northeast of the BSA near Valley Springs (occurrence #419; California Department of Fish and Wildlife 2016). No effect
Western spadefoot <i>Spea hammondi</i>	-/SSC	Seasonal wetlands such as vernal pools and stock ponds in annual grasslands and oak woodlands within the Sierra Nevada foothills, Central Valley, and Coast Ranges.	Habitat Absent	No suitable breeding habitat (vernal or seasonal pools and swales) is present within the BSA.
Reptiles				
Northern western pond turtle <i>Actinemys 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 along the Mojave River and its tributaries; occupies ponds, marshes, rivers, streams, and irrigation canals with muddy or rocky bottoms.	Habitat Present	Littlejohns Creek provides potential aquatic habitat for pond turtle. Upland habitat in the BSA is heavily disturbed and is unlikely to provide suitable nesting habitat for pond turtles.
Giant garter snake <i>Thamnophis gigas</i>	T/T	Sloughs, canals, low-gradient streams, and freshwater marsh habitats with a prey base of small fish and amphibians; also found in irrigation ditches and rice fields; requires grassy banks and emergent vegetation for basking and areas of high ground protected from flooding during winter.	Habitat Present	The BSA is located east of and outside the Delta Basin Recovery Unit for Giant Garter Snake (U.S. Fish and Wildlife Service 2015). The closest extant population known from the Delta Basin and San Joaquin County is within White Slough Wildlife Area, approximately 28 miles northwest of the BSA (U.S. Fish and Wildlife Service 2012). There is one CNDDDB record for giant garter snake 3 miles west of the BSA along Farmington Road (occurrence #83; California

Common Name <i>Scientific Name</i>	Legal Status (Federal/State)	General Habitat Description	Habitat Present/Absent	Rationale
				Department of Fish and Wildlife 2016); this 1987 observation was of a valley garter snake and was not positively identified as a <i>Thamnophis gigas</i> . Based on the distance from documented sightings and because the BSA is at the edge of the species known range, there is a very low likelihood that giant garter snake would occur in the BSA. May affect, but not likely to adversely affect.
Birds				
Burrowing owl <i>Athene cucularia</i>	-/SSC	Lowlands throughout California, including the Central Valley, northeastern plateau, southeastern deserts, and coastal areas; rare along south coast; level, open, dry, heavily grazed or low stature grassland or desert vegetation with available burrows.	Habitat Absent	No suitable open grassland habitat is present in the BSA; Owls are not expected to nest along the creek corridor adjacent to residential uses and vineyards.
Swainson's hawk <i>Buteo swainsoni</i>	-/T	Lower Sacramento and San Joaquin Valleys, the Klamath Basin, and Butte Valley; highest nesting densities occur near Davis and Woodland, Yolo County; nests in oaks or cottonwoods in or near riparian habitats; forages in grasslands, irrigated pastures, and grain fields.	Habitat Present	Riparian and oak woodland habitat in the BSA represents potential nesting substrate for Swainson's hawks. No existing stick nests were observed at the time of the February 2016 survey. Closest CNDDDB record is located 3.3 miles to the southeast along Littlejohns Creek (occurrence # 2355; California Department of Fish and Wildlife 2016).
White-tailed kite <i>Elanus leucurus</i>	-/FP	Lowland areas west of Sierra Nevada from the head of the Sacramento Valley south, including coastal valleys and foothills to western San Diego County at the Mexico border; low foothills or valley areas with valley or live oaks, riparian areas, and marshes near open grasslands for foraging.	Habitat Present	Riparian and oak woodland habitat in the BSA represents potential nesting substrate for white-tailed kite. No existing stick nests were observed at the time of the February 2016 survey.

Common Name <i>Scientific Name</i>	Legal Status (Federal/State)	General Habitat Description	Habitat Present/Absent	Rationale
Bald eagle <i>Haliaeetus leucocephalus</i>	D/E	Nests and roosts in coniferous forests within 1 mile of large bodies of water (lake, reservoir, river, or the ocean) in Siskiyou, Modoc, Trinity, Shasta, Lassen, Plumas, Butte, Tehama, Lake, and Mendocino Counties and in the Lake Tahoe Basin.	Habitat Absent	No suitable nesting habitat is present in the BSA, and no large reservoirs or rivers suitable for foraging are present within 1 mile of the BSA.
Yellow-breasted chat <i>Icteria virens</i>	-/SSC	Uncommon breeder along the coast and in the foothills of the central and southern Sierra Nevada. Nests in dense riparian habitats, often consisting of willow thickets and tangles of California wild grape and blackberry brambles.	Habitat Absent	Dense riparian habitat typically used by yellow-breasted chat is absent from the BSA.
Tricolored blackbird <i>Agelaius tricolor</i>	-/C	Permanent resident in the Central Valley from Butte to Kern County; nests in dense colonies in emergent marsh vegetation, such as tules and cattails, or upland sites with blackberries, nettles, thistles, and grainfields; habitat must be large enough to support 50 pairs; probably requires water at or near the nesting colony.	Habitat Absent	No suitable nesting substrate large enough to support a colonies of tricolored blackbirds is present in the BSA.
Mammals				
Pallid bat <i>Antrozous pallidus</i>	-/SSC	Occurs throughout California, primarily at lower and mid-level elevations in a variety of habitats from desert to coniferous forest; most closely associated with oak, yellow pine, redwood, and giant sequoia habitats. Daytime roosts include rock outcrops, mines, caves, hollow trees, buildings, and bridges.	Habitat Present (night roosting only)	No suitable day roosting habitat (bridge caverns or tree hollows) is present in the BSA. Species could forage in the BSA or night roost on the existing bridge structure. However, the existing bridge does not contain protected areas suitable for day roosting.
Townsend's big-eared bat <i>Corynorhinus townsendii</i>	-/T	Roosts in caves, tunnels, mines, and dark attics of abandoned buildings; also reported to use bridges and hollow trees as roost sites. In bridges, typically uses cavernous spaces under bridges. In California, occurs in inland deserts, moist cool redwood forests, oak woodlands of the inner Coast Ranges and Sierra Nevada foothills, and lower to mid-elevation mixed coniferous forests.	Habitat Present (night roosting only)	The existing bridge does not contain caverns suitable for day roosting. Species could forage in the BSA or night roost on the existing bridge structure.

Common Name <i>Scientific Name</i>	Legal Status (Federal/State)	General Habitat Description	Habitat Present/Absent	Rationale
Western mastiff bat <i>Eumops perotis californicus</i>	-/SSC	Typically roosts in crevices in cliffs and rocky outcrops, in colonies of fewer than 100 individuals; may also roost in caves and buildings that allow sufficient height and clearance for dropping into flight; forages in a variety of grassland, shrub, and wooded habitats, including riparian and urban areas, although most commonly in open, arid lands; year-round range spans most of California.	Habitat Present (night roosting only)	The existing bridge does not contain caverns suitable for day roosting. Species could forage in the BSA or night roost on the existing bridge structure.
Western red bat <i>Lasiurus blossevillii</i>	-/SSC	Found 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	Large trees in the BSA provide suitable day roosting habitat.
Fish				
California Central Valley steelhead <i>Oncorhynchus mykiss</i>	T/-	Sacramento and San Joaquin Rivers and tributary Central Valley streams and rivers below impassable barriers; occurs in well-oxygenated, cool, riverine habitat with water temperatures from 7.8 to 18 degrees (°)Celsius (C) (Moyle 2002); habitat types are riffles, runs, and pools. Adults and juveniles migrate through the Delta	Present	Littlejohns Creek is hydrologically connected to the San Joaquin River, which is known to support CCV steelhead. In addition, Littlejohns Creek has potential to support habitat for CCV steelhead, especially during winter and spring when flows and water temperatures are more likely to support migration for adults and juveniles, and seasonal rearing for juveniles. Altered habitat conditions and the presence of non-native fish species in Littlejohns Creek likely reduce the quality of summer rearing habitat for juveniles in the BSA. May affect, but not likely to adversely affect.

Common Name <i>Scientific Name</i>	Legal Status (Federal/State)	General Habitat Description	Habitat Present/Absent	Rationale
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; occurs 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 BSA is not within the range of Delta smelt; the BSA is located on an inland freshwater stream at an elevation of 110 feet above mean sea level. No effect
Hardhead <i>Mylopharodon conocephalus</i>	–/SSC	Tributary streams in the San Joaquin drainage; large tributary streams in the Sacramento River and the main stem. Reside in low to mid-elevation streams and prefer clear, deep pools and runs with slow velocities. Also occur in reservoirs.	Absent	Hardhead has been reported within 10 miles of the BSA in the Calaveras River (California Department of Fish and Wildlife 2016); however, Littlejohns Creek in the BSA is not expected to support hardhead because of its degraded nature and warm water temperatures.

Notes: Habitat absent – no habitat present and no further work needed. Habitat present – habitat is, or may be, present. Present – the species is known to be present. Absent – habitat may be present but the species is presumed to be absent based on known distribution.

^a Status explanations:

Federal

- E = Listed as endangered under the federal Endangered Species Act.
- T = Listed as threatened under the federal Endangered Species Act.
- D = Delisted from the federal Endangered Species Act.
- = No listing.

State

- E = Listed as endangered under the California Endangered Species Act.
- T = Listed as threatened under the California Endangered Species Act.
- C = Candidate for listing as threatened or endangered under the California Endangered Species Act.
- P = Proposed for listing as threatened or endangered under the California Endangered Species Act.
- FP = Fully protected under the California Fish and Game Code.
- SSC = Species of special concern in California.
- = No listing.

Discussion

Checklist item: a

While special-status plant habitat is present in the project area, no special-status plants were observed during the 2013 and 2016 botanical surveys, and none have been previously reported in the BSA (California Department of Fish and Wildlife 2016; California Native Plant Society 2016). The July 2013 survey was conducted during the identification period for Sanford's arrowhead, which has potential to occur in the BSA, and this species was not observed.

Six special-status wildlife species, and two special-status fish species have the potential to occur in the project area. Although the majority of migratory bird species are not considered special-status wildlife species, their occupied nests and eggs are protected by the California Fish and Game Commission Sections 3503, 3503.5, and 3800; and the Migratory Bird Treaty Act. Migratory birds and raptors have the potential to nest in or near the project area.

- Valley elderberry longhorn beetle: Suitable habitat. One elderberry shrub (host plant of the valley elderberry longhorn beetle) is growing along the east side of Escalon-Bellota Road, approximately 150 feet south of the existing bridge and 7 feet east of existing pavement (Figure 2-2). This cluster includes 17 stems measuring more than 1 inch but less than 3 inches diameter at ground level, and would be considered suitable habitat for valley elderberry longhorn beetle.
- Western pond turtle: Suitable habitat is present in the project area in Littlejohns Creek.
- Giant Garter Snake: Suitable habitat is present in the project area in Littlejohns Creek. Low likelihood to occur based on distance from documented populations.
- Swainson's hawk: Trees within the project area represent suitable nesting sites. Suitable foraging habitat is limited in the project area.
- White-tailed kite: Trees within the project area represent suitable nesting sites. Suitable foraging habitat is limited in the project area.
- Western red bat: Trees within the project area provide potential foliage roosting habitat.
- California central valley steelhead: Suitable habitat (i.e., unobstructed watercourse with cold, freshwater) is present in Littlejohns Creek.
- Chinook salmon: This MSA-managed species has potential to occur in the vicinity of the BSA and therefore could be potentially affected by the project.
- Migratory birds have the potential to nest in trees, shrubs, grass, bridges, culverts, etc.

The project would have no effect on special-status plant species. The project would have a potentially significant impact on candidate, sensitive, or special-status species, and fish species. However, with implementation of Measures BIO-1 through BIO-20, impacts on candidate, sensitive, or special-status species, migratory birds and raptors, and fish species would be less than significant.

Mitigation Measure BIO-1: Compensate for Impacts on Valley Elderberry Longhorn Beetle Habitat

Before construction begins, the project proponent will compensate for direct impacts (including transplanting) on all elderberry stems measuring 1 inch or more at ground level (i.e., habitat for valley elderberry longhorn beetle) that are located within the limits of disturbance. According to the USFWS's *Conservation Guidelines for the Valley Elderberry Longhorn Beetle* (Guidelines), compensation will include planting replacement elderberry seedlings or cuttings and associated native plantings in a USFWS-approved conservation area, at a ratio between 1:1 and 8:1 (ratio = new plantings to affected stems), depending on the diameter of the stem at ground level, the presence or absence of exit holes, and whether the shrub is located in riparian habitat (U.S. Fish and Wildlife Service 1999).

Replacement planting can be satisfied through the purchase of valley elderberry longhorn beetle mitigation credits at a USFWS-approved mitigation bank. The exact amount and location of compensatory mitigation will be based on consultation with USFWS. The closest conservation bank for valley elderberry longhorn beetle that would service the BSA is the French Camp Conservation Bank located near Stockton in central San Joaquin County.

Table 2-9 summarizes the compensation required for direct effects on 17 elderberry shrub stems that provide valley elderberry longhorn beetle habitat. Based on stem counts listed in Table 2-9 for the elderberry cluster that would be affected by the proposed project and in accordance with the Guidelines, 17 elderberry seedlings and 17 associated native plants will be planted in a USFWS-approved conservation area.

Table 2-9. Required Compensation for Valley Elderberry Longhorn Beetle

Habitat	Stem Diameter (inch)	Number of Stems	Exit Holes?	Seedling Ratio	Native Plant Ratio	Total Seedling	Total Native Plants
Nonriparian	>1 to <3	17	No	1:1	1:1	17	17
	>1 to <3	0	Yes	2:1	2:1	0	0
	>3 to <5	0	No	2:1	1:1	0	0
	>3 to <5	0	Yes	4:1	2:1	0	0
	>5	0	No	3:1	1:1	0	0
	>5	0	Yes	6:1	2:1	0	0
Total		17				17	17

Mitigation Measure BIO-2: Install High-Visibility Construction Fencing between the Construction Area and Adjacent Sensitive Biological Resources

The project proponent and/or their contractor will install high-visibility temporary fencing or other suitable flagging/staking materials to indicate areas designated as sensitive biological resource areas to be avoided during construction. Sensitive biological resources that occur adjacent to the construction area and could be affected by project activities include riparian habitat, oak woodland habitat, protected trees, and nest sites of Swainson's hawk or other migratory birds.

The temporary fencing and or flagging around sensitive areas will be installed as one of the first orders of work and prior to equipment staging. Before construction begins, the project engineer will work with the resource specialist to identify the locations for the fencing, flagging, and/or stakes. The protected areas will be designated as environmentally sensitive areas and clearly identified on the construction plans and described in the specifications. To minimize the potential for snakes and other ground-dwelling animals from being caught in the temporary fencing, the fencing will be placed with at least a 6-inch gap between the ground and the bottom of the fencing. The exception to this condition is where temporary fencing overlaps with erosion control fencing and must be secured to prevent sediment runoff. Temporary fencing will be installed before construction activities are initiated, maintained throughout the construction period, and removed after completion of construction.

Mitigation Measure BIO-3: Conduct Mandatory Environmental Awareness Training for Construction Personnel

The project proponent will retain a qualified biologist to conduct environmental awareness training for construction crews before project implementation. The awareness training will be provided to all construction personnel and will brief them on the need to avoid effects on sensitive biological resources (e.g., native trees, natural communities of special concern, and special-status species habitats in and adjacent to the construction area). The education program will include a brief review of the special-status species with the potential to occur in the BSA (including their life history, habitat requirements, and photographs of the species). The training will identify the portions of the BSA in which the species may occur, as well as their legal status and protection. The program also will cover the restrictions and guidelines that must be followed by all construction personnel to reduce or avoid effects on these species during project implementation. This will include the steps to be taken if a sensitive species is found within the construction area (i.e., notifying the crew foreman, who will call a designated biologist). In addition, construction employees will be educated about the importance of controlling and preventing the spread of invasive plant infestations. An environmental awareness handout that describes and illustrates sensitive resources to be avoided during project construction and identifies all relevant permit conditions will be provided to each crew member. The crew foreman will be responsible for ensuring that crew members adhere to the guidelines and restrictions. Education programs will be conducted for appropriate new personnel as they are brought on the job during the construction period.

Mitigation Measure BIO-4: Retain a Qualified Biologist to Conduct Periodic Monitoring during Construction in Sensitive Habitats

The project proponent will retain a qualified biological monitor for the project who will visit the site a minimum of once per week to ensure that fencing around environmentally sensitive areas is intact and that activities are being conducted in accordance with the agreed upon project schedule and agency conditions of approval. The monitor will provide the project proponent with a monitoring log for each site visit.

Mitigation Measure BIO-5: Protect Water Quality and Prevent Erosion and Sedimentation in Littlejohns Creek

The project proponent and/or their construction contractor will comply with all construction site BMPs specified in the final SWPPP that will be developed for the project, as well as any other

permit conditions to minimize introduction of construction-related contaminants and mobilization of sediment in Littlejohns Creek. Broadly, these BMPs will address soil stabilization, sediment control, wind erosion control, vehicle tracking control, non-stormwater management, and waste management practices. The BMPs will be based on the best conventional and best available technology.

The proposed project is subject to stormwater quality regulations established under the NPDES, described in Section 402 of the federal CWA. In California, the NPDES program requires that any construction activity disturbing 1 or more acres comply with the statewide General Permit, as authorized by the State Water Board. The General Permit requires elimination or minimization of non-stormwater discharges from construction sites and development and implementation of a SWPPP for the site. The primary elements of the SWPPP include the following.

- Description of site characteristics—including runoff and streamflow characteristics and soil erosion hazard—and construction procedures.
- Guidelines for proper application of erosion and sediment control BMPs.
- Description of measures to prevent and control toxic materials spills.
- Description of construction site housekeeping practices.

In addition to these primary elements, the SWPPP specifies that the extent of soil and vegetative disturbance would be minimized by control fencing or other means and that the extent of soil disturbed at any given time would be minimized. The SWPPP must be retained at the construction site.

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

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

- Conduct all earthwork and foundation activities within Littlejohns Creek in the dry season (between June 1 and October 31).
- Equipment used in and around Littlejohns Creek will be in good working order and free of dripping or leaking engine fluids. All vehicle maintenance will be performed at least 100 feet from all streams. Any necessary equipment washing will be carried out where the water cannot flow into drainages or wetlands.
- Develop a hazardous material spill prevention control and countermeasure plan before construction begins.
- Prohibit the following types of materials from being rinsed or washed into Littlejohns Creek: concrete, solvents and adhesives, thinners, paints, fuels, sawdust, dirt, gasoline, asphalt and concrete saw slurry, and heavily chlorinated water.
- Take any surplus concrete rubble, asphalt, or other rubble from construction to a local permitted landfill.

- Prepare and implement an erosion and sediment control plan for the proposed project that will include the following provisions and protocols.

The project proponent also will obtain a 401 water quality certification from the Central Valley RWQCB and a Streambed Alteration Agreement from CDFW, which may contain additional BMPs and water quality measures to ensure the protection of water quality.

Mitigation Measure BIO-6: Conduct Preconstruction Surveys for Northern Western Pond Turtle and Allow Turtles to Leave Work Area Unharmed

To avoid potential injury to or mortality of northern western pond turtles, the project proponent will retain a qualified biologist to conduct a preconstruction survey for pond turtles immediately prior to construction activities (including vegetation removal construction of the temporary creek diversion) along the banks of Littlejohns Creek. The biologist will survey the aquatic habitat, creek banks, and adjacent riparian and ruderal habitat within the construction area immediately prior to disturbance.

If a northern western pond turtle is found within the immediate work area during the preconstruction survey or during project activities, work will cease in the area until the turtle is able to move out of the work area on its own. Information about the location of turtles seen during the preconstruction survey will be included in the environmental awareness training (Measure 2) and provided directly to the construction crew working in that area to ensure that areas where turtles were observed are inspected each day prior to the start of work to ensure that no turtles are present.

If a northern western pond turtle nest is discovered during the preconstruction survey or during project construction, the project proponent will coordinate with CDFW to determine whether additional avoidance measures (e.g., no-disturbance buffer or monitoring) is prudent.

Mitigation Measure BIO-7: Implement Protection Measures for Giant Garter Snake

The following measures will be implemented prior to and during construction to protect giant garter snake.

- All construction activities in giant garter snake habitat will occur between May 1 and October 1.
- A qualified biologist will conduct a preconstruction giant garter snake survey in suitable aquatic and upland habitat no more than 24 hours before construction. The construction area will be resurveyed whenever there is a lapse in construction activity of 2 weeks or more. If giant garter snake is detected during the preconstruction surveys, U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW) will be notified prior to the start of construction to determine if additional protection measures are necessary to avoid and minimize adverse effects to the species.
- Construction equipment and materials stored onsite shall be visually inspected at the start of each work day for the presence of wildlife sheltering within or under them. Uninjured snakes detected during construction activities shall be allowed to move away from the work area on their own volition. Capture and relocation of trapped or injured giant garter snake shall be attempted only by a UFSWS-and CDFW-approved biologist and proper species identification must be made prior to any capture or handling.

- No monofilament plastic mesh or line or jute netting will be used for erosion control. Approved erosion control material include burlap-wrapped fiber rolls, coconut coir matting, sediment fencing, and tacktified hydroseeding compounds.
- To prevent inadvertent entrapment of wildlife during construction, all excavated, steep-walled holes or trenches more than 6 inches deep will be provided with one or more escape ramps constructed of earth fill or wooden planks and will be inspected by a qualified biologist prior to being filled.

Mitigation Measure BIO-8: Conduct Tree Removal during Non-Breeding Season for Migratory Birds and Raptors

For trees that require removal or trimming, the project proponent will conduct this work during the non-breeding season (generally between September 16 and January 31) for tree-nesting migratory birds and raptors, including Swainson's hawk and white-tailed kite. If tree removal cannot be confined to this period, the project proponent will retain a qualified wildlife biologist with knowledge of the wildlife species that could occur in the project area to conduct the appropriate preconstruction surveys and establish no-disturbance buffers for sensitive wildlife species as described under Measure 11 (Swainson's hawk) and Measure 12 (nesting birds; Section 4.3.5.3).

Mitigation Measure BIO-9: Conduct Focused Surveys for Nesting Swainson's Hawk prior to Construction

The project proponent will retain a wildlife biologist experienced in surveying for Swainson's hawk to conduct surveys for the species in the spring/summer prior to construction. The surveys will be conducted within the limits of disturbance and in a buffer area up to 0.50 mile from the limits of disturbance. The size of the buffer area surveyed will be based on the type of habitat present and the line-of-sight from the construction area to surrounding suitable breeding habitat. Surveys will follow the methods in *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley* (Swainson's Hawk Technical Advisory Committee 2000). Up to six surveys will be conducted according to these methods. If a variance of the survey distance or number of surveys is necessary due to project schedule, the project proponent will coordinate with CDFW regarding appropriate survey methods based on proposed construction activities. Surveys generally will be conducted from February to July. Survey methods and results will be reported to the project proponent and CDFW.

If surveys conclude that Swainson's hawk nests are present within the survey area, the project proponent will establish a non-disturbance buffer between the nest and construction and monitoring construction as necessary, as described under Mitigation Measure BIO-10.

Mitigation Measure BIO-10: Establish a No-Disturbance Buffer around Active Swainson's Hawk Nests and Monitoring Construction, as Necessary

A minimum non-disturbance buffer of 600 feet (radius) will be established around all active Swainson's hawk nests. No entry of any kind related to construction will be allowed within this buffer while the nest is active, unless approved by CDFW through issuance of an Incidental Take Permit or through consultation during project construction. The actual buffer size will be determined based on site-specific conditions, including line-of-sight, topography, type of disturbance, existing ambient noise and disturbance levels, and other relevant factors. Entry

into the buffer for construction activities will be granted when the biological monitor determines that the young have fledged and are capable of independent survival or that the nest has failed and the nest site is no longer active. All buffer adjustments will be approved by CDFW.

If a buffer adjustment is approved by CDFW to work within the 600-foot buffer, the active Swainson's hawk nest will be monitored during construction activities. Monitoring will be conducted by a wildlife biologist with experience in monitoring Swainson's hawk nests. The monitor will document the location of active nest(s), coordinate with the project proponent and CDFW, and record all observations in a daily monitoring log. The monitor will have the authority to temporarily stop work if activities are disrupting nesting behavior to the point of resulting in potential take (i.e., eggs and young chicks still in nests and adults appear agitated and could potentially abandon the nest). The monitor will work closely with the contractor, the project proponent, and CDFW to develop plans for minimizing disturbance, such as modifying or delaying certain construction activities during vulnerable nest stages.

Mitigation Measure BIO-11: Compensate for Loss of Protected Trees not in Riparian Habitat

Trees removed for the proposed project will be replaced according to the following requirements:

- Each native oak that has been removed will be replaced with three trees or acorns, or combination thereof.
- Replacement stock will consist of healthy commercial stock or acorns, of the species removed.
- Replacement trees will be planted as near as possible to the location of the removed trees.
- Replacement stock will be established and maintained for at least 3 years.
- Trees that are not alive at the end of the 3 years will be replaced, established, and maintained for 3 years.

Mitigation Measure 12: Conduct Preconstruction Surveys for Nesting Migratory Birds, Including Special-Status Birds, and Establish Protective Buffers

The project proponent will retain a qualified wildlife biologist to conduct nesting bird surveys if construction will occur between February 1 and September 15. These nesting bird surveys will be conducted in conjunction with the Swainson's hawk nesting surveys described under Measure 10 (Section 4.3.4.3) and will include a minimum of two separate surveys to look for active nests of migratory birds, including raptors. Surveys will include a search of all trees and shrubs, and ruderal areas that provide suitable nesting habitat for birds within 100 feet of construction disturbance. In addition, a 0.5-mile area from the BSA will be surveyed for nesting raptors in order to identify raptors that might be affected by construction disturbances. Surveys should occur during the height of the breeding season (March 1 to June 1), with one survey occurring within 1 week prior to the start of construction. 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 to avoid disturbance or destruction of the nest site until the end of the breeding season (September 15) or until after a qualified wildlife biologist determines that the young have fledged and moved

out of the construction area (this date varies by species). The extent of these buffers will be determined by the biologist in coordination with CDFW and will depend on the level of noise or construction disturbance taking place, line-of-sight between the nest and the disturbance, ambient levels of noise and other non-project disturbances, and other topographical or artificial barriers. Suitable buffer distances may vary between species.

Mitigation Measure BIO-13: Minimize Impacts on Foliage-Roosting Bats during Spring and Summer Tree Removal

If tree removal cannot be avoided during the spring and summer months, when potential presence or western red bat in the BSA is highest, trees that provide potential foliage-roosting habitat (valley oak, walnut, willow, and pecan) will be removed in pieces, rather than felling the entire tree, and should be done late in the day or in the evening to reduce the likelihood of evicted bats falling prey to diurnal predators.

Mitigation Measure 14: Conduct All In-Channel Construction Activities between June 1 and October 31

The County will require the contractor to conduct all in-channel construction and impact pile driving between June 1 and October 31, unless earlier and/or later dates for in-channel construction activities and impact pile driving are approved by CDFW and NMFS. In-channel construction is defined as creek bank and channel-bed construction below the ordinary high water mark (OHWM), including the installation of stream diversion structures, channel dewatering, and excavation and grading activities. By requiring contractors to adhere to these dates for in-channel construction and pile driving, the County would achieve several goals.

- In-water construction would avoid the primary migration periods of adult and juvenile steelhead in Littlejohns Creek.
- The timing of in-water construction would be concurrent with the period CCV steelhead are least likely to be present in, or absent from, the affected reaches of Littlejohns Creek.
- The length of the in-water construction period would be maximized, thereby ensuring that only one in-water construction season would be needed to complete bridge construction.

Mitigation Measure BIO-15: Guide Fish from Affected Habitats Prior to Initiating In-Water Activities

Prior to initiating any in-water construction activity, all fish will be guided with nets (e.g., seines and block nets) and excluded from the affected reaches of Littlejohns Creek by qualified fish biologists using the follow methods:

- No fish will be captured or handled during fish guiding activities, and fish guiding activities will serve only to coax any juvenile steelhead out of harm's way prior to initiating in-water construction activities.
- Seining to guide fish from the work area will be repeated, as necessary, to ensure that all fish are successfully guided from the work area. Block nets will remain in place until cofferdams are installed (see Measure 19, "Implement Cofferdam and Stream Diversion Restrictions").
- The methods used to guide fish during the dewatering of the work area will be limited to nets and will be developed cooperatively by CDFW, NMFS, and the County. The methods will

also specify the type, construction, and material of the nets used to guide and exclude fish from the work area. Fish shall not be captured or handled in any manner during seining activities to guide fish out of affected stream reaches. Fish biologists will contact CDFW and NMFS immediately in the unlikely event that any rainbow trout/steelhead are found dead or injured following fish guiding activities. Additional reporting requirements, as required by CDFW and NMFS, will be followed.

Mitigation Measure BIO-16: Implement Cofferdam and Stream Diversion Restrictions

Any activity that temporarily diverts flow from any segment of Littlejohns Creek will trigger implementation of the following conditions:

- The extent of cofferdam footprints and stream channel dewatering will be limited to the minimum necessary to support construction activities.
- If temporary diversion cofferdams are constructed of natural materials (i.e., gravel), the material will be composed of washed, rounded, spawning-sized gravel between 0.4 to 4 inches in diameter and any gravel in contact with flowing water will be left in place, manually spread out using had tools, if necessary, to ensure adequate fish passage for all life stages, and then allowed to disperse naturally by high winter flows.
- The water diversion system will be constructed and be operated in such a way that flow to creek segments downstream from the construction site will not be interrupted as streamflow is being diverted.
- Water will be released downstream at an appropriate rate to maintain downstream flows at all times and the outlet of the diversion will be positioned such that the discharge of water does not induce bank erosion or channel scour.
- Any pumps used to convey diverted water around dewatered reaches will have their intakes properly screened according to CDFW and NMFS screening guidelines for water diversion intakes.
- Fish passage through the construction area will be maintained either by constricting the flow to one side of the creek at a time or diverting all flow into an open channel around the construction site.

Mitigation Measure BIO-17: Implement Measures to Minimize Underwater Sound Levels during Pile Driving

The County will require the contractor to implement the following measures, developed in coordination with project design engineers, to minimize the exposure of CCV steelhead to potentially harmful underwater sounds while impact pile driving occurs.

- Consistent with Measure 16, *Conduct all In-channel Construction Activities between June 1 and October 31*, impact pile driving will be limited to the June 1 to October 31 period to avoid and minimize impacts on CCV steelhead.
- The contractor will first vibrate all piles to the maximum extent practical before using an impact hammer.
- During impact driving, the contractor will limit the number of strikes per day to the minimum necessary to complete the work.

- The smallest pile driver and minimum force necessary will be used to complete the work.
- During impact driving, the County will require the contractor to drive piles in the dry (e.g., in dewatered cofferdams) to maximize attenuation of sound levels.

Mitigation Measure BIO-18: Avoid and Minimize Disturbance and Removal of Shaded Riverine Aquatic Cover

The County will require the contractor to implement the following measures to avoid and minimize disturbance and removal of SRA cover:

- The minimum amount of SRA cover, including overhead vegetation and instream cover, disturbed or removed will be limited to the minimum necessary to support construction activities.
- Instream woody material subject to damage or removal will be retained and replaced on site after project completion.
- Where stream substrates are removed temporarily to facilitate construction, they will be stored adjacent to the site and then placed back in the channel post-construction at approximately pre-project depth and gradient.

Mitigation Measure BIO-19: Replace Affected Overhead Shaded Riverine Aquatic Cover Vegetation

The County will replace overhead SRA cover vegetation affected by bridge demolition and construction. In conjunction with Measure 6, Compensate for Temporary Effects on and Permanent Loss of Riparian Woodland, the County will:

- Establish at least 210 linear feet of new SRA vegetative cover by planting native riparian trees along unshaded banks. This linear distance will provide a 1:1 replacement ratio (i.e., 1 linear foot replaced for every 1 foot affected).
- Plant riparian trees that are intended to provide SRA cover along the water's edge at summer low flows and at levels sufficiently dense to provide shade along at least 85 percent of the bank's length when the plant reaches maturity.
- Ensure that riparian plantings intended for SRA cover mitigation be planted within 10 feet (horizontal distance) of the summer wetted channel. This maximum planting distance will ensure that riparian plantings will contribute to SRA cover once they approach maturity.
- Monitor and evaluate revegetation success of riparian plantings intended for SRA cover mitigation as described in Measure 6, Compensate for Temporary Effects on and Permanent Loss of Riparian Woodland.

Mitigation Measure 20: Remove Bridge Structure during the Non-Breeding Season for Structure-Nesting Migratory Birds or Implement Exclusion Measures to Deter Nesting

To avoid impacts on nesting purple martins, swallows, and other structure-nesting migratory birds that are protected under the MBTA and the CFGC, the project proponent will remove or modify existing structures after the conclusion of the bird nesting period (February 15 through August 31). A qualified biologist will monitor any active nests near the end of the breeding season to determine when nesting has concluded. Removal or modification of structures after

the nesting period has concluded is strongly preferred; however, if this is not possible, the project proponent will implement the following avoidance measures.

- Prior to the start of construction, the project proponent will hire a qualified wildlife biologist to inspect any aerial structure that would be removed or modified during the non-breeding season (September 1 through February 14). If nests are found and are determined to be inactive (abandoned), they may be removed.
- After inactive nests are removed and prior to construction that would occur between February 15 and August 31, the undersides of the bridge to be removed will be covered with a suitable exclusion material that will prevent birds from nesting (i.e., 0.5- to 0.75-inch mesh netting, plastic tarp, or other suitable material safe for wildlife). A qualified wildlife management specialist experienced with installation of bird exclusion materials will be hired by the project proponent to ensure that exclusion devices are properly installed and will avoid inadvertent entrapment of migratory birds. All exclusion devices will be installed before February 15 and will be monitored by a qualified biologist throughout the breeding season (typically several times a week). The exclusion material will be anchored so that swallows cannot attach their nests to the structures through gaps in the net.
- As an alternative to installing exclusion materials on a structure, the project proponent may hire a qualified biologist or qualified wildlife management specialist 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 (February 15 through August 31) as swallows can complete a nest in a 24-hour period.
- If exclusion material is not installed on structures prior to February 15 or manual removal of nests is not conducted daily and migratory birds colonize a structure, removal or modification to that portion of the structure may not occur until after August 31, 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 from constructing new nests as described above, work can proceed at any time of the year.

Checklist item: b

The BSA supports three natural communities of special concern: perennial stream, riparian woodland, and oak woodland. Littlejohns Creek is the only perennial stream in the BSA (see Figure 2-2). The creek averages 60 feet wide at the OHWM. Implementation of the proposed project would result in temporary and permanent impacts on Littlejohns Creek in the BSA, including construction of a temporary bridge detour, rock slope protection placed along the bridge abutments, a central bent consisting of 9 reinforced concrete pile extensions, and temporary creek diversion system falsework. The new bridge would consist of a concrete slab supported on a concrete pile bent and on concrete abutments constructed on piles at each end of the bridge. The abutments on either side of the new bridge structure would be constructed outside the OHWM and will not result in fill within Littlejohns Creek. Construction of the bent structure would require installation of 9 reinforced concrete pile extensions within the OHWM. Installation of the piers and rock slope protection on the creek bed and banks will result in permanent impacts on 0.152 acre of perennial stream habitat within the OHWM.

Temporary impacts of up to 0.306 acre of perennial stream would occur due to installation of creek diversion system falsework and temporary supports associated with the construction of the temporary bridge detour. The work area inside the temporary creek diversion system would be dewatered by pumping to the downstream portion of the creek outside the construction limits. Free-flowing water would be conveyed through the construction area either through a pipe or an open channel to one side of the construction area.

Riparian woodland in the BSA occurs along the lower banks and channel of Littlejohns Creek (Figure 2-2). The riparian tree and shrub canopy is predominantly composed of valley oak (*Quercus lobata*), black walnut (*Juglans californica* var. *hindsii*), and arroyo willow (*Salix lasiolepis*). The riparian understory of the levee is primarily nonnative annual grasses and forbs, except where the banks are ripped, below the bridge. Local, state, and federal agencies recognize riparian habitats as sensitive natural communities.

Implementation of the proposed project would result in a loss of riparian woodland habitat. Clearing of the existing riparian vegetation within the proposed project footprint would result from construction activities related to clearing and grubbing to remove vegetation for the new roadway improvements, installing the temporary detour bridge east of the existing bridge and associated approach roadways, and installing a temporary creek diversion system. Construction of the proposed project would result in permanent loss of up to 0.051 acres of riparian woodland within the permanent impact area (Figure 2-2). Up to 0.035 acre of riparian woodland would temporarily be disturbed during construction of the proposed project. Temporary impacts would occur from trimming riparian vegetation and removing additional trees and understory vegetation to provide equipment access.

Oak woodland in the BSA occupies a small area adjacent to an existing dirt access road southwest of the existing bridge. The dominant trees are valley oaks, with a few English walnut and black walnut trees. The understory is composed mostly of nonnative annual grasses and forbs. Oak woodland habitat in the BSA is located just within the permanent impact area; however, this habitat would not be directly impacted during project construction. Avoidance and minimization measures will be implemented to ensure that this habitat is protected from construction disturbance.

The project would have a potentially significant impact on riparian habitat and/or other sensitive natural communities. However, with implementation of Measures BIO-2 through BIO-5 (described above), and Mitigation Measures BIO-21 and BIO-22, impacts on riparian habitat or other sensitive natural communities would be less than significant.

Mitigation Measure 21: Compensate for Loss of Perennial Stream

The project proponent will comply with any regulatory requirements determined as part of the state (Section 401 Water Quality Certification or WDRs, LSAA) and federal (Section 404 permits) processes for the work that would occur in the Littlejohns Creek. The project proponent will compensate for the permanent fill of up to 0.152 acre of other waters of the United States in Littlejohns Creek by purchasing credits at a USACE-approved mitigation bank with a service area that encompasses the project area, which can be in the form of preservation and/or creation credits using the following minimum ratios.

- A minimum of 2:1 (2 acres of mitigation for each acre filled), for a total of up to 0.304 acre, if credits are for preservation of habitat; or

- A minimum of 1:1 (1 acre of mitigation for each acre filled), for a total of up to 0.152 acre, if credits are for creation of habitat.

The actual compensation ratios will be determined through coordination with the Central Valley RWQCB and USACE as part of the permitting process.

Mitigation Measure BIO-22: Compensate for Temporary Effects on and Permanent Loss of Riparian Woodland

The project proponent will compensate for temporary construction-related effects on and permanent loss of riparian woodland at a minimum ratio of 1:1 (1 acre of mitigation for each acre of riparian woodland removed). Final compensation ratios will be based on site-specific information and determined through coordination with the appropriate state and federal agencies during the permitting process. The project proponent will implement onsite and, if necessary, offsite restoration measures and/or purchase mitigation bank credits to compensate for temporary and permanent losses of riparian woodland, including riparian woodland supporting SRA cover habitat (as described in the “*California Central Valley Steelhead*” section, portions of the riparian woodland in the BSA also provides SRA cover habitat for fish). Onsite restoration will be used to the maximum extent practicable. If onsite or offsite restoration/enhancement along Littlejohns Creek is not feasible, the project proponent will purchase mitigation bank credits at a locally approved bank or pay into an in-lieu fee program to achieve no net loss of existing in-kind riparian woodland and SRA cover habitat values (see Measure 14, *Replace Affected Overhead SRA Cover Vegetation*, for mitigation requirements associated with affected SRA cover habitat). Both of these options are described below.

1. **Onsite and/or Offsite Restoration along Littlejohns Creek.** For onsite or offsite replacement plantings, the project proponent will employ a qualified restoration biologist to prepare a riparian restoration and monitoring plan that involves restoring or enhancing riparian woodland and SRA vegetation, potentially along the creek adjacent to the new bridge or elsewhere along Littlejohns Creek. The restoration plan will include a site-specific plant and seed palette, planting locations, and maintenance requirements. The number of plantings will be adequate to ensure that the required mitigation ratio will be reached by the end of the monitoring period and that canopy cover and species composition requirements are met. Planted species composition will be based on native species that occur in and near the project area, such as valley oak, black walnut, and arroyo willow, and native understory species will be included in the plan. Plantings will consist of cuttings taken from local plants or plants grown from local seed. As feasible, existing native vegetation from the affected sites should be harvested and maintained for replanting after construction.

The project proponent will implement the restoration plan and maintain plantings for up to 3 years or until established (including weed removal, irrigation, and herbivory protection). Plantings will be monitored annually for 3 years or as required in the project permits. Project-specific performance standards and success criteria (e.g., plant survival, vegetation cover) will be developed in coordination with resource agencies. If the success criteria are not met at the end of the monitoring period, the site will be evaluated to determine the cause, remedial measures will be implemented, and the monitoring period will be extended. Progress reports will be provided to the County at the end of each monitoring period.

2. **Mitigation Bank Credit Purchase.** If this option is used, the project proponent will provide written evidence to the resource agencies that compensation has been established through the purchase of mitigation credits. The amount to be paid will be the fee that is in effect at the time the fee is paid. The mitigation will be approved by CDFW and may be modified during the permitting process. If no suitable mitigation bank options are available at the time of construction, the project proponent will pay into the National Fish and Wildlife Foundation Sacramento District in-lieu fee program. The final compensation ratio of restored or created riparian habitat for each acre of riparian habitat removed will be approved by CDFW in order to result in no net loss of riparian and SRA cover habitat.

Checklist item: c

The only wetlands in the project area are within the channel of Littlejohns Creek, below the OHWM. Habitats of species of concern, including perennial stream are discussed above under checklist item b. Furthermore, implementation of Measures BIO-2 through BIO-5, and BIO-21 (described above), would reduce impacts on federally protected wetlands to a less-than-significant level.

Checklist item: d

As described above in checklist items b and c, impact on riparian habitat and waterways would be less than significant with mitigation incorporated. There are patches of suitable roosting habitat for Western red bats, and potential nesting habitat for Swainson's Hawk and White-tailed kite. There is potential for giant garter snake and western pond turtle in Littlejohns Creek, as well as Chinook salmon and CCV steelhead. No native wildlife nursery sites are located within the project area. The project would have a potentially significant impact on the movement of fish or wildlife species and wildlife corridors. However, with implementation of Mitigation Measures described above, the impact on the movement of fish or wildlife species and wildlife corridors would be less than significant.

Checklist item: e

Construction would remove vegetation within the project area, including removal of up to 16 trees. Because the proposed project is considered a development project it is subject to the County's Natural Resource Regulations (as described in Chapters 9-1505 and 9-1510) which provides regulations for the protection, conservation, and managed use of natural resources. Division 15 regulates activities that would affect native oak trees, heritage oak trees, historical trees, and riparian habitat. The project would have a potentially significant impact on local policies or ordinances protecting biological resources. However, with implementation of Mitigation Measures VIS-1, and BIO-11, impacts related to local policies or ordinances protecting biological resources would be less than significant.

Checklist item: f

No adopted Habitat Conservation Plans, Natural Community Conservation Plans, or other approved local, regional, or state habitat conservation plans are in place in the project area. Therefore, there are no impact related to conflict with the provisions of applicable or other approved plans.

V. Cultural Resources	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Affected Environment

Regulatory Setting

State

California Environmental Quality Act

CEQA requires that public agencies (for the proposed project, the County) that finance or approve public or private projects must assess the effects of the project on cultural resources. Cultural resources are defined as buildings, sites, structures, or objects, each of which may have historical, architectural, archaeological, cultural, or scientific importance. CEQA requires that if a project would result in significant effects on important cultural resources, alternative plans or mitigation measures must be considered; only significant cultural resources, however, need to be addressed. Therefore, prior to the development of mitigation measures, the importance of cultural resources must be determined.

Local

San Joaquin County General Plan

The San Joaquin County General Plan Heritage Resources section of the Resources Element lists the following objectives and policies that pertain to cultural or heritage resources (San Joaquin County 1992:VI-37).

Objective

1. To protect San Joaquin County’s valuable architectural, historical, archaeological and cultural resources.

Policies

2. Significant archaeological and historical resources shall be identified and protected from destruction. If evidence of such resources appears after development begins, an assessment shall be made of the appropriate actions to preserve or remove the resources.

3. No significant architectural, historical, archaeological or cultural resources shall be knowingly destroyed through County action.

Existing Conditions

Archaeological Setting

Human occupation of the northern San Joaquin Valley is believed to date prior to the terminal Pleistocene Epoch—12,000 years before present (BP). Although few archaeological sites demonstrate evidence of human occupation of the San Joaquin Valley during the late Pleistocene and early Holocene (12,000–6,500 BP), this is likely a result of the archaeological record itself rather than lack of use of this area. Most Pleistocene- and early Holocene-epoch sites are deeply buried in accumulated gravels and silts or have eroded away. (Moratto 1984.)

The earliest sites close to the project area are believed to be the Farmington Complex sites in San Joaquin and Stanislaus Counties, the Clark Flat sites, and possibly the Sky Rocket site. These sites are east of the project area on the San Joaquin Valley–Sierra Nevada foothills interface. Artifacts associated with this time period are dominated by stemmed points and formed flake tools with diagnostic shapes; plant-processing stone tools are evident at CA-CAL-342 between 6750 and 6500 BP. (Jones & Stokes 2001:2.)

Archaeological evidence from the Middle Holocene (6,500–4,500 BP) for the northern San Joaquin Valley is also limited to the San Joaquin Valley–Sierra Nevada foothills interface. Near the project area three sites have produced artifacts that date to the Middle Holocene. Artifacts from these sites include stemmed projectile points and formed flake tools of the Early Holocene with the addition of Pinto Series projectile points. (Jones & Stokes 2001:2.)

The Late Holocene (4,500–100 BP) has been divided into Early Period–Middle Period–Late Period subdivisions by archaeologists, although an exact time frame for the periods has been the subject of debate (Fredrickson 1973; Moratto 1984; Bennyhoff and Hughes 1987; Milliken 1997). The dates used in this discussion follow Milliken (1997), and descriptions of artifacts and technologies come from Moratto (1984).

The Early Period (4,500–2,500 BP), comparable to Fredrickson's (1973) Windmill Pattern, is known from several lower Sacramento Valley sites and one Stockton area site (Milliken 1997). The Windmill Pattern is characterized by the exploitation of a wide variety of terrestrial mammals, fish, and avifauna and by an emphasis on hard-seed procurement. The Windmill Pattern purportedly reflects a lacustrine and/or marsh adaptation. This subsistence strategy may have enabled Windmill peoples to migrate and settle throughout the expansive San Joaquin–Sacramento Rivers Delta (Delta) environment (Moratto 1984).

The Middle Period of the Late Holocene extended from approximately 2,500 to 1,300 BP in Central California (Milliken 1997). Fredrickson identifies this period as the Berkeley Pattern (Fredrickson 1973; Moratto 1984). The primary difference between the Berkeley Pattern and the Windmill Pattern is the greater exploitation of the acorn as a staple in the Berkeley Pattern, reflected by more numerous and varied mortars and pestles.

The final prehistoric period is the Late Period of the Late Holocene (450–100 BP) (Milliken 1997). This period is identified by Fredrickson as the Augustine Pattern (Fredrickson 1973; Moratto 1984). The Augustine Pattern appears to be related to the Berkeley Pattern, and the differences between the two patterns may be the result of the combination of Berkeley traits with those carried into the

central California region by migrating Wintuan populations from the north, an event that began approximately 1,800 years BP (Basgall and Hildebrandt 1989). This Augustine Pattern exhibited a great elaboration of ceremonial and social organization, including the development of social stratification. Exchange became well developed, and acorns were exploited with even greater intensity, as evidenced by shaped mortars and pestles and numerous hopper mortars.

Ethnographic Setting

The project area is located in the territory of the Northern Valley Yokuts. Northern Valley Yokuts territory is bounded roughly by the crest of the Diablo Range on the west, the foothills of the Sierra Nevada on the east, where the San Joaquin River bends northward to the south, and roughly halfway between the Calaveras and Mokelumne Rivers to the north. (Wallace 1978:Figure 1.)

Population estimates for the Northern Valley Yokuts vary from 11,000 to more than 31,000 individuals. Populations were concentrated along waterways particularly the east side of the San Joaquin River. Each tribe spoke their own dialect of the Yokuts language. Similar to most Indian groups in California, the Yokuts were organized into political entities no larger than the tribelet. A tribelet consisted of a large village and a few smaller surrounding villages. Larger villages and tribelets had a chief or headman, an advisory position that was passed from father to son. (Wallace 1978.)

Subsistence among the Northern Valley Yokuts revolved around the waterways and marshes of the lower San Joaquin Valley. Fishing with dragnets, harpoons, and hook and line yielded salmon, white sturgeon, river perch, and other species of edible fish. Waterfowl and small game that were attracted to the riverine environment also provided sources of protein. The contribution of big game to the diet was probably minimal. Vegetal staples included acorns, tule roots, and seeds. (Wallace 1978.)

Goods not available locally were obtained through trade. Paiute and Shoshone groups on the eastern side of the Sierra supplied obsidian. Shell beads and mussels were obtained from coastal Salinan and Costanoan groups. Trading relations with Miwok groups to the north yielded baskets, and bows and arrows. A network of trails facilitated overland transport, and tule rafts were used for water transport. (Wallace 1978.)

The Yokuts first came into contact with Europeans when Spanish explorers visited the area in the late 1700s. Subsequent exposure to Europeans may have resulted from expeditions to recover Indians who had escaped from the missions. The North Valley Yokuts were affected by missions far more than were the other groups. The loss of individuals to the missions, the influence of runaway neophytes, various epidemics in the 1800s, and the arrival of settlers and miners all contributed to the disintegration of Yokuts culture. Former miners who settled in the valley applied further pressure on the native groups and altered the landforms and waterways of the valley. Many Yokuts resorted to wage labor on farms and ranches. Others were settled on land set aside for them on the Fresno and Tule River Reserves. (Wallace 1978.)

Methods

Records Search

A records search was conducted at the Central California Information Center of the California Historical Resources Information System at California State University, Stanislaus, on May 1, 2013 for the project area and a 0.50-mile radius. Results of the records search indicate that no studies

have been conducted within the project area and that five studies have been conducted within 0.50-mile of the project area. The records search did not identify any cultural resources within the project area; however, two historic period resources are located within a 0.50-mile radius of the project area. The historic period resources include the Southern Pacific Railroad and the Shady Grove/Farmington Schools. None of these resources have been evaluated for historic significance. Littlejohns Creek Bridge (29C0038) was built in 1948 and was evaluated by Caltrans as not eligible for the National Register of Historic Places (NRHP).

Pedestrian Survey

On July 13, 2015, an ICF cultural resources specialist conducted a field survey of the APE. All accessible portions of the APE except for landscaped portions of yards were included. Intensive pedestrian survey methods were used, consisting of walking parallel transects spaced at no more than five meters apart. All visible ground surfaces were inspected for archaeological material. When ground visibility was poor, cleared areas and areas disturbed by rodents along and between transects were checked with special attention. Survey coverage was approximately 95%. The APE consists of both residential and agricultural areas. Ground visibility was fair throughout, averaging approximately 80%. No cultural resources were noted as a result of the survey.

Consultation with Interested Parties

ICF contacted the Native American Heritage Commission (NAHC) to request a search of its sacred lands database and provide a list of Native American representatives who might have any information or concerns regarding the project area. The NAHC responded on June 4, 2013 that its search did not indicate the presence of Native American cultural resources in the project area, and provided contact information for ten local Native American representatives. On July 18, 2013, ICF sent letters with project details and a location map to the representatives. On August 5, 2013, Ms. Silvia Burley, Chairperson of the California Valley Miwok Tribe responded via facsimile. In her fax, Ms. Burley noted that since the project is near Littlejohns Creek, there is an increased possibility of uncovering Miwok-related cultural resources. Ms. Burley requested to be notified if any Miwok artifacts and/or human remains are discovered at the project site. No other responses from other Native American representatives contacted have been received, to date.

On August 5, 2013, ICF contacted the Escalon Historical Museum and the San Joaquin County Historical Society and Museum to request any information these historical societies might have regarding the project area. To date, no responses have been received.

The County has received one letter from the United Auburn Indian Community regarding AB 52 consultation. ICF sent an informal response thanking them for their interest in the project, but that they were outside the project area. No request to consult was received, and there were no other requests for AB 52 consultation.

Discussion

Checklist item: a

No historical resources are located within the immediate project area and therefore there would be no direct impacts from the proposed project. An abandoned segment of the SPRR rail line is located approximately 0.08-mile northeast of the project area. Shady Grove/Farmington Schools is located on SR-4 approximately 0.30-miles north of the project. Neither resource is visible from the project

site. These potential historical resources have not been formally evaluated. Project activities (i.e., bridge replacement) would not encroach on either the railroad or the school and would not result in any indirect impact on a potential historical resource. Therefore, there would be no impact on the significance of a historical resource as defined in Section 15064.5.

Checklist item: b

The proposed project would not be likely to result in a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5 because the background investigation and field surveys conducted for the proposed project determined that the possibility of encountering buried archaeological resources within the area that would be disturbed by the project components is low. However, the possibility exists that buried archaeological resources (that may meet the definition of historical resource or unique archaeological resource) are present in the project area. If any buried resources were encountered and damaged during construction, the destruction of buried archaeological resources would be considered a potentially significant impact. Implementation of Mitigation Measure CUL-1 would reduce this impact to a less-than-significant level.

Mitigation Measure CUL-1: Implement Measures to Protect Previously Unidentified Cultural Resources

- The County shall ensure that construction specifications include the following information in the grading notes:

Construction shall stop if potential cultural resources are encountered. It is possible that previous activities have obscured surface evidence of cultural resources. If signs of an archeological site, such as any unusual amounts of stone, bone, or shell, are uncovered during grading or other construction activities, work will be halted within 100 feet of the find and the County will be notified. A qualified archeologist will be consulted for an onsite evaluation. If the site is or appears to be eligible for listing in state or federal registers, additional mitigation, such as further testing for evaluation or data recovery, may be necessary.

- In the event resources are discovered, the County will retain a qualified archaeologist to assess the find, and to determine whether the resource requires further study. Any previously undiscovered resources found during construction will be recorded on appropriate California Department of Parks and Recreation (DPR) 523 forms and evaluated for significance under all applicable regulatory criteria.
- All work will stop in the immediate vicinity of the find, and if the find is determined to be an important cultural resource, the County will make available contingency funding and a time allotment sufficient to allow recovering an archaeological sample or to implement an avoidance measure. Construction work can continue on other parts of the project while archaeological mitigation takes place.

Checklist item: c

Farmington Memorial Cemetery is located adjacent to the project area; however, ground disturbing activities are not anticipated to impact any portion of the cemetery grounds. Neither the results of the records search nor the pedestrian indicate that human remains are present in the project area. However, there is always the possibility that ground-disturbing activities during construction may

uncover previously unknown buried human remains, which would be a potentially significant impact. Implementation of Mitigation Measure CUL-2 would reduce this impact to a less-than-significant level.

Mitigation Measure CUL-2: Implement Measures if Construction Activities Inadvertently Discover or Disturb Human Remains

- The County shall ensure construction specifications include the following in the grading notes:

If human remains are discovered during any phase of construction, including disarticulated or cremated remains, the construction contractor will immediately cease all ground-disturbing activities within 100 feet of the remains and notify the County.

In accordance with California State Health and Safety Code Section 7050.5, no further disturbance will occur until the following steps have been completed:

The County Coroner has made the necessary findings as to origin and disposition pursuant to Public Resources Code (PRC) § 5097.98.

If the remains are determined by the County Coroner to be Native American, the Native American Heritage Commission (NAHC) will be notified within 24 hours, and the guidelines of the NAHC shall be adhered to in the treatment and disposition of the remains.

It is further recommended that a professional archaeologist with Native American burial experience conduct a field investigation of the specific site and consult with the Most Likely Descendant (MLD), if any, identified by the NAHC. As necessary and appropriate, a professional archaeologist may provide technical assistance to the MLD, including but not limited to, the excavation and removal of the human remains.

VI. Geology and Soils	Potentially Significant Impact	Less-than- Significant with Mitigation Incorporated	Less-than- Significant Impact	No Impact
Would the project:				
a. 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? Refer to Division of Mines and Geology Special Publication 42.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2. Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4. Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. 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 onsite or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e. 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Affected Environment

Regulatory Setting

Federal

Clean Water Act Section 402 (National Pollutant Discharge Elimination System Program)

The Clean Water Act (CWA) is discussed in Section 2.9, *Hydrology and Water Quality*. However, because CWA Section 402 is directly relevant to grading activities, additional information is provided herein.

Section 402 of the CWA mandates that certain types of construction activity comply with the requirements of the EPA's National Pollutant Discharge Elimination System (NPDES) program. EPA has delegated to the State Water Resources Control Board (State Water Board) the authority for the NPDES program in California, where it is implemented by the state's nine Regional Water Quality Control Boards (Regional Water Boards). 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 (Order 2010-0014-DWQ). EPA has delegated responsibility for CWA implementation to the State Water Board.

State

Alquist-Priolo Earthquake Fault Zoning Act

California's Alquist-Priolo Earthquake Fault Zoning Act (Alquist-Priolo Act) (Public Resources Code [PRC] Section 2621 et seq.), originally enacted in 1972 as the Alquist-Priolo Special Studies Zones Act and renamed in 1994, is intended to reduce risks 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 occupancy² across the traces of active faults and strictly regulates construction in the corridors along active faults (earthquake fault zones). The Act 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 shows evidence of surface displacement during Holocene time (defined for purposes of the Act as referring to approximately the last 11,000 years). A fault is considered well-defined if its trace can be identified clearly 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 Sections 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,

² With reference to the Alquist-Priolo Act, a *structure for human occupancy* is defined as one "used or intended for supporting or sheltering any use or occupancy, which is expected to have a human occupancy rate of more than 2,000 person-hours per year" (California Code of Regulations, Title 14, Div. 2, Section 3601[e]).

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 within seismic hazard zones until appropriate site-specific geologic and/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 (2010-0014-DWQ Permit)

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 General Permit Order 2010-0014-DWQ (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.

Coverage under the General Permit is obtained by submitting permit registration documents to the State Water Board that include a risk level assessment and a site-specific stormwater pollution prevention plan (SWPPP) identifying an effective combination of erosion control, sediment control, and non-stormwater BMPs. The General Permit requires that the SWPPP define a program of regular inspections of the BMPs and, in some cases, sampling of water quality parameters.

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 Regional Water Board 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. Each regulated MS4 is required to develop and implement a storm water management program (SWMP) to reduce the contamination of stormwater runoff and prohibit illicit discharges.

The County of San Joaquin is covered by an MS4 permit.

Local

San Joaquin County General Plan

The Seismic and Geologic Hazards section of the Public Health and Safety Element of the San Joaquin County General Plan contains the following objectives and policies related to geologic hazards and protection of paleontological resources (San Joaquin County 1992:V-3).

Objectives

1. To reduce the risk to life and property and increased governmental cost from potential seismic occurrences.
2. To minimize the adverse economic, social and physical impacts from geologic hazards.

Policies

1. The risk to human safety and property from seismic and geologic hazard shall be considered in determining the location and intensity of development and the conditions under which it may occur.

San Joaquin County General Design Standards

Chapter 2, Roadway Design Standards of the County's General Design Standards establishes minimum design standards for the design and construction of public and private roadways, alleys, driveways, bike paths and all associated appurtenances such as sidewalks, curbs, gutters, street lights, barriers, signs, etc., in all unincorporated areas of the San Joaquin County. All roadway projects are required to comply with these minimum design standards. The design of roadway improvements shall adhere to sound engineering principles and good civil engineering practice.

Existing Conditions

The following existing conditions and impacts discussion for geology have been compiled from the geological report prepared for the project: *Foundation Report Escalon Bellota Rd Bridge Over Littlejohns Creek (Replace)* (Group Delta Consultants 2015).

Regional Geology

The project site is located in the Great Valley Geomorphic Province of California, which is a large northwest-trending valley extending roughly from the Tehachapi Mountains at the south to the Klamath Mountains at the north and is bound by the Coastal Range to the west and the Sierra Nevada to the east. The majority of the Great Valley Province is covered by recent and Pleistocene alluvial soils which were eroded from the Coastal Range and Sierra Nevada mountains and carried by streams to the broad flat valley floor of the Great Valley of California, which is also referred to as the Central Valley.

The published geology for this area indicates the project site is predominantly underlain by alluvial deposits of the Modesto Formation (Qm), which consist of ancient alluvial fans of the San Joaquin River.

Site Geology

The topography at Escalon Bellota Road profile where it crosses over the Littlejohns Creek is relatively level with the elevation at approximately 110 - 115 feet above mean sea level. The elevation of the bottom of the creek is at about 90 feet.

The surficial deposit beneath the project site is the Modesto Formation (Wagner et al. 1991). The Modesto Formation is made up of arkosic gravel, sand, and silt laid down in an alluvial/fluvial environment during the last major series of depositional events in the eastern San Joaquin Valley (Marchand and Allwardt 1981). These deposits, representing sediment eroded from the uplifting, ice-capped Sierra Nevada, occur as a series of coalescing alluvial fans that once extended from the Kern River on the south to the Sacramento River tributaries on the north (Marchand and Allwardt 1981).

There are no active faults in the project area, and the nearest active fault is the Greenville fault, which is approximately 20 miles west of Stockton (California Geological Survey 2010).

According to the California Geological Survey (2003) Earthquake Shaking Potential for California map, the shaking intensity likely to be experienced in the project area is fairly low relative the rest of California.

Liquefaction is the process in which soils and sediments lose shear strength and fail during seismic ground shaking. The vibration caused by an earthquake can increase pore pressure in saturated materials. If the pore pressure is raised to be equivalent to the load pressure, this causes a temporary loss of shear strength, allowing the material to flow as a fluid. This temporary condition can result in severe settlement of foundations and slope failure. The susceptibility of an area to liquefaction is determined largely by the depth to groundwater and the properties (e.g., texture and density) of the soil and sediment within and above the groundwater.

Subsurface conditions at the project site consist of stiff to hard cohesive soils to approximate average elevation of 97 feet overlying medium dense to very dense cohesionless soils to elevations of 75 to 70 feet and below that interbedded layers of dense cohesionless soils and very stiff cohesive soil materials. The potential for liquefaction at the site was evaluated using design Peak Ground Acceleration (PGA) of 0.24g, earthquake magnitude of 6.6 and a design groundwater elevation of 90 feet. Although a medium dense sandy layer exists below groundwater level, the results of the analysis indicate that due to relatively low seismicity of the project site, liquefaction is not an issue. Since there is no liquefaction, seismic slope stability and lateral spreading are not a significant design concern.

Subsidence is the sinking of a large area of ground surface in which the material is displaced vertically downward, with little or no horizontal movement. Many areas in the Central Valley have experienced subsidence, most notably the San Joaquin Valley and San Joaquin-Sacramento Rivers Delta (Delta).

Expansive soils (also known as soils with a high shrink-swell potential) are known to occur in the Stockton area. These are typically clayey soils. Soils with a moderate to high shrink-swell potential expand and contract with changes in moisture content and therefore do not provide a suitable substrate for construction without modification. According to the geological foundation report prepared for the project, there is no evidence of landslides, embankment failures, subsidence, expansive soils or soil collapse potential at the site (Group Delta Consultants 2015).

Paleontological Resources

The project site is immediately underlain by the Modesto Formation of Late Pleistocene (Wagner et al. 1991). The Modesto Formation is made up of arkosic gravel, sand, and silt laid down in an alluvial/fluvial environment during the last major series of depositional events in the eastern San Joaquin Valley (Marchand and Allwardt 1981). These deposits, representing sediment eroded from the uplifting Sierra Nevada, occur as a series of coalescing alluvial fans that once extended from the Kern River on the south to the Sacramento River tributaries on the north (Marchand and Allwardt 1981). California's Pleistocene sedimentary units—especially those that, like the Modesto Formation, record deposition in continental settings—are typically considered highly sensitive for paleontological resources because of the large number of recorded fossil finds in such units throughout the state.

Professional standards of practice adopted by the Society of Vertebrate Paleontology (SVP) (2010) offer guidance for control and mitigation of adverse impacts on paleontological resources. According to SVP, an area is considered to have a high potential (sensitivity) to contain fossils if it is a unit “vertebrate or significant invertebrate, plant, or trace fossils have been recovered.”

Consistent with this general pattern, the University of California Berkeley Museum of Paleontology (2017) database contains 28 records for vertebrate finds in sediments of Pleistocene age in San Joaquin County. Although the formation name is not identified for these fossil-bearing units, some of these localities may be in the Modesto Formation and/or correlative units. In addition, several vertebrate finds have been recorded in strata explicitly assigned to the Modesto Formation. None of these localities is within San Joaquin County or the immediate project vicinity, although several are in neighboring Stanislaus County. Nonetheless, based on the general sensitivity of the Pleistocene strata in California, the number of recorded vertebrate finds in Pleistocene units in San Joaquin County, and the known presence of vertebrate remains in the Modesto Formation at sites in the project region, the Modesto Formation should be considered highly sensitive for paleontological resources.

Discussion

Checklist item: a1

There are no known active faults in or near the project site. There would be no impact. No mitigation is required.

Checklist item: a2

The risk of strong seismic ground shaking is low to moderate. Compliance with the appropriate San Joaquin County General Design Standards, would ensure that roadway and bridge improvements would not pose a risk to human life as a result of seismic activity. This impact would be less than significant. No mitigation is required.

Checklist item: a3

As discussed above, the risk of seismic-related ground failure at the project site is considered low. Site-specific geotechnical investigation was employed to determine the actual risk, particularly related to liquefaction. As a result, the geotechnical investigation indicates that there is no evidence of landslides, embankment failures, subsidence, expansive soils or soil collapse potential at the site and therefore, the risk of seismic-related failure would be low. In addition, the San Joaquin County

Department of Public Works would ensure the project design complies with the Standards to ensure that earthquake design and construction measures are implemented. This impact would be less than significant. No mitigation is required.

Checklist item: a4

Site-specific geotechnical investigation indicates that there is no evidence of landslides, or embankment failures, or soil collapse potential at the site and therefore, the risk of landsliding failure would be low. In addition, the project would comply with the CBSC building standards. This impact would be less than significant. No mitigation is required.

Checklist item: b

Ground-disturbing earthwork associated with construction at the project site may increase soil erosion rates and/or loss of topsoil. These activities include excavation and grading. This impact could be significant; however, compliance with the erosion-related regulations applicable to the project would ensure that the construction activities do not result in significant erosion. These regulations are the SWPPP that is developed for the site, and the SWQCCP. This impact would be less than significant. No mitigation is required.

Checklist item: c

The project site is nearly level, so there is little risk of landslide or collapse. In addition, subsidence is not an issue of concern in the project area. Liquefaction risk is also considered low. Improperly designed cuts or fills could result in lateral spreading but would be addressed by geotechnical investigation and compliance with the design standards. There would be no impact. No mitigation is required.

Checklist item: d

Site-specific geotechnical investigation indicates that there is no evidence of expansive soils at the site. The project would comply with the site-specific design and construction methods and the building code to ensure that damage related to expansive soils does not occur. This impact would be less than significant. No mitigation is required.

Checklist item: e

No septic tanks or alternative wastewater disposal systems are proposed as part of the project. There would be no impact. No mitigation is required.

Checklist item: f

If fossils are present in the project area, they could be damaged by earth-disturbing activities (i.e., grading and trenching) during construction. The Modesto Formation, which underlies the project site, has high sensitivity for paleontological resources. Though most project construction will result in minimal excavation, substantial damage to or destruction of significant paleontological resources as defined by the SVP (2010) would be a significant impact. Implementation of Mitigation Measure GEO-1 would reduce this impact to a less-than-significant level.

Mitigation Measure GEO-1: Implement Paleontological Sensitivity Measures

Educate Construction Personnel: The County will ensure through specification in all construction contracts that prior to beginning construction all construction personnel will receive training provided by a qualified professional paleontologist experienced in teaching non-specialists, to ensure that they can recognize fossil materials in the event any are discovered during construction.

Stop work if substantial fossil remains are encountered during construction: If substantial fossil remains (particularly vertebrate remains) are discovered during earth disturbing activities, activities will stop immediately until a state-registered professional geologist or qualified professional paleontologist can assess the nature and importance of the find and a qualified professional paleontologist can recommend appropriate treatment. Treatment may include preparation and recovery of fossil materials so that they can be housed in an appropriate museum or university collection and may also include preparation of a report for publication describing the finds. The applicant will be responsible for ensuring that recommendations regarding treatment and reporting are implemented.

Retain a qualified professional paleontological monitor as necessary: The County will retain a qualified professional paleontologist as defined by the SVP Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources (2010) to monitor activities with the potential to disturb units sensitive for paleontological resources. Data gathered during detailed project design will be used to determine the activities that will require the presence of a monitor. In general, these activities include any ground-disturbing activities involving excavation deeper than 3 feet. Recovered fossils will be prepared so that they can be properly documented. Recovered fossils will then be curated at a facility that will properly house and label them, maintain the association between the fossils and field data about their provenance, and make the information available to the scientific community.

VII. Greenhouse Gas Emissions	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Affected Environment

Regulatory Setting

Federal Regulations

There is currently no federal overarching law specifically related to climate change or the reduction of greenhouse gas (GHG) emissions. Under the Obama Administration, the U.S. Environmental Protection Agency (EPA) had been developing regulations under the Clean Air Act (CAA) pursuant to USEPA’s authority under the CAA.³ There have also been settlement agreements between EPA, several states, and nongovernmental organizations to address GHG emissions from electric generating units and refineries, as well as the EPA’s issuance of an “Endangerment Finding” and a “Cause or Contribute Finding.” EPA has also adopted a Mandatory Reporting Rule and Clean Power Plan. Under the Clean Power Plan, EPA issued regulations to control carbon dioxide (CO₂) emissions from new and existing coal-fired power plants. However, on February 9, 2016 the Supreme Court issued a stay of these regulations pending litigation. Current EPA Administrator Scott Pruitt has also signed a measure to repeal the Clean Power Plan. The fate of the proposed regulations is uncertain given the change in federal administrations and the pending deliberations in federal courts.

State Regulations

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. The Governor of California has also issued several executive orders (EOs) related to the state’s evolving climate change policy. Of particular importance are Assembly Bill (AB) 32 and Senate Bill (SB) 32, which outline the state’s GHG reduction goals of achieving 1990 emissions levels by 2020 and a 40% reduction below 1990 emissions levels by 2030.

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

³ In *Coalition for Responsible Regulation, Inc., et al. v. EPA*, the United States Court of Appeals upheld EPA’s authority to regulate GHG emissions under the CAA.

action plans. Summaries of key policies, legal cases, regulations, and legislation at the state levels that are relevant to the project are provided below.

Executive Order S-3-05 (2005)

EO S-3-05 asserted that California is vulnerable to the effects of climate change. To combat this concern, the order established the following GHG emissions reduction targets.

- By 2010, reduce GHG emissions to 2000 levels.
- By 2020, reduce GHG emissions to 1990 levels.
- By 2050, reduce GHG emissions to 80 percent below 1990 levels.

Executive Orders are legally binding only on state agencies. Accordingly, EO S-3-05 guides state agencies' efforts to control and regulate GHG emissions but has no direct, binding effect on local government or private actions. The secretary of the California Environmental Protection Agency (CalEPA) is required to report to the governor and state legislature biannually regarding the impacts of global warming on California, mitigation and adaptation plans, and progress made toward reducing GHG emissions to meet the targets established in this EO.

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

AB 32 codified the state's 2020 GHG emissions target by requiring that the state's global warming emissions be reduced to 1990 levels by 2020. The first update to the AB 32 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. As discussed below under SB 32, ARB adopted the *2017 Climate Change Scoping Plan* in November 2017.

State CEQA Guidelines

The State CEQA Guidelines 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 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; and offsite measures, including offsets that are not otherwise required.

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

California EO S-01-07 mandates (1) that a statewide goal be established to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020, and (2) that a low-

carbon fuel standard for transportation fuels be established in California. The executive order initiates a research and regulatory process at ARB.

Senate Bill 32 and Assembly Bill 197 (2016)

SB 32 (2016) requires ARB to ensure that statewide GHG emissions are reduced to at least 40 percent below the 1990 level by 2030. The companion bill, AB 197, creates requirements to form a Joint Legislative Committee on Climate Change Policies, requires the ARB to prioritize direct emission reductions and consider social costs when adopting regulations to reduce GHG emissions beyond the 2020 statewide limit, requires ARB to prepare reports on sources of GHGs and other pollutants, establishes 6-year terms for voting members of ARB, and adds two legislators as non-voting members of ARB.

CARB adopted the *2017 Climate Change Scoping Plan* in November 2017 to meet the GHG reduction requirement set forth in SB 32. It proposes continuing the major programs of the previous Scoping Plan, including Cap-and-Trade Regulation, LFCS, more efficient cars, trucks, and freight movement, RPS, and reducing methane emissions from agricultural and other wastes.

Executive Order B-55-18 (2018)

EO B-55-18 establishes a statewide goal to achieve carbon neutrality by 2045 and to achieve and maintain net negative emissions thereafter. This goal is in addition to the statewide targets for reducing GHGs set in EO S-3-05 and SB 32.

Regional and Local Regulations

San Joaquin Valley Air Pollution Control District

In December 2009, the San Joaquin Air Pollution Control District (SJVAPCD) formally adopted the region's first GHG thresholds for determining significant climate change impacts of projects in the district's boundaries. The guidance is intended to streamline CEQA review by quantifying emissions reductions that would be achieved through the implementation of Best Performance Standards (BPS). These thresholds are incorporated into SJVAPCD's updated 2015 *Guidance for Assessing and Mitigating Air Quality Impacts* (GAMAQI) (San Joaquin Valley Air Pollution Control District 2015).

In addition, SJVAPCD has established a zero equivalency level which specifies a level of GHG emissions that would be considered equivalent to zero for CEQA purposes. Projects with GHG emissions less than 230 metric tons of CO_{2e} per year are considered by SJVAPCD to be zero and would not require further environmental review for GHG impacts (San Joaquin Valley Air Pollution Control District 2012).

Existing Conditions

The specific chemical properties of GHGs enable them to become well mixed within 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 analytic approach. The following subsections provide background information on global climate change and principal GHGs associated with implementation of the project.

Greenhouse Effect and Climate Change

Climate change is a complex phenomenon that has the potential to alter local climatic patterns and meteorology. Increases in anthropogenic GHG emissions have been unequivocally linked to recent warming and climate shifts (Intergovernmental Panel on Climate Change 2014). Although modeling indicates that climate change will result globally and regionally, there remains uncertainty with regard to characterizing the precise local climate characteristics and predicting precisely how various ecological and social systems will react to any changes in the existing climate at the local level. Regardless of this uncertainty in precise predictions, it is widely understood that some degree of climate change is expected as a result of past and future GHG emissions.

The most common GHGs resulting from human activity are CO₂, methane (CH₄), and nitrous oxide (N₂O). State CEQA Guidelines also define GHGs to include perfluorinated carbons (PFCs), sulfur hexafluoride (SF₆), and hydrofluorocarbons (HFCs), although these would not be generated by the proposed project. Unlike criteria air pollutants, which occur locally or regionally, the long atmospheric lifetimes of these GHGs allow them to be well-mixed in the atmosphere and transported over distances. Within California, transportation is the largest source of GHG emissions (39% of emissions in 2015), followed by industrial sources (23%) and in-state electricity generation (11%) (California Air Resources Board 2017).

Discussion

As discussed in the *Air Quality* section, the proposed project would not affect vehicle miles traveled or traffic speeds in the project area. There would therefore be no change in operational GHG emissions, relative to existing conditions. As such, operational GHG were not quantified and are not discussed further as there would be no impact associated with the project operation.

Checklist item: a

Construction of the proposed project would generate emissions of CO₂, CH₄, and N₂O from mobile and stationary construction equipment exhaust and employee and haul truck vehicle exhaust. Emissions were estimated using Sacramento Metro Air Quality Management Districts (SMAQMD) Road Construction Emissions Model (RCEM) (Version 8.1.0) and are summarized in Table 2-10. All emissions would occur in 2018, and have been amortized over a 20-year operational life, consistent with SJVAPCD guidance (2011). Please refer to Appendix A for assumptions used in the air quality analysis.

Table 2-10. Estimated Greenhouse Gas Emissions from Project Construction (metric tons/year)

	CO ₂	CH ₄	N ₂ O	CO ₂ e ^a
Total (2018)	439.0	0.1	<0.1	443.0
Amortized (20 years)	29.3	<0.1	<0.1	29.5

CH₄ = methane.

CO₂ = carbon dioxide.

CO₂e = carbon dioxide equivalent.

N₂O = nitrous oxide.

^a Refers to carbon dioxide equivalent, which includes the relative warming capacity (i.e., global warming potential) of each GHG.

As shown in Table 2-10, project construction would generate approximately 443.0 metric tons of CO₂e. The construction emissions are primarily the result of diesel powered construction equipment (e.g., excavators, loaders). Because construction emissions would cease once construction is complete, they are considered short-term. When, amortized over 20 years (length of the horizon year), GHG emissions would be approximately 29.5 metric tons of CO₂e per year. This would be less than 230 metric tons CO₂e per year, which is the level considered to be equivalent to zero by SJVAPCD (San Joaquin Valley Air Pollution Control District 2012). Therefore, construction related GHG emissions would have less than significant project and cumulative impacts.

Checklist item: b

AB 32 establishes a statewide goal to reduce GHG emissions back to 1990 levels by 2020. SB 32 establishes a statewide goal to reduce GHG emissions to at least 40 percent below 1990 levels by 2030. The ARB adopted the Scoping Plan as a framework for achieving AB 32 and SB 32 goals and support SB 100. The Scoping Plan outlines a series of technologically feasible and cost-effective measures to reduce statewide GHG emissions.

The 2017 Climate Change Scoping Plan target sources with the greatest GHG emissions potential, including transportation, land use, building energy consumption, and waste generation. Construction activities such as those caused by the project are not specifically considered within the plan, and as such, none of the measures outlined in the Scoping Plan are directly applicable to the construction activities of the project. Accordingly, implementation of the project would not conflict with adopted plans for reducing GHG emissions. In addition, amortized GHG emissions would be below SJVAPCD's net-zero equivalency level. Therefore, this impact would be less than significant.

In terms of energy, the project is not considered a major project that would require a detailed discussion of direct and indirect energy impacts. The proposed project would replace the existing bridge within the project limits to improve safety. During construction, energy use would primarily involve fuel consumption during (e.g., use of construction equipment and onroad vehicles). This consumption would be temporary in nature and would cease once construction is complete. Direct energy use is not anticipated during operation. Indirect energy use such as fuel consumption by vehicles utilizing the roadway would occur. However, the proposed project is not anticipated to substantially increase vehicle traffic. When balancing energy used during construction and operation against energy saved by relieving congestion and other transportation efficiencies, the project would not have substantial energy impacts.

VIII. Hazards and Hazardous Materials	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Emit hazardous emissions or involve handling hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e. Be located within an airport land use plan area or, where such a plan has not been adopted, be within two miles of a public airport or public use airport, and result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f. Be located within the vicinity of a private airstrip and result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
h. Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Affected Environment

Regulatory Setting

Federal

Clean Water Act

Section 402 establishes the NPDES, a permitting system for the discharge of any pollutant (except for dredged or fill material) into waters of the United States. This permit program is administered by the Central Valley Water Board. The proposed project would have a footprint greater than 1 acre. As a result, it will be necessary to obtain an NPDES General Construction Permit prior to any construction activities. One requirement for an NPDES permit is the development and implementation of a SWPPP that provides BMPs to prevent the discharge of pollutants and sediments into receiving waters.

State

State agencies accept delegation of federal responsibility for the administration of hazardous materials and hazardous waste management. The Porter-Cologne Act allows the State Water Resources Control Board (State Water Board) and the Regional Water Boards to accept implementation and responsibility for the CWA. The Hazardous Waste Control Act of 1977, and recent amendments to its implementing regulations, has given the California Department of Health Services (DHS) the lead role in administering the Resource Conservation and Recovery Act (RCRA) program.

State and Federal Occupational Safety and Health Administration Regulations

Pursuant to the Occupational Safety and Health Act of 1970, the federal Occupational Safety and Health Administration (OSHA) has adopted numerous regulations pertaining to worker safety, contained in the CFR Title 29. These regulations set the standards for safe work practices and work places, including standards relating to the handling of hazardous materials. The California Occupational Safety and Health Administration (Cal-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.

Cal-OSHA regulations are generally more stringent than federal OSHA regulations and are detailed in Title 8 of the California Code of Regulations (CCR).

Local

San Joaquin County Multi-Hazard Plan

The *San Joaquin County Multi-Hazard Plan* addresses the four phases of emergency management: mitigation, preparedness, response, and recovery. The Multi-Hazard Plan identifies those organizations, agencies, and individuals that are assigned duties and responsibilities for responding to emergencies within the unincorporated areas of the county and in support of incorporated cities. It also provides guidance on how emergencies will be managed.

San Joaquin County Environmental Health Department

The San Joaquin County Environmental Health Department (EHD) is the Certified Unified Program Agency (CUPA)—the agency certified by the California Secretary of Environmental Protection to implement the Unified Hazardous Waste and Hazardous Materials Management Regulatory Program specified in Health and Safety Code Chapter 6.11—for San Joaquin County. As such, EHD administers the Hazardous Waste Generator, Hazardous Waste Onsite Treatment (Tiered Permitting) and Underground Storage Tank programs.

San Joaquin County General Plan

Several sections of the San Joaquin County General Plan Public Health and Safety Element include following pertinent objectives and policies (San Joaquin County 1992:V-8, V-11–V-12, V-14–V-15) as listed below

Objectives***Fire Safety and Law Enforcement***

1. To provide fire protection and law enforcement for the public's health and safety.

Hazardous Materials and Waste

1. To protect the environment and the public health and safety from past, present and future exposure of hazardous materials and hazardous wastes.

Emergency Preparedness

1. To minimize loss of life, damage to the environment and the destruction of property from natural or man-made emergencies.
2. To maintain continuous functioning of the social and physical networks of the County.

Policies***Hazardous Materials and Waste***

1. Hazardous materials and wastes shall not contaminate air or water resources or soils.
2. The use, storage and disposal of hazardous materials or wastes shall be controlled to prevent harm to individuals.
4. The use of hazardous materials and the creation of hazardous waste shall be minimized.

Emergency Preparedness

1. The County shall be prepared to respond effectively to emergencies.
5. Adequate primary and alternative access for emergency vehicles shall be provided to all new developments and maintained for existing development.

Best Management Practices

As discussed in the *Geology and Soils* section, a project that would disturb 1 or more acres of soil, or would disturb less than 1 acre but is part of a larger common plan of development must obtain coverage under the General Permit Order 2010-0014-DWQ. Coverage under the General Permit requires the development and implementation of a stormwater pollution prevention plan SWPPP. A SWPPP includes plans for erosion and sediment control and adheres to the County's grading

ordinance and BMPs. Standard BMPs used during construction for erosion control include the following.

- Limit construction access routes and stabilize designated access points.
- No cleaning, fueling, or maintaining vehicles onsite, except in a designated area where washwater is contained and treated.
- Properly store, handle, and dispose of construction materials/wastes to prevent contact with stormwater.
- Train and provide instruction to all construction contract employees/subcontractors on implementation of the BMPs.

Control and prevent the discharge of all potential pollutants, including pavement cutting wastes, paints, concrete, petroleum products, chemicals, washwater or sediments, rinse water from architectural copper, and non-stormwater discharges to storm drains and watercourses.

San Joaquin County Standard Specifications and Special Provisions

The Standard Specifications and Special Provisions (SSSP) are intended as guidelines for the County's minimum requirements and apply to materials and construction methods for the construction of public and private improvements within County rights-of-way or easements. Section 5-1.03, Public Safety and Section 7, Maintaining Traffic, outline required procedures for maintaining traffic during construction such as submitting traffic control plans, safety signage, and maintaining an open lane at all times.

Existing Conditions

Records Review

A database search, compiled pursuant to Government Code Section 65962.5, was conducted for the project area by ICF. The only site listed is an investigation for contaminated soils of a potential school site located approximately 0.78 miles east of the project area. DTSC issued approval for a Preliminary Environmental Assessment and Supplemental Site Investigation Technical Memorandum December 19, 2006 with a determination of no further action required. Results of the database search indicate that there are no sites of concern listed in federal, state, or local database listings within the project area.

Historical Use of the Property

Based on historical aerial photographs reviewed, the project area has been a vehicle bearing road since 1915. Surrounding land uses, including along both sides of Escalon-Bellota Road, were primarily agricultural and shifted to residential beginning in the 1970s. Today, one of the original agricultural parcels remain.

Agricultural Chemicals and Pesticides

According to historic aerial and topographic maps, the project area consisted of primarily agricultural properties since at least the mid-1960s and likely much earlier. Today, several residential properties extend within or are immediately adjacent to the project corridor, particularly on the north side of Littlejohns Creek. One agricultural parcel is still present, on the southeast quadrant of the project area. It is likely that arsenic would be present in surface soils because

historical agricultural practices used herbicides that were organic compounds containing arsenic. Activities conducted on agricultural properties involve the use of agricultural chemicals (including pesticides, insecticides, and herbicides). Runoff from these properties may contain agricultural chemicals, which may have flowed onto the project area and into drainages.

Aerially Deposited Lead

Cherokee Road has been used by vehicles since at least 1915. As such, it is very likely that surface soils have been affected by aerially deposited lead (ADL). ADL is attributed to the historic use of leaded gasoline. Areas of primary concern are soils along routes that have had high vehicle emissions from large traffic volumes or congestion during the time when leaded gasoline was in use (generally prior to 1986). Typically, ADL is found in the top 2 feet of material in areas within the road ROW. Residual ADL can build up in surface soils and be transmitted into drainages through runoff. Escalon-Bellota Road is not considered to be a road with a high volume of traffic. Also, it is assumed that the soils along the project have been disturbed during previous roadway maintenance and widening, and, as such, it is not expected that a significant build-up of ADL or any other chemical of concern would be present throughout the project area.

Yellow Pavement Striping

Yellow pavement striping and markings are located along the entire length of Escalon-Bellota Road. California Department of Transportation (Caltrans) studies have determined that yellow thermoplastic striping and yellow painted markings may contain elevated concentrations of lead chromate and/or hexavalent chromium depending on the age of the striping (manufactured before 2005) and painted markings (manufactured before 1997).

Nearby Schools and Airports

The nearest school to the project is the Farmington Elementary School (25233 East Highway 4), approximately 0.30 miles north of the project.

The closest public airport to the project is the Stockton Metropolitan Airport, approximately 13 miles west of the project, and the nearest private airstrip is JB Airport, approximately 1 mile northwest of the project.

Fire Protection

According to the Cal Fire San Joaquin County Natural Hazard Disclosure (Fire) map (California Department of Forestry and Fire Protection 2007), the proposed project is not located in a fire hazard region. The San Joaquin County Fire Department contracts with Stockton Fire Department and the Eastside Fire District to serve the project area.

Discussion

Checklist item: a

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 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.

Because previous and current land uses include agricultural land uses, the potential exists for agricultural chemicals (e.g., pesticides/herbicides) to be present within the project area. One agricultural parcel is located adjacent to the existing roadway. However, project construction will not require soils to be moved from agricultural parcels, therefore, impacts related to the potential release of pesticides and herbicides would be less than significant.

Some older pavement striping may contain lead chromate. If striping along the roadway requires removal, this impact could be significant. However, Escalon-Bellota Road was resurfaced in 2012. Since recent striping materials do not contain lead, worker safety while removing striping is ensured and would not be considered a hazardous material.

ADL may be encountered in the surface and near-surface soils within 50 feet of major roadways due to the past use of lead additives in gasoline. Although Escalon-Bellota Road was not as heavily traveled in the past as it is today, it was in existence when leaded gasoline was in use; therefore, this impact could be significant.

Implementation of the following mitigation measure would reduce impacts to less than significant.

Mitigation Measure HAZ-1: Conduct a preliminary investigation and screening for aerial-deposited lead

Construction contract specifications will provide that if soils adjacent to the roadway are to be disturbed, the County or its contractors will conduct a preliminary investigation and screening for ADL to assess ADL levels in the surface and near-surface soils along the project alignment. If soils contain ADL in excess of established thresholds, soils will be handled in a manner compliant with the San Joaquin County CUPA regulatory requirements, and disposed of properly.

Checklist item: b

The proposed project could create a hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. Small quantities of potentially toxic substances (such as petroleum and other chemicals used to operate and maintain construction equipment) would be used in the project area and transported to and from the area during construction. Accidental releases of small quantities of these substances could contaminate soils and degrade the quality of surface water and groundwater, resulting in a public safety hazard. However, the handling and disposal of these materials would be compliant with regulations enforced by CUPA, and Cal-OSHA, as previously discussed. In addition, standard BMPs under the SWPPP, as discussed above, would further reduce the potential of an accidental release. Based on the regulatory requirements, this impact would be less than significant, and no mitigation is required.

Checklist item: c

There are no public or private K-12 schools within 0.25 mile of the project area. The nearest school is approximately 0.30 mile north of the project area. It is unlikely that hazardous materials would be emitted or released within 0.25 mile of any schools. Also, implementation of the standard BMPs by contractors would reduce the potential of a hazardous spill incident. There would be no impact.

Checklist item: d

The project corridor is not located on a Superfund or other National Priorities List (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.

Checklist item: e

The closest public airport to the project is the Stockton Metropolitan Airport, approximately 13 miles west of the project. The project is not within any airport land-use plan or safety zone. Therefore, there would be no impact.

Checklist item: f

The closest private airport to the project is the JB Airport, approximately 1 mile northwest of the project area. This airport has a single grass/sod runway used for single-engine airplanes. Although the project area is located within 2 miles of a private airstrip, there is no component of the proposed project that would interfere with the airplanes during takeoff or landing. Neither construction nor operation of the project would result in a safety hazard for people residing or working in the project area. Therefore, there would be no impact.

Checklist item: g

During construction, emergency access to and in the vicinity of the project site potentially could be affected by lane closures, detours, and construction-related traffic. As noted under *Traffic/Transportation*, Section 7 of San Joaquin County Standard Specifications and Special Provisions for maintaining traffic during construction would be implemented, requiring the preparation of a traffic control plan which would ensure there is no interference with emergency vehicles/services or response/evacuation plans. Therefore, the impact would be less than significant. No mitigation is required.

Checklist item: h

According to the Cal Fire San Joaquin County Natural Hazard Disclosure (Fire) map (California Department of Forestry and Fire Protection 2007), the proposed project is not located in a fire hazard region. There would be no impact associated with wildland fires. No mitigation is required.

IX. Hydrology and Water Quality	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge, resulting in a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of 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)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation onsite or offsite?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding onsite or offsite?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e. 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f. Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g. Place housing within a 100-year flood hazard area, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h. Place within a 100-year flood hazard area structures that would impede or redirect floodflows?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
i. 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
j. Contribute to inundation by seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Affected Environment

Regulatory Setting

Federal

Clean Water Act (33 USC 1251 et seq.)

The Clean Water Act (CWA) is the primary federal law protecting the quality of the nation's surface waters, including lakes, rivers, and coastal wetlands. The CWA prohibits any discharge of pollutants into the nation's waters unless specifically authorized by a permit. The CWA sections of applicable to the project are as follows.

- **Section 102** requires the planning agency of each state to prepare a basin plan to set forth regulatory requirements for protection of surface water quality, which include designated beneficial uses for surface water bodies, as well as specified water quality objectives to protect those uses.
- **Section 303(d)** requires each state to provide a list of impaired surface waters that do not meet or are expected not to meet state water quality standards as defined by that section. It also requires each state to develop total maximum daily loads (TMDL) of pollutants for impaired water bodies. The TMDL must account for the pollution sources causing the water to be listed.
- **Section 401** requires applicants for a federal license or permit to conduct activities that may result in the discharge of a dredged or fill material into waters of the United States to obtain certification that the discharge of fill will not violate water quality standards, including water quality objectives and beneficial uses. The certification is issued by the state in which the discharge would originate or from the interstate water pollution control agency with jurisdiction over affected waters. In California, the Regional Water Quality Control Boards (RWQCB) and the State Water Resources Control Board (SWRCB) issue Section 401 certifications.
- **Section 402** regulates all point source discharges, including, but not limited to, construction-related and post-construction runoff discharges to surface waters through the National Pollutant Discharge Elimination System (NPDES) program. The County must obtain an NPDES permit from the SWRCB.
- **Section 404** involves the USACE's and the U.S. Environmental Protection Agency's regulation of the discharge of dredged and fill materials into the waters of the United States. Project sponsors must obtain a permit from the USACE for discharges of dredged or fill materials into proposed jurisdictional waters.

State

- **Construction General Permit:** The latest NPDES General Permit for Storm Water Discharges Associated with Construction Activity (Order No. 2009-0009-DWQ, NPDES No. CAR000002) (Construction General Permit) was adopted by the SWRCB on September 2, 2009. Every construction project that disturbs 1 or more acres of land surface or that is part of a common plan of development or sale that disturbs more than 1 acre of land surface would require coverage under this Construction General Permit. In California, the SWRCB issues Construction General Permits. The proposed project does not discharge to a water body that is listed as impaired for sediment according to the Central Valley RWQCBs 303(d) list, or a waterbody

designated as having the following beneficial uses: SPAWN, COLD, and MIGRATORY. Therefore, the project will have a low receiving water risk and a maximum combined risk level of 2.

- **Low Threat Dewatering Permit:** Low-threat discharges are currently regulated by the Central Valley Water Board under a regional general permit, General Waste Discharge Requirements for Discharges of Groundwater from Construction and Project Dewatering to Surface Waters (Low Threat Dewatering Permit) (Order R5-2014-0030).
- **Central Valley Flood Protection Board (CVFPB) Encroachment Permit:** If a project is within or 300 feet of the Designated Floodway or regulated stream, an encroachment permit from the CVFPB may be required.

Existing Conditions

Surface Water Hydrology

The project area is located in the Rock Creek-French Camp Slough subwatershed within the larger Lower Calaveras-Mormon Slough watershed (U.S. Geological Survey Hydrologic Unit Code [HUC] 18040004); it is also within the Littlejohns Creek subwatershed, as described in the project Natural Environment Study. Littlejohns Creek is tributary to French Camp Slough, which is tributary to the San Joaquin River (ICF International 2016). The San Joaquin River flows northward into the Sacramento and San Joaquin Delta and discharges into the San Francisco Bay (California Department of Water Resources 2006). The lower Calaveras River Mormon Slough area covers approximately 115,000 acres and receives waters from the lower Calaveras River. The area is below the New Hogan Dam, and the four main tributaries are Cosgrove Creek, South Gulch, Indian Creek, and Duck Creek (Calaveras River Watershed 2007).

The topography in the area varies from relatively level to steep slopes on the banks of Littlejohns Creek, with elevations ranging from approximately 113 to 120 feet above mean sea level (ICF International 2016). Existing drainage is primarily roadside ditches, with culverts at driveways and some overside drains. Existing utilities include an underground water main, and a USACE gauging station (450 feet downstream of the bridge).

Groundwater Hydrology

The project is in the western central portion of the San Joaquin Valley Groundwater Basin, within the Eastern San Joaquin Subbasin. The Eastern San Joaquin Subbasin is bounded on the south, southwest, and west by the Modesto, Delta-Mendota, and Tracy Subbasins, respectively, and on the northwest and north by the Solano, South American, and Cosumnes Subbasins. The Solano and South American are subbasins of the Sacramento Valley Groundwater Basin.

The Eastern San Joaquin Subbasin is drained by the San Joaquin River and several of its major tributaries, primarily the Stanislaus, Calaveras, and Mokelumne Rivers. Annual precipitation within the subbasin ranges from about 11 inches in the southwest to about 25 inches in the northeast. A fairly continuous decline in groundwater levels has occurred in Eastern San Joaquin County (California Department of Water Resources 2006). Groundwater depths within the project area is unknown.

Water Quality

The Central Valley Region Water Quality Control Board Basin Plan lists the water quality objectives for the region's surface water as the following: bacteria, biostimulatory substances, chemical constituents, color, dissolved oxygen, floating material, mercury, methylmercury, oil and grease, pH, pesticides, radioactivity, salinity, sediment, settleable material, suspended material, tastes and odors, temperature, toxicity, and turbidity.

Beneficial uses are critical to water quality management in California. The Basin Plan identifies beneficial uses for water bodies within its jurisdiction. The beneficial uses of water that may be protected against quality degradation include but are not limited to "domestic, municipal, agricultural and industrial supply, power generation, recreation, aesthetic enjoyment, navigation, and preservation and enhancement of fish, wildlife, and other aquatic resources or preserves" (Water Code Section 13050). Protection and enhancement of existing and potential beneficial uses are primary goals of water quality planning.

Within the project limits, Littlejohns Creek is the only surface stream. No existing beneficial uses are listed for Littlejohns Creek. Littlejohns Creek is listed on the 2010 Integrated Report for *Escherichia coli* (*E. coli*) and an unknown toxicity. The expected TMDL completion date for both impairments is 2021 (State Water Resources Control Board 2011).

The Basin Plan lists the water quality objectives for the region's groundwater as the following: bacteria, chemical constituents, tastes and odors, toxicity, and radioactivity. The majority of the groundwater in the basin is characterized by calcium-magnesium bicarbonate or calcium-sodium bicarbonate types. Along the San Joaquin River, large areas of chloride type water occurs along the western margin of the subbasin (California Department of Water Resources 2006).

Flooding

The project area is located in Special Flood Hazard Zone AE, which represents areas subject to flooding by the 100-year flood event. Littlejohn Creek is designated as a regulated stream according to the California Code of Regulations, Title 23, Waters Division 1 (State of California Registrar 2009).

Discussion

Checklist item: a

Construction of the proposed project is expected to disturb more than 1 acre of land and, therefore, would be required to obtain a General NPDES Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (i.e., the Construction General Permit). Implementation of construction BMPs would ensure that water quality impacts would not occur from construction. Minimization measures would be implemented to control sediment and suspended solids from entering the waterway during construction. Further, all project construction activities would be subject to existing regulatory requirements. As required by the Construction General Permit, a SWPPP would be prepared and implemented. With implementation of the applicable BMP requirements and the construction SWPPP, the project would not violate any water quality standards or waste discharge requirements and this impact would be less than significant.

Checklist item: b

Construction of the project may require groundwater dewatering during excavation and installation of the bridge foundation piling at the bridge approaches. However, groundwater resources are not anticipated to be significantly affected because the required excavations would only intersect the shallow water table on a temporary basis during the construction period. This could result in short-term, localized alterations in groundwater levels near the surface in the immediate vicinity of the construction site, but this reduction would not cause a widespread, regional drawdown and would likely be quickly recharged due to saturated groundwater characteristics.

While small amounts of construction-related dewatering are covered under the General Construction Permit, the proposed project may also need to comply with the Central Valley RWQCB's Low Threat Dewatering Permit. The Dewatering Permit is for relatively pollutant-free wastewaters that pose little or no threat to water quality. The General Order covers discharges which are either four months or less in duration or have a daily average discharge flow of less than 0.25 MGD. If groundwater is found during construction it can be analyzed to determine its level of contamination and to determine the proper method of discharge. The project would also comply with Caltrans' *Field Guide to Construction Site Dewatering*, which provides the Resident Engineer with step-by-step instructions for overseeing dewatering operations on the construction site. This impact would be less than significant.

Checklist items: c and d

Construction activities, such as grading, vegetation removal, and establishing construction staging areas could temporarily alter existing drainage patterns, redirect stormwater runoff, and result in local (on-site) and temporary erosion or siltation. Slight changes to onsite drainage patterns could occur, but stormwater would continue to be discharged to the Littlejohn Creek. Stormwater runoff from Escalon-Bellota Road would be collected in ditches adjacent to the new roadway and conveyed back into Littlejohns Creek. The profile of the bridge would satisfy waterway opening requirements and provide positive drainage off the structure to avoid discharges directly into Littlejohn Creek. The existing drainage patterns and systems will be replicated to the extent feasible. In addition, the project would implement a SWPPP to minimize the potential for erosion and sedimentation into nearby drainage outlets during construction. Preparation and implementation of the SWPPP would reduce the potential for substantial erosion or siltation, on- or off-site, as a result of altering existing drainage patterns that would result in substantial erosion or siltation during construction. This impact would be less than significant.

Checklist item: e

The project would only result in a small increase in total impervious surface area. The new bridge and roadway approaches would involve minor additional impervious surface area compared to the existing structures once construction is completed. The project would pave new approach road connections. The existing drainage is composed of primarily roadside ditches, with culverts at driveways and some overside drains. Existing and proposed impervious areas consist of the paved areas of the project (i.e., the roadway and paved shoulder). The calculations for impervious area will be included as part of the 401 water quality certification which will be submitted after the 65% design is completed. This impact would be less than significant.

Checklist item: f

The project would involve land disturbance activities, such as grading for the new approach road connections, vegetation and tree removal, and excavation for pile driving. Potential sources of water pollution associated with this project include stormwater runoff containing sediment from soil erosion; petroleum and wear products from motor vehicle operation; and accidental spills of hazardous materials during construction activities. Contaminants in runoff from the road include sediment, oils and grease, and heavy metals. These contaminants may affect water quality objectives. However, commonly used construction activity best management practices (BMPs) will be implemented to minimize any potential impacts to the maximum extent practicable.

Equipment and construction materials would be temporarily stored and staged on the existing roadway and/or adjacent to the project site in a designated staging area north and south of the bridge, within the existing public right-of-way. The staging areas would be accessed directly from Escalon-Bellota Road, north and south of the existing bridge. The staging areas would be fully restored to their original condition after construction activities are completed. Construction is expected to require approximately 9 months (May–September) with approximately 5 months required for work within the creek. However, the majority of work will occur during the dry season. Project drainage features such as rock slope protection may be installed on creek banks at the bridge abutments to minimize erosion of the channel slopes and exposure of the abutment foundations. Other proposed project design features, including vegetated biostrips and bioswales, would provide stormwater treatment through soil infiltration and vegetative uptake as well as additional protection from erosion.

Implementation of the Stormwater Pollution Prevention Plan, BMPs, and Caltrans stormwater guidance measures would minimize the potential for construction-related surface water pollution and ensure that water quality in the Littlejohn Creek will not be compromised by erosion and sedimentation during construction.

Checklist item: g

The project does not propose any housing. There would be no impact related to placing housing within a 100-year flood area.

Checklist item: h

Portions of the project area lies within a 100-year flood area. The bridge would be designed according to Hydraulic Design Criteria established in Caltrans' *Local Assistance Procedures Manual*. The criteria dictate that the facility be capable of conveying the base or 100-year flood and passing the 50-year flood "without causing objectionable backwater, excessive flow velocities or encroaching on through traffic lanes." The proposed project would be designed to provide waterway clearance sufficient to convey the base flood and provide adequate freeboard for the 100-year flood event (2 feet of drift clearance). Therefore, the new bridge will result in no adverse impacts on the river hydraulics or floodplain of the Delta and will not impede or redirect floodflows. This impact would be less than significant.

Checklist item: i

The proposed project entails replacing Escalon-Bellota Road bridge in order to bring the bridge to current standards. Users of the project would not be exposed to a significant risk of loss, injury or death involving flooding that is any greater than what exists in the general project area. Therefore, impacts related to exposure of people or structures to risk of loss, injury or death involving flooding are less than significant.

Checklist item: j

The project area is not in a location that would be affected by tsunami, seiche, or mudflows. There would be no impact.

X. Land Use and Planning	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Conflict with any applicable habitat conservation plan or natural community conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Affected Environment

The proposed project is located just south of the town of Farmington in eastern San Joaquin County, approximately 16 miles east of the City of Stockton. The major land uses in unincorporated San Joaquin County are mainly agricultural and rural residential.

The San Joaquin County General Plan is the governing document for the project area. The proposed project is within the Farmington Planning Area. According to the General Plan Background Report, residential uses in the Farmington rural community include residential units on small lots, ranch-style homes on larger lots, and mobile homes. Local businesses include a general store, a restaurant, and a repair shop. Public uses include the Farmington Elementary School, the Farmington Water Company's wells and pressure tank, and a U.S. Post Office. Nearly 40 percent (23 acres) of the land within the Farmington community boundary is in residential use. Fewer than 2 acres of Farmington are in commercial use, and there are no existing industrial uses. Public use makes up 34 percent (20 acres) of the community. Vacant land makes up 17 percent (10.2 acres) of the community (San Joaquin County 2009).

The project area is designated as a rural community. The General Plan land use designations for the project area include "Rural" north of Littlejohns Creek, zoned to "provide large-lot rural residential development within or adjacent to rural communities," "Other" (a cemetery) south of Littlejohns Creek, and "General Agriculture" surrounding the rest of the project area, zoned to "preserve agricultural lands for the continuation of commercial agricultural enterprises" (San Joaquin County 2009).

Discussion

Checklist item: a

The proposed project is located south of the existing community of Farmington and would not divide the established community or separate it from its surrounding agricultural and rural land uses. The existing bridge would be replaced with a new structure, and a detour bridge would be used during construction. Transportation patterns would not be changed. Therefore, the potential project impacts would be less than significant.

Checklist item: b

Farmington has experienced very little growth over the past two decades, and almost no changes in land use. No improvements to public services and facilities are planned. The proposed project entails replacing the Escalon-Bellota Road bridge to improve safety as the bridge is functionally obsolete. The proposed project is consistent with the County's General Plan. The proposed project would be consistent with the current land use designations of "Rural," "Other," and "General Agricultural" surrounding the project area and would meet all of the criteria listed in the County General Plan for its proposed land uses. A minor amount of right-of-way along the roadway may be acquired but would not cause changes in land use patterns. Therefore, the proposed project would not conflict with any applicable land use plan, policy, or regulation, and potential project impacts are considered less than significant.

Checklist item: c

There is no habitat conservation plan or natural community conservation plan that applies to proposed project. Therefore, the proposed project would not conflict with any such plan, and there would be no impact.

XI. Mineral Resources	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Affected Environment

Minerals are any naturally occurring chemical element or compound, or groups of elements and compounds, formed from inorganic processes and organic substances including, but not limited to, coal, peat and oil bearing rock, but excluding geothermal resources, natural gas and petroleum. Rock, sand, gravel, and earth are also considered minerals by the Department of Conservation when extracted by surface mining operations. The project area consists of urban/built-up land and agricultural uses, and no known mineral resources are located on or near the project area.

Discussion

Checklist items: a and b

The project entails replacing the Escalon-Bellota Road bridge on land that is currently built-out or in agricultural use. There are no known mineral resources located on or near the project area. There is no impact related to loss of mineral resources.

XII. Noise	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. 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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Expose persons to or generate excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e. Be located within an airport land use plan area, or, where such a plan has not been adopted, within two miles of a public airport or public use airport and expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f. Be located in the vicinity of a private airstrip and expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Affected Environment

Environmental Setting

The proposed project site is located in an unincorporated area of San Joaquin County, California. Residential land uses are located adjacent to the northern portion of the project site, agricultural land uses are located directly to the east of the project site, and a cemetery is located directly to the west of the project site. Residential land uses located near the northern portion of the project site would be considered noise-sensitive, and potential noise and vibration effects to these uses are evaluated in this analysis.

Regulatory Framework

Noise

Section 9-1025.9 of the County Municipal Code outlines noise standards in the County.

All uses and property shall be subject to the following provisions concerning noise levels:

Transportation Noise Sources

- Excluding proposed noise sensitive land uses on infill lots, proposed noise sensitive land uses that will be impacted by existing or planned transportation noise sources shall be required to mitigate the noise levels from these transportation noise sources so that the resulting noise levels on said proposed noise sensitive land uses do not exceed the standards specified in Table 9- 1025.9, Part I (included as Table 2-11 below). Proposed noise sensitive land uses on infill lots that will be impacted by existing or planned transportation noise sources shall be required to mitigate the noise levels from these transportation noise sources so that the resulting noise levels on said proposed noise sensitive land uses on such infill lots do not exceed the standards specified in [Table 2-11, below] for interior spaces only.
- Private development projects that include the development of new transportation facilities or the expansion of existing transportation facilities shall be required to mitigate the noise levels from these transportation facilities so that the resulting noise levels on noise sensitive land uses within and adjacent to said development projects do not exceed the standards specified in Table 9-1025.9, Part I [Table 2-11, below].

Table 2-11. Maximum Allowable Noise Exposure, Part I. Transportation Noise Sources

Noise Sensitive Land Use (Use Types)	Outdoor Activity Areas 1 dB L _{dn}	Interior Spaces dB L _{dn}
Residential	65	45
Administrative Office	–	45
Child Care Services—Child Care Centers	–	45
Community Assembly	65	45
Cultural & Library Services	–	45
Educational Services: General	–	45
Funeral & Interment Services—Undertaking	65	45
Lodging Services	65	45
Medical Services	65	45
Professional Services	–	45
Public Services (excluding Hospitals)	–	45
Public Services (hospitals only)	65	45
Recreation—Indoor Spectator	–	45
Religious Assembly	65	45

Stationary Noise Sources

- Excluding proposed noise sensitive land uses on infill lots, proposed noise sensitive land uses that will be impacted by stationary noise sources shall be required to mitigate the noise levels from these stationary noise sources so that the resulting noise levels on said proposed noise sensitive land uses do not exceed the standards specified in Table 9-1025.9, Part II (included as Table 2-12 below).
- Proposed projects that will create new stationary noise sources or expand existing stationary noise sources shall be required to mitigate the noise levels from these stationary noise sources so as not to exceed the noise level standards specified in [Table 2-12 below].

Table 2-12. Maximum Allowable Noise Exposure, Part II. Stationary Noise Sources

	Outdoor Activity Areas ^a Daytime ^b (7 a.m. to 10 p.m.)	Outdoor Activity Areas ^a Nighttime ^b (10 p.m. to 7 a.m.)
Hourly Equivalent Sound Level (L_{eq}), dB	50	45
Maximum Sound Level (L_{max}), dB	70	65

^a Where the location of outdoor activity areas is unknown or is not applicable, the noise standard shall be applied at the property line of the receiving land use. When determining the effectiveness of noise mitigation measures, the standards shall be applied on the receiving side of noise barriers or other property line noise mitigation measures.

^b Each of the noise level standards specified shall be reduced by 5 dB for impulsive noise, single tone noise, or noise consisting primarily of speech or music.

Section 9-1025.9 subsection (c) of the County Municipal Code outlines noise sources that are considered exempt from these restrictions. Construction is considered to be exempt from the County Standards during certain hours, as described below.

Exemptions

- (3) Noise sources associated with construction, provided such activities do not take place before 6:00 a.m. or after 9:00 p.m. on any day.

Vibration

Section 9-1025.5 of the County Municipal code pertains to vibration. The relevant standards are as follows.

9-1025.5 - Vibration

Perceptible Displacement. No use shall cause any perceptible displacement at any lot line abutting any zone except an I-G Zone.

Exceptions. The limits of this Section shall not apply to operations involved in the construction or demolition of structures or infrastructure or to vibration caused by motor vehicles or trains.

According to this section, vibration resulting from construction activities is exempt from the County vibration standards contained in the Municipal Code.

In the absence of specific County threshold for perceptible, the Caltrans Vibration Annoyance Potential Criteria Guidelines are applied. Refer to Table 2-13 below for these criteria.

Table 2-13. 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 2013. *Technical Noise Supplement to the Traffic Noise Analysis Protocol*. September. Available: http://www.dot.ca.gov/hq/env/noise/pub/TeNS_Sept_2013A.pdf. Accessed: October 6, 2015.

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.

Discussion

Checklist item: a

Operations

Implementation of the proposed project will not increase the number of travel lanes or result in a permanent shifting of the roadway alignment. Accordingly, implementation of the proposed project will not result in an increase in traffic noise above baseline conditions and will not cause noise to exceed County noise standards. This impact is therefore considered to be less than significant.

Construction

Construction for the project is expected to require approximately 9 months, with approximately 5 months required for work within the creek. Some night and weekend construction work may be required depending on seasonal restrictions for work within the creek. Although construction noise in the County is exempt between the hours of 6 a.m. and 9 p.m. on any day, it is not known with certainty that construction activities would only be conducted during these exempt hours. However, as stated in the Project Description, pile driving (which is the loudest proposed construction activity) would be limited to the hours of 6 a.m. to 9 p.m.

Table 2-14 below summarizes typical maximum noise levels at 50 feet produced by the equipment proposed for use during project construction as provided by the County, as well as the typical acoustical use factors for each piece of equipment. The acoustical use factor is the percentage of time each piece of construction equipment is assumed to be operating at full power (i.e., its noisiest condition) during construction, and is used to estimate L_{eq} values from L_{max} values. For example the L_{eq} value for a piece of equipment that operates at full power 50% of the time (acoustical use factor of 50) is 3 dB less than the L_{max} value.

Table 2-14. Project Construction Equipment Noise Levels and Acoustical Use Factors

Equipment	L_{max} at 50 feet (dBA) ^a	Acoustical Use Factor (%)
Excavator	81	40
Front end loader	79	40
Crane	81	16
Vibratory hammer/pile driver	101	20
Grader	85	40
Backhoe	78	40
Forklift	84	40
Concrete pump	81	20
Concrete truck	79	40
Generator	81	50
Dump truck	76	40
Paver	77	50

Source: Federal Highway Administration Roadway Construction Noise Model 2006.

A reasonable, worst-case construction noise level can be estimated by assuming that the three loudest pieces of equipment proposed for a single phase of construction (i.e., an excavator, a vibratory pile driver, and a forklift, which are all proposed for Phase 2 of construction) would operate concurrently. This reasonable worst-case noise level has been calculated using typical noise levels reported in the Federal Highway Administration (FHWA) Roadway Construction Noise Model, the L_{max} source noise levels at 50 feet, and the typical acoustical use factors, which are shown in Table 2-14 above (Federal Highway Administration 2006). Refer to Table 2-15 below for the reasonable worst-case construction noise modeling results assuming concurrent operation of 3 pieces of equipment.

Table 2-15. Combined Project Construction Equipment Noise

Source Data	Maximum Sound Level (dBA)	Utilization Factor	L_{eq} Sound Level (dBA)
Source 1: Grader - sound level (dBA) at 50 feet =	85	40%	81.0
Source 2: Vibratory Pile Driver - sound level (dBA) at 50 feet =	101	20%	94.0
Source 3: Excavator - sound level (dBA) at 50 feet =	84	40%	80.0
Calculated Data			
All Sources Combined - L_{max} sound level (dBA) at 50 feet = 101			
All Sources Combined - L_{eq} sound level (dBA) at 50 feet = 94			
Distance Between Source and Receiver (ft.)	Geometric Attenuation (dB)	Calculated L_{max} Sound Level (dBA)	Calculated L_{eq} Sound Level (dBA)
50	0	101	94
100	-6	95	88
200	-12	89	82
250	-14	87	80
300	-16	86	79
400	-18	83	76
500	-20	81	74
600	-22	80	73
700	-23	78	71
800	-24	77	70
900	-25	76	69
1,000	-26	75	68
1,200	-28	74	67
1,400	-29	72	65
1,600	-30	71	64
1,800	-31	70	63
2,000	-32	69	62
Geometric attenuation based on 6 dB per doubling of distance.			
Source (for noise levels): Federal Highway Administration 2006.			
Note: This calculation does not include the effects, if any, of local shielding from walls, topography or other barriers which may reduce sound levels further.			

It is possible that project construction could occur within 50 feet of the adjacent residential land uses. As shown in Table 2-15, the combined average noise level for these three pieces of equipment operating concurrently would be approximately 94 dBA L_{eq} at a distance of 50 feet. Although reasonable worst-case construction noise was modeled to be approximately 94 dBA L_{eq} at a distance of 50 feet, it is likely the actual construction noise at individual residences in the project vicinity would be lower than this level. This is because construction would not consistently (throughout the project duration) occur this close from nearby residences, and because it is unlikely that all three of these equipment pieces would be operating concurrently at a distance of 50 feet from a residence on a given day.

Construction activity within the County is considered exempt as long as it occurs between the hours of 6 a.m. and 9 p.m. on any day. However, the project description states that some night and weekend work may be required depending on seasonal restrictions for work within the creek. Therefore, it is possible that construction could occur outside of these exempt hours and result in an exceedance of County noise standards (which are 45 dBA L_{eq} between the hours of 10 p.m. and 7 a.m., and 50 dBA L_{eq} between the hours of 7 a.m. and 10 p.m.). Accordingly, project-related construction noise impacts are considered to be potentially significant.

Implementation of Mitigation Measure NOI-1, *Implement Noise Reducing Construction Practices*, would ensure that project construction would comply with exempt hours, and would reduce project construction noise impacts to less than significant levels. This impact would be less than significant with mitigation.

Mitigation Measure NOI-1: Implement Noise Reducing Construction Practices

The County shall develop a noise control plan that includes measures to reduce construction noise to a level that complies with applicable County standards, where feasible. Noise-reducing construction practices that will be employed to reduce construction noise from construction activities shall be specified by the County. Measures that can be used to limit noise include, but are not limited to, those listed below.

- Restricting noise-producing construction to the hours of 6 a.m. to 9 p.m., per the County Municipal code, where feasible.
- If work must occur outside of exempt hours for construction, limiting noise to the stationary noise standards for the County (45 dBA L_{eq} between the hours of 10 p.m. and 7 a.m., and 50 dBA L_{eq} between the hours of 7 a.m. and 10 p.m.).
- Locating construction 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 5 minutes).
- Prohibiting gasoline or diesel engines from having unmuffled exhaust systems.
- Using noise-reducing enclosures around noise-generating equipment that has the potential to disturb nearby offsite land uses.
- Ensuring that equipment and trucks used for project construction utilize the best available noise control techniques (e.g., improved mufflers, equipment redesign, intake silencers, ducts, engine enclosures, acoustically attenuating shields or shrouds) wherever feasible.
- Monitoring the effectiveness of noise attenuation measures by taking noise measurements.
- Use “quiet” gasoline-powered compressors or electrically powered compressors and electric rather than gasoline- or diesel-powered forklifts for small lifting.
- Locating stationary noise sources, such as temporary generators, as far from nearby receptors as possible; they shall be muffled and enclosed within temporary enclosures and

shielded by barriers, which could reduce construction noise by as much as 5 dB, or other measures, to the extent feasible.

- Posting a publicly visible sign with the telephone number and contact information for the designated on-site construction manager available to receive and respond to noise complaints.

If it is not feasible to limit noise to acceptable levels during non-exempt hours for construction, the County shall offer hotel vouchers residents where project construction noise is expected to exceed applicable County standards.

Bridge Detour during Construction

During the construction period, traffic access would be maintained by means of a temporary detour bridge located along the east side of the new bridge. This temporary bridge would move traffic slightly closer to the residence located northeast of the proposed project; however, it would only move it marginally closer. In addition, it is likely that traffic would travel more slowly on this detour bridge due to the curves at either end of the bridge where traffic would reconnect with Escalon Bellota Road. Because of this, any increase in noise from the temporary realignment being closer to off-site residences is expected to be offset by the reduced speed of traffic traveling on this bridge. This impact would be less than significant.

Checklist item: b

Typical outdoor sources of perceptible groundborne vibration and noise are construction equipment, steel-wheeled trains, and heavy vehicles going over bumps. If the roadways in use are smooth, the groundborne vibration and noise from traffic is rarely perceptible.

Perceptible ground-borne vibration is generally limited to areas within a few hundred feet of construction activities. As seismic waves travel outward from a vibration source, they excite the particles of rock and soil through which they pass and cause them 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 the vibration amplitude, referred to as the peak particle velocity (PPV). Table 2-16 summarizes typical vibration levels generated by construction equipment.

Table 2-16. Vibration Source Levels for Demolition and Construction Equipment

Equipment	PPV at 25 Feet	PPV at 50 Feet	PPV at 75 Feet	PPV at 100 Feet	PPV at 150 Feet
Vibratory pile driver	0.734	0.260	0.1413	0.092	0.050
Hoe ram	0.089	0.0315	0.0171	0.0111	0.006
Large bulldozer	0.089	0.0315	0.0171	0.0111	0.006
Loaded trucks	0.076	0.0269	0.0146	0.0095	0.005
Jackhammer	0.035	0.0124	0.0067	0.0044	0.002
Vibratory roller	0.003	0.0011	0.0006	0.0004	0.014

Sources: California Department of Transportation 2013b; Federal Transit Administration 2006.
PPV = peak particle velocity.

As project construction may occur in relatively close proximity to off-site sensitive receptors, construction vibration from project construction activities may be perceptible at nearby sensitive land uses such as the residences located near the northern portion of the project site. Specifically, and as shown in Table 2-16, a vibratory pile driver (which is proposed for use in project construction for the bridge abutments) could be operating as close as approximately 100 feet from nearby residences. At this distance, a vibratory pile driver could generate a vibration level of 0.092 PPV in/sec, which is between the distinctly perceptible (0.04 PPV in/sec) and strongly perceptible (0.1 PPV in/sec) limits defined in Table 2-13.

Although vibration may be perceptible at nearby residences, project construction would be temporary, with a total duration of approximately 9 months. Additionally, no pile driving would be occurring between the hours of 9 p.m. and 6 a.m. Further, as stated in Section 9-1025.5 of the County Municipal Code, vibration standards within the County “shall not apply to operations involved in the construction or demolition of structures or infrastructure.” As such, and although vibration may be perceptible to nearby sensitive land uses, vibration associated with project construction would be considered exempt, and would comply with the local ordinance. Vibration impacts would be less than significant, and no mitigation is required.

Checklist item: c

As discussed under *Checklist item a*, the proposed project would not result in an increase in vehicle traffic in the project area over baseline no-project conditions or result in a shift in the roadway alignment. As there would be no increase in traffic, and therefore no increase in traffic noise, over baseline conditions, the project would not be expected to result in a substantial permanent increase in noise. This impact is considered less than significant.

Checklist item: d

As discussed under *Checklist item a*, construction activity within the County is exempt as long as it occurs between the hours of 6 a.m. and 9 p.m. on any day. However, the project description states that some night and weekend work may be required depending on seasonal restrictions for work within the creek. Therefore, it is possible that construction could occur outside of these exempt hours and result in an exceedance of County noise standards (which are 45 dBA L_{eq} between the hours of 10 p.m. and 7 a.m., and 50 dBA L_{eq} between the hours of 7 a.m. and 10 p.m.). It is therefore also possible that construction could result in a temporary or periodic increase in noise that could be considered substantial. Impacts related to a substantial temporary or periodic increase in noise from project construction would be potentially significant.

Mitigation Measure NOI-1, described under *Checklist item a*, would ensure that project construction would comply with the applicable County Standards where feasible, including limiting work to the exempt hours of 6 a.m. to 9 p.m. hours if feasible, and limiting noise generated outside of these hours to the noise standards of 50 dBA L_{eq} for daytime work and 45 dBA L_{eq} for nighttime work, if feasible. Implementation of this mitigation measure would ensure that project construction activities would comply with the applicable local standards, or that hotel vouchers would be offered to residents where project construction noise is expected to exceed applicable County standards even with implementation of noise reducing measures. This impact would be reduced to a less-than-significant level with mitigation.

Checklist item: e

There are no public airports located within two miles of the project site. The closest airport to the proposed project site is the Stockton Metropolitan Airport, which is located over 12 miles west of the project site. At this distance from the airport, no people residing or working in the project area would be exposed to excessive aircraft noise from airport operations. There would be no impact related to noise from private air strips.

Checklist item: f

There are no private airstrips located within the vicinity of the project site. As such, no people residing or working in the project area would be exposed to excessive aircraft noise from operations at private air strips. There would be no impact related to noise from private air strips.

XIII. Population and Housing	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Induce substantial population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Displace a substantial number of existing housing units, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. Displace a substantial number of people, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Affected Environment

Regulatory Setting

Local

San Joaquin County General Plan

The San Joaquin General Plan Housing Element addresses housing issues; however, there are no goals or policies that pertain to the proposed project.

Existing Conditions

Land uses within the project area include agriculture, a cemetery, and rural residential parcels. There are scattered rural residences along Escalon-Bellota Road, and there are no schools or community facilities in the immediate vicinity. The proposed project would occur almost entirely within the existing right of way and would not displace any residents, businesses, or community resources. An on-site detour would be in place during the construction period, which is anticipated to last one season. As a bridge replacement project, the proposed project would not have a direct effect on population and/or housing.

Discussion

Checklist item: a

The proposed project entails replacing the Escalon-Bellota Road bridge to improve safety as the bridge is functionally obsolete. The proposed project would not contribute to a substantial population increase. Therefore, there would be no impact. No mitigation is required.

Checklist item: b

The proposed project is a bridge replacement project and would not displace existing housing. Therefore, there would be no impact. No mitigation is required.

Checklist item: c

The proposed project is a bridge replacement project and would not displace existing housing or people. Therefore, there would be no impact. No mitigation is required.

XIV. Public Services	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Affected Environment

There are no parks or recreational facilities in or around the town of Farmington, and the nearest park is Hogan Park, approximately 8.5 miles south of the project boundary. The project area is served by the Escalon Unified School District, and the nearest school is Farmington Elementary School, approximately 0.4 miles northwest of the project boundary. The Farmington Fire District is located approximately 0.3 miles north of the project boundary. The project area is within San Joaquin Sheriff’s Department Beat 7 and police services are provided by the San Joaquin Sheriff’s Department’s 156 countywide sworn patrol officers and the California Highway Patrol.

Water service is provided by Farmington Water Company. Wastewater collection and disposal in Farmington is provided by catch basins and culverts, roadside borrow ditches, and a railroad borrow ditch and private septic systems. Drainage is to Duck Creek and Littlejohn's Creek (San Joaquin County 2009).

There is one private airport, J-B Airport, located approximately 1.1 miles northwest of the project area.

Discussion

Checklist item: a—fire protection

The proposed project is not anticipated increase growth in the Farmington area or affect the demand for fire protection. Because a detour bridge will be used during construction there would be no project-related direct effects to fire response service. Therefore, impacts to fire protection will be less than significant.

Checklist item: a—police protection

The proposed project will replace an existing bridge and is not anticipated to increase growth in the Farmington area or affect the demand for police protection. Because a detour bridge will be used during construction there would be no project-related direct effects to police response service. Therefore, impacts to police protection services would be less than significant.

Checklist item: a—schools

The proposed project will replace an existing bridge and is not anticipated to increase growth in the Farmington area or increase in the number of students attending local schools. Because a detour bridge will be used during construction there would be no project-related direct effects to school bus routes. Therefore, impacts to school services would be less than significant.

Checklist item: a—parks

There are no parks or recreational facilities in or around the proposed project site. Because a detour bridge will be used during construction there would be no project-related direct effects to park access. Therefore, there would be no impact to parks or recreational facilities.

Checklist item: a—other public facilities

The proposed project would not affect the demand for any other public services. Therefore, no impact would occur.

XV. Recreation	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Affected Environment

There are no parks or recreational facilities in or around the town of Farmington.

Discussion

Checklist items: a and b

The proposed project entails a bridge replacement, with a detour bridge during construction. There are no parks or recreational facilities in the project vicinity. The project would not increase the use of existing recreational facilities or require additional recreational facilities. There would be no impact.

XVI. Transportation/Traffic	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. Substantially increase hazards because of a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e. Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f. Conflict with adopted policies, plans, or programs regarding public transit, bicycle or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Affected Environment

Primary transportation routes in the project area include SR 4, Escalon-Bellota Road, and Elm, First, and Second Streets. Dial-A-Ride is the only public transportation option available in Farmington. It serves as the complimentary paratransit service under Americans with Disabilities Act (ADA) regulations. The nearest public transportation access is through eTrans in the City of Escalon, and the San Joaquin Regional Transit District in Stockton (City of Escalon 2012).

In addition, the Escalon-Bellota Road is designated as a Class III Bicycle Route in the San Joaquin County Bicycle Master Plan (2010) and the San Joaquin Council of Governments (SJCOG) Regional Bicycle, Pedestrian, and Safe Routes to School Master Plan (2012). The bridge and approach roadways do not currently comply with the Class III designation. The proposed project would be consistent with these plans by improving safety of the bridge and adding width to comply with the Class III designation.

Discussion

Checklist item: a

The proposed project does not conflict with any ordinances or policies related to the transportation system. Rather, it would improve shoulder widths on the bridge, which would enhance safety and comply with the Class III Bicycle Route designation. This impact would be less than significant.

Checklist item: b

There are no standards established by the County related to congestion in the SJCOG Regional Congestion Management Program (San Joaquin Council of Government 2012). The proposed project entails replacing the existing Escalon-Bellota Road bridge with a structure that is up to current standards. The new bridge would have wider shoulders which would enhance safety and connectivity for both motorists and bicyclists. The project would not conflict with any plans related to construction management and this impact would be less than significant.

Checklist item: c

The nearest airports to the project corridor is the Stockton Metropolitan Airport, which is approximately 13.5 miles west of the project area. The project is not located within the airports compatibility use area. In addition, the project involves no changes that would result in a change to air traffic patterns, including either an increase in air traffic levels or project features that would obstruct air traffic patterns or result in substantial safety risks. There are no impacts related to changes in air traffic patterns.

Checklist item: d

The proposed project is intended to reduce existing hazards within the transportation network by replacing the bridge with a bridge that is up to current standards, with wider shoulders. Safety would be enhanced for vehicles, bicyclists and pedestrians. Impacts related to substantially increasing hazards due to a design feature or incompatible uses would be less than significant.

Checklist item: e

The new bridge would be approximately 120 to 150 feet in length and 34'10" feet in width to accommodate two traffic lanes with adequate shoulders sufficient to accommodate a Class III bicycle route. During construction, access for local residents and property owners, as well as access for the local school and emergency responders, would be maintained by providing a detour bridge and alignment just east of the existing bridge. Overall the project would improve access and circulation by providing a bridge that complies with safety standards and additional width to accommodate the Class III bicycle route. Any required closures would be coordinated with emergency service providers so as not to hinder emergency responses. Therefore, impacts related to inadequate emergency access are less than significant.

Checklist item: f

The project entails replacing the existing Escalon-Bellota Road bridge with a new structure that complies with current safety standards, including wider shoulders. The project would increase pedestrian and bicycle safety by reducing the potential for collisions. The project would be compatible with adopted policies, plans or programs regarding public transit, bicycle or pedestrian

facilities. There are no impacts related to conflict with adopted policies, plans, or programs regarding transit or bike/pedestrian facilities.

XVII. Utilities and Service Systems	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Have sufficient water supplies available to serve the project from existing entitlements and resources, or would new or expanded entitlements be needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e. Result in a determination by the wastewater treatment provider that 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f. Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g. Comply with federal, state, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Affected Environment

Overhead utility lines may need to be temporarily relocated to the west or east of the proposed construction. The underground water line would be protected in place. Underground electrical and/or communication lines for the gauging station may cross through the project site. Any required utility coordination and service disruptions would be minimized to the extent feasible and would be communicated with customers in advance of any disruption to allow for alternative service arrangements.

Discussion

Checklist item: a

The project consists of replacing the existing bridge, with a detour bridge in use during construction to avoid any travel delays. The project would not generate any wastewater that would be directed to

a wastewater facility. Therefore, the project would not exceed wastewater treatment requirements of the Central Valley Regional Water Quality Control Board. There would be no impacts related to wastewater treatment exceedances.

Checklist item: b

Water supply for construction activities (e.g., dust control, concrete mixing, material washing) would come from existing surface supplies to the project area and/or be trucked to the site. In addition, the project would not require water or wastewater treatment as no potable water or restroom facilities would be provided as part of the project's construction or operation. The project would not include installation of any uses that would require extensive irrigation or generate wastewater. Therefore, impacts related to construction of new water or wastewater treatment facilities or expansion of existing facilities are less than significant.

Checklist item: c

The proposed bridge would be located within the existing ROW and would be integrated into the existing stormwater system and new storm drainage elements and expansion of existing drainage lines would be limited. Therefore, impacts related to construction of new stormwater drainage facilities or expansion of existing facilities are less than significant.

Checklist item: d

The project would involve replacing an existing bridge, which would not generate a substantial demand for water supplies either as part of construction or operation. The project would not require new or expanded water supply entitlements, or result in any new demands on existing water sources. Therefore, impacts related to sufficient water supplies are less than significant.

Checklist item: e

The proposed bridge replacement would not generate a substantial demand for wastewater treatment. The project would not require water or wastewater treatment as no potable water or restroom facilities would be provided as part of the project's construction or operation. The project would not directly generate any wastewater requiring wastewater treatment. Therefore, impacts related to wastewater treatment are less than significant.

Checklist item: f

Short-term waste generation would result from construction of the project. Waste materials resulting from the project construction would consist primarily of earth/soil excavation, and some construction waste (excess materials from paving, and installation of bridge footings, etc.). It is anticipated that the following types of waste would be generated during construction: non-hazardous metal waste, non-hazardous non-metal waste (e.g., concrete rubble, organic waste [vegetation], boxes and crates, refuse from construction workers), and trenching spoils (e.g., rubble, soil, broken asphalt). Potential for hazardous materials is discussed in Section VIII. These wastes would need to be disposed of in local or regional facilities. Non-hazardous metal and non-metal waste would either be hauled to local disposal centers for recycling or taken to landfills. Spoils from trenching and excavation would be reused to the maximum extent possible. Furthermore, the San Joaquin County General Plan does not contain policies objectives regarding construction waste. This impact would be less than significant.

Checklist item: g

The project would comply with all federal, state, and local statutes and regulations related to solid waste. There would be no impact related to compliance with solid waste regulations.

XVIII. Mandatory Findings of Significance		Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a.	Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b.	Does the project have impacts that are individually limited but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c.	Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

Checklist item: a

The project entails replacing the Escalon-Bellota Road bridge, which is functionally obsolete, with a new bridge that meets current standards and has wider shoulders. Implementation of mitigation measures included in this Initial Study would ensure that construction and operation of the project would not degrade the quality of the environment such that protected biological species and habitat or significant cultural resources would be threatened or eliminated. Therefore, the impact is less than significant with mitigation incorporated.

Checklist item: b

As stated under item a, the project entails replacing the existing Escalon-Bellota Road bridge with a safer two-land bridge that complies with current standards. Sufficient waterway clearance would provide adequate freeboard for 100-year flood events, the current alignment would be corrected to meet safety standards, and the shoulder width would comply with the Class III bicycle route designation. The project is located on an existing roadway in an area that is designated as urban/built-up and farmland. Implementation of the project would not substantially change existing land uses or land use patterns. There would be a very slight increase in impervious surface. Furthermore, the project entails a transportation enhancement, and would not result in individually limited, but cumulatively considerable impacts. All environmental impacts that could occur as a

result of short-term construction would be reduced to a less-than-significant level through implementation of mitigation measures recommended in this Initial Study.

Checklist item: c

Potential human health risks associated with air quality, geologic hazards, flood hazards, fire hazards, hazardous wastes, or noise would either be less than significant or mitigated to a less-than-significant level. Therefore, the impact is less than significant with mitigation incorporated.

XIX. Earlier Analysis

Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, one or more effects have been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a discussion should identify the following on attached sheets.

- a. **Earlier analyses used.** Identify earlier analyses and state where they are available for review.
- b. **Impact adequately addressed.** Identify which effects from the above checklist were within the scope of and adequately analyzed in the earlier document pursuant to applicable legal standards and state whether such effects were addressed by mitigation measures based on the earlier analysis.
- c. **Mitigation measures.** For effects that are “potentially significant unless mitigated,” describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

Authority: Public Resources Code Sections 21083 and 21083.05.

Reference: Section 65088.4, Government Code; Sections 21080(c), 21080.1, 21080.3, 21082.1, 21083, 21083.05, 21083.3, 21093, 21094, 21095, and 21151, Public Resources Code; *Sundstrom v. County of Mendocino* (1988), 202 Cal. App. 3d 296; *Leonoff v. Monterey Board of Supervisors* (1990) 222 Cal.App.3d 1337; *Eureka Citizens for Responsible Govt. v. City of Eureka* (2007) 147 Cal.App.4th at 1109; *San Franciscans Upholding the Downtown Plan v. City and County of San Francisco* (2002) 102 Cal.App.4th 656.

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Appendix A

Air Quality Modeling Results

**Road Construction Emissions Model
Data Entry Worksheet**

Version 8.1.0

Note: Required data input sections have a yellow background.
 Optional data input sections have a blue background. Only areas with a yellow or blue background can be modified. Program defaults have a white background.
 The user is required to enter information in cells D10 through D24, E28 through G35, and D38 through D41 for all project types.
 Please use "Clear Data Input & User Overrides" button first before changing the Project Type or begin a new project.

To begin a new project, click this button to clear data previously entered. This button will only work if you opted not to disable macros when loading this spreadsheet.



Input Type

Project Name	Escalon Bellota Road Bridge	
Construction Start Year	2018	Enter a Year between 2014 and 2025 (inclusive)
Project Type	3	1) New Road Construction : Project to build a roadway from bare ground, which generally requires more site preparation than widening an existing roadway 2) Road Widening : Project to add a new lane to an existing roadway 3) Bridge/Overpass Construction : Project to build an elevated roadway, which generally requires some different equipment than a new roadway, such as a crane 4) Other Linear Project Type: Non-roadway project such as a pipeline, transmission line, or levee construction
Project Construction Time	7.00	months
Working Days per Month	20.00	days (assume 22 if unknown)
Predominant Soil/Site Type: Enter 1, 2, or 3 (for project within "Sacramento County", follow soil type selection instructions in cells E18 to E20 otherwise see instructions provided in cells J18 to J22)	1	1) Sand Gravel : Use for quaternary deposits (Delta/West County) 2) Weathered Rock-Earth : Use for Laguna formation (Jackson Highway area) or the lone formation (Scott Road, Rancho Murieta) 3) Blasted Rock : Use for Salt Springs Slate or Copper Hill Volcanics (Folsom South of Highway 50, Rancho Murieta)
Project Length	0.30	miles
Total Project Area	5.31	acres
Maximum Area Disturbed/Day	0.55	acres
Water Trucks Used?	1	1. Yes 2. No

Please note that the soil type instructions provided in cells E18 to E20 are specific to Sacramento County. Maps available from the California Geologic Survey (see weblink below) can be used to determine soil type outside Sacramento County.
http://www.conservation.ca.gov/cgs/information/geologic_mapping/Pages/googlemaps.aspx#regionalseries

Material Hauling Quantity Input

Material Type	Phase	Haul Truck Capacity (yd ³) (assume 20 if unknown)	Import Volume (yd ³ /day)	Export Volume (yd ³ /day)
Soil	Grubbing/Land Clearing		21.80	
	Grading/Excavation			9.34
	Drainage/Utilities/Sub-Grade			
	Paving			
Asphalt	Grubbing/Land Clearing		10.90	
	Grading/Excavation			
	Drainage/Utilities/Sub-Grade			
	Paving		8.15	

Mitigation Options

On-road Fleet Emissions Mitigation		Select "2010 and Newer On-road Vehicles Fleet" option when the on-road heavy-duty truck fleet for the project will be limited to vehicles of model year 2010 or newer
Off-road Equipment Emissions Mitigation		Select "20% NOx and 45% Exhaust PM reduction" option if the project will be required to use a lower emitting off-road construction fleet. The SMAQMD Construction Mitigation Calculator can be used to confirm compliance with this mitigation measure (http://www.airquality.org/ceqa/mitigation.shtml). Select "Tier 4 Equipment" option if some or all off-road equipment used for the project meets CARB Tier 4 Standard

The remaining sections of this sheet contain areas that can be modified by the user, although those modifications are optional.

Note: The program's estimates of construction period phase length can be overridden in cells D50 through D53, and F50 through F53.

Construction Periods	User Override of Construction Months	Program Calculated Months	User Override of Phase Starting Date	Program Default Phase Starting Date
Grubbing/Land Clearing	0.15	0.70	5/21/2018	1/1/2018
Grading/Excavation	6.10	2.80	5/28/2018	1/6/2018
Drainage/Utilities/Sub-Grade	3.58	2.45	8/13/2018	7/11/2018
Paving	0.78	1.05	11/28/2018	10/28/2018
Totals (Months)		11		

Please note: You have entered a different number of months than the project length shown in cell D16.

Note: Soil Hauling emission default values can be overridden in cells D61 through D64, and F61 through F64.

Soil Hauling Emissions		User Override of Miles/Round Trip	Program Estimate of Miles/Round Trip	User Override of Truck Round Trips/Day	Default Values Round Trips/Day	Calculated Daily VMT					
User Input											
Miles/round trip: Grubbing/Land Clearing			30.00		0	0.00					
Miles/round trip: Grading/Excavation			30.00		0	0.00					
Miles/round trip: Drainage/Utilities/Sub-Grade			30.00		0	0.00					
Miles/round trip: Paving			30.00		0	0.00					
Emission Rates		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)		0.07	0.36	1.51	0.10	0.04	0.02	1,590.26	0.00	0.05	1,605.93
Grading/Excavation (grams/mile)		0.07	0.36	1.51	0.10	0.04	0.02	1,590.26	0.00	0.05	1,605.93
Draining/Utilities/Sub-Grade (grams/mile)		0.07	0.36	1.51	0.10	0.04	0.02	1,590.26	0.00	0.05	1,605.93
Paving (grams/mile)		0.07	0.36	1.51	0.10	0.04	0.02	1,590.26	0.00	0.05	1,605.93
Hauling Emissions		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Pounds per day - Grubbing/Land Clearing		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grading/Excavation		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Drainage/Utilities/Sub-Grade		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Sub-Grade		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Paving		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Paving		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons per construction project		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Note: Asphalt Hauling emission default values can be overridden in cells D87 through D90, and F87 through F90.

Asphalt Hauling Emissions		User Override of Miles/Round Trip	Program Estimate of Miles/Round Trip	User Override of Truck Round Trips/Day	Default Values Round Trips/Day	Calculated Daily VMT					
User Input											
Miles/round trip: Grubbing/Land Clearing			30.00		0	0.00					
Miles/round trip: Grading/Excavation			30.00		0	0.00					
Miles/round trip: Drainage/Utilities/Sub-Grade			30.00		0	0.00					
Miles/round trip: Paving			30.00		0	0.00					
Emission Rates		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)		0.07	0.36	1.51	0.10	0.04	0.02	1,590.26	0.00	0.05	1,605.93
Grading/Excavation (grams/mile)		0.07	0.36	1.51	0.10	0.04	0.02	1,590.26	0.00	0.05	1,605.93
Draining/Utilities/Sub-Grade (grams/mile)		0.07	0.36	1.51	0.10	0.04	0.02	1,590.26	0.00	0.05	1,605.93
Paving (grams/mile)		0.07	0.36	1.51	0.10	0.04	0.02	1,590.26	0.00	0.05	1,605.93
Emissions		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Pounds per day - Grubbing/Land Clearing		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grading/Excavation		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Drainage/Utilities/Sub-Grade		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Sub-Grade		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Paving		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Paving		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons per construction project		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Note: Worker commute default values can be overridden in cells D113 through D118.

Worker Commute Emissions		User Override of Worker		Default Values		Calculated					
User Input	Commute Default Values			Daily Trips	Daily VMT						
Miles/ one-way trip		20									
One-way trips/day		2									
No. of employees: Grubbing/Land Clearing	15	5		30	600.00						
No. of employees: Grading/Excavation	15	28		30	600.00						
No. of employees: Drainage/Utilities/Sub-Grade	15	18		30	600.00						
No. of employees: Paving	15	8		30	600.00						
Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e	
Grubbing/Land Clearing (grams/mile)	0.03	1.33	0.15	0.05	0.02	0.00	393.83	0.01	0.01	395.91	
Grading/Excavation (grams/mile)	0.03	1.33	0.15	0.05	0.02	0.00	393.83	0.01	0.01	395.91	
Draining/Utilities/Sub-Grade (grams/mile)	0.03	1.33	0.15	0.05	0.02	0.00	393.83	0.01	0.01	395.91	
Paving (grams/mile)	0.03	1.33	0.15	0.05	0.02	0.00	393.83	0.01	0.01	395.91	
Grubbing/Land Clearing (grams/trip)	1.17	3.21	0.26	0.00	0.00	0.00	87.83	0.02	0.01	91.49	
Grading/Excavation (grams/trip)	1.17	3.21	0.26	0.00	0.00	0.00	87.83	0.02	0.01	91.49	
Draining/Utilities/Sub-Grade (grams/trip)	1.17	3.21	0.26	0.00	0.00	0.00	87.83	0.02	0.01	91.49	
Paving (grams/trip)	1.17	3.21	0.26	0.00	0.00	0.00	87.83	0.02	0.01	91.49	
Emissions	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e	
Pounds per day - Grubbing/Land Clearing	0.12	1.97	0.21	0.06	0.03	0.01	526.75	0.02	0.01	529.75	
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.79	0.00	0.00	0.79	
Pounds per day - Grading/Excavation	0.12	1.97	0.21	0.06	0.03	0.01	526.75	0.02	0.01	529.75	
Tons per const. Period - Grading/Excavation	0.01	0.12	0.01	0.00	0.00	0.00	32.13	0.00	0.00	32.31	
Pounds per day - Drainage/Utilities/Sub-Grade	0.12	1.97	0.21	0.06	0.03	0.01	526.75	0.02	0.01	529.75	
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.07	0.01	0.00	0.00	0.00	18.86	0.00	0.00	18.96	
Pounds per day - Paving	0.12	1.97	0.21	0.06	0.03	0.01	526.75	0.02	0.01	529.75	
Tons per const. Period - Paving	0.00	0.02	0.00	0.00	0.00	0.00	4.11	0.00	0.00	4.13	
Total tons per construction project	0.01	0.21	0.02	0.01	0.00	0.00	55.89	0.00	0.00	56.21	

Note: Water Truck default values can be overridden in cells D145 through D148, and F145 through F148.

Water Truck Emissions		User Override of		Program Estimate of		User Override of Truck		Default Values		Calculated	
User Input	Default # Water Trucks	Number of Water Trucks	Miles Traveled/Vehicle/Day	Miles Traveled/Vehicle/Day	Daily VMT						
Grubbing/Land Clearing - Exhaust		1			40.00						
Grading/Excavation - Exhaust		1			40.00						
Drainage/Utilities/Subgrade		1			40.00						
Paving		1			40.00						
Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e	
Grubbing/Land Clearing (grams/mile)	0.07	0.36	1.51	0.10	0.04	0.02	1,590.26	0.00	0.05	1,605.93	
Grading/Excavation (grams/mile)	0.07	0.36	1.51	0.10	0.04	0.02	1,590.26	0.00	0.05	1,605.93	
Draining/Utilities/Sub-Grade (grams/mile)	0.07	0.36	1.51	0.10	0.04	0.02	1,590.26	0.00	0.05	1,605.93	
Paving (grams/mile)	0.07	0.36	1.51	0.10	0.04	0.02	1,590.26	0.00	0.05	1,605.93	
Emissions	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e	
Pounds per day - Grubbing/Land Clearing	0.01	0.03	0.13	0.01	0.00	0.00	140.24	0.00	0.00	141.62	
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.00	0.00	0.21	
Pounds per day - Grading/Excavation	0.01	0.03	0.13	0.01	0.00	0.00	140.24	0.00	0.00	141.62	
Tons per const. Period - Grading/Excavation	0.00	0.00	0.01	0.00	0.00	0.00	8.55	0.00	0.00	8.64	
Pounds per day - Drainage/Utilities/Sub-Grade	0.01	0.03	0.13	0.01	0.00	0.00	140.24	0.00	0.00	141.62	
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	5.02	0.00	0.00	5.07	
Pounds per day - Paving	0.01	0.03	0.13	0.01	0.00	0.00	140.24	0.00	0.00	141.62	
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	1.09	0.00	0.00	1.10	
Total tons per construction project	0.00	0.00	0.01	0.00	0.00	0.00	14.88	0.00	0.00	15.03	

Note: Fugitive dust default values can be overridden in cells D171 through D173.

Fugitive Dust	User Override of Max Acreage Disturbed/Day	Default Maximum Acreage/Day	PM10 pounds/day	PM10 tons/per period	PM2.5 pounds/day	PM2.5 tons/per period
Fugitive Dust - Grubbing/Land Clearing		0.55	5.50	0.01	1.14	0.00
Fugitive Dust - Grading/Excavation		0.55	5.50	0.34	1.14	0.07
Fugitive Dust - Drainage/Utilities/Subgrade		0.55	5.50	0.20	1.14	0.04

Off-Road Equipment Emissions															
Grubbing/Land Clearing	Default	Mitigation Option	Default	Type	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e	
	Number of Vehicles	Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)													Equipment Tier
Override of Default Number of Vehicles	Program-estimate				pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00	1		Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	2		Model Default Tier	Excavators	0.60	6.76	6.39	0.31	0.28	0.01	1,072.06	0.33	0.01	1,083.19	
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Other General Industrial Equipmen	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Other Material Handling Equipmen	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1.00			Model Default Tier	Rubber Tired Loaders	0.42	1.71	5.25	0.18	0.16	0.01	619.57	0.19	0.01	626.01	
			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00	1		Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
User-Defined Off-road Equipment					ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e	
Number of Vehicles		Equipment Tier			pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	
0.00		N/A			0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00		N/A			0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00		N/A			0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00		N/A			0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00		N/A			0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00		N/A			0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
		Grubbing/Land Clearing			pounds per day	1.02	8.47	11.63	0.49	0.45	0.02	1,691.63	0.53	0.01	1,709.19
		Grubbing/Land Clearing			tons per phase	0.00	0.01	0.02	0.00	0.00	0.00	2.54	0.00	0.00	2.56

Grading/Excavation	Default		Mitigation Option		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
	Number of Vehicles	Override of	Default											
	Override of Default Number of Vehicles	Program-estimate	Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Equipment Tier										
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Bore/Drill Rigs	0.07	0.49	0.98	0.03	0.03	0.00	220.06	0.07	0.00	222.36
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00	1		Model Default Tier	Cranes	0.70	3.08	8.34	0.36	0.33	0.01	710.04	0.22	0.01	717.41
0.00	2		Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00	4		Model Default Tier	Excavators	0.30	3.38	3.19	0.15	0.14	0.01	536.03	0.17	0.00	541.59
1.00			Model Default Tier	Forklifts	0.07	0.45	0.59	0.05	0.04	0.00	57.67	0.02	0.00	58.27
1.00			Model Default Tier	Generator Sets	0.13	0.94	1.03	0.07	0.07	0.00	155.76	0.01	0.00	156.39
1.00	2		Model Default Tier	Graders	0.84	4.69	8.36	0.47	0.43	0.01	629.41	0.20	0.01	635.92
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Off-Highway Trucks	0.77	4.18	8.28	0.30	0.28	0.01	1,323.00	0.41	0.01	1,336.71
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipmen	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipmen	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Pumps	0.33	2.38	2.61	0.17	0.17	0.00	389.40	0.03	0.00	391.01
0.00	3		Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00	3		Model Default Tier	Rubber Tired Loaders	0.42	1.71	5.25	0.18	0.16	0.01	619.57	0.19	0.01	626.01
0.00	4		Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1		Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00	2		Model Default Tier	Tractors/Loaders/Backhoes	0.10	0.89	1.00	0.07	0.06	0.00	118.50	0.04	0.00	119.73
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
User-Defined Off-road Equipment					ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Number of Vehicles		If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab			pounds/day									
0.00		Equipment Tier	Type	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Grading/Excavation	pounds per day		3.72	22.19	39.63	1.85	1.72	0.05	4,759.44	1.35	0.04	4,805.38
		Grading/Excavation	tons per phase		0.23	1.35	2.42	0.11	0.10	0.00	290.33	0.08	0.00	293.13

Drainage/Utilities/Subgrade		Default Number of Vehicles	Mitigation Option Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Default Equipment Tier	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e	
Override of Default Number of Vehicles		Program-estimate			pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	
0.00	1		Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1.00			Model Default Tier	Excavators	0.30	3.38	3.19	0.15	0.14	0.01	536.03	0.17	0.00	541.59	
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00	1		Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1.00	2		Model Default Tier	Graders	0.84	4.69	8.36	0.47	0.43	0.01	629.41	0.20	0.01	635.92	
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1.00			Model Default Tier	Off-Highway Trucks	0.77	4.18	8.28	0.30	0.28	0.01	1,323.00	0.41	0.01	1,336.71	
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Other General Industrial Equipmen	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Other Material Handling Equipmen	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1.00			Model Default Tier	Pavers	0.08	0.71	0.87	0.04	0.04	0.00	114.64	0.04	0.00	115.83	
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00	1		Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00	1		Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00	1		Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00	4		Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00	1		Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00	2		Model Default Tier	Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
User-Defined Off-road Equipment					ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e	
Number of Vehicles		Equipment Tier			Type	pounds/day									
0.00		N/A			0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00		N/A			0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00		N/A			0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00		N/A			0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00		N/A			0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00		N/A			0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
		Drainage/Utilities/Sub-Grade			pounds per day	1.98	12.96	20.71	0.97	0.89	0.03	2,603.08	0.81	0.02	2,630.05
		Drainage/Utilities/Sub-Grade			tons per phase	0.07	0.46	0.74	0.03	0.03	0.00	93.19	0.03	0.00	94.16

Paving	Default		Mitigation Option		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
	Number of Vehicles	Override of	Default											
	Override of Default Number of Vehicles	Program-estimate	Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Equipment Tier										
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1.00		Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cranes	0.35	1.54	4.17	0.18	0.17	0.00	355.02	0.11	0.00	358.70
			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1.00		Model Default Tier	Excavators	0.30	3.38	3.19	0.15	0.14	0.01	536.03	0.17	0.00	541.59
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1.00		Model Default Tier	Graders	0.84	4.69	8.36	0.47	0.43	0.01	629.41	0.20	0.01	635.92
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1.00		Model Default Tier	Off-Highway Trucks	0.77	4.18	8.28	0.30	0.28	0.01	1,323.00	0.41	0.01	1,336.71
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipmen	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipmen	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	1	Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	1	Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	1	Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1.00		Model Default Tier	Rubber Tired Loaders	0.42	1.71	5.25	0.18	0.16	0.01	619.57	0.19	0.01	626.01
			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	1	Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	2	Model Default Tier	Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
User-Defined Off-road Equipment					ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Number of Vehicles		Equipment Tier			pounds/day									
0.00		N/A			0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A			0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A			0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A			0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A			0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A			0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Paving	pounds per day			2.68	15.51	29.25	1.29	1.18	0.03	3,463.03	1.08	0.03	3,498.93
	Paving	tons per phase			0.02	0.12	0.23	0.01	0.01	0.00	27.01	0.01	0.00	27.29
Total Emissions all Phases (tons per construction period) =>					0.32	1.95	3.40	0.16	0.15	0.00	413.07	0.12	0.00	417.14

Equipment default values for horsepower and hours/day can be overridden in cells D391 through D424 and F391 through F424.

Equipment	User Override of Horsepower	Default Values Horsepower	User Override of Hours/day	Default Values Hours/day
Aerial Lifts		63		8
Air Compressors		78		8
Bore/Drill Rigs		206	2.00	8
Cement and Mortar Mixers		9		8
Concrete/Industrial Saws		81		8
Cranes		226	5.00	8
Crawler Tractors		208		8
Crushing/Proc. Equipment		85		8
Excavators		163		8
Forklifts		89	3.00	8
Generator Sets		84	2.00	8
Graders		175		8
Off-Highway Tractors		123		8
Off-Highway Trucks		400		8
Other Construction Equipment		172		8
Other General Industrial Equipment		88		8
Other Material Handling Equipment		167		8
Pavers		126	2.00	8
Paving Equipment		131		8
Plate Compactors		8		8
Pressure Washers		13		8
Pumps		84	5.00	8
Rollers		81		8
Rough Terrain Forklifts		100	3.00	8
Rubber Tired Dozers		255		8
Rubber Tired Loaders		200		8
Scrapers		362		8
Signal Boards		6		8
Skid Steer Loaders		65		8
Surfacing Equipment		254		8
Sweepers/Scrubbers		64		8
Tractors/Loaders/Backhoes		98	3.00	8
Trenchers		81		8
Welders		46		8

END OF DATA ENTRY SHEET

The maximum pounds per day in row 11 is summed over overlapping phases, but the maximum tons per phase in row 34 is not summed over overlapping phases.

Road Construction Emissions Model, Version 8.1.0

Daily Emission Estimates for -> Escalon Bellota Road Bridge														
Project Phases (Pounds)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	Total PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	SOx (lbs/day)	CO2 (lbs/day)	CH4 (lbs/day)	N2O (lbs/day)	CO2e (lbs/day)
Grubbing/Land Clearing	1.14	10.47	11.98	6.06	0.56	5.50	1.62	0.48	1.14	0.02	2,358.62	0.54	0.03	2,380.56
Grading/Excavation	3.84	24.19	39.97	7.42	1.92	5.50	2.89	1.75	1.14	0.05	5,426.43	1.37	0.05	5,476.75
Drainage/Utilities/Sub-Grade	2.11	14.96	21.05	6.54	1.04	5.50	2.07	0.92	1.14	0.03	3,270.07	0.83	0.04	3,301.42
Paving	2.80	17.51	29.60	1.36	1.36	0.00	1.21	1.21	0.00	0.04	4,130.02	1.09	0.04	4,170.30
Maximum (pounds/day)	8.75	56.66	90.62	15.32	4.32	11.00	6.17	3.88	2.29	0.13	12,826.52	3.29	0.13	12,948.46
Total (tons/construction project)	0.33	2.16	3.44	0.71	0.17	0.54	0.26	0.15	0.11	0.00	483.83	0.12	0.00	488.37

Notes:
 Project Start Year -> 2018
 Project Length (months) -> 7
 Total Project Area (acres) -> 5
 Maximum Area Disturbed/Day (acres) -> 1
 Water Truck Used? -> Yes

Phase	Total Material Imported/Exported Volume (yd ³ /day)		Daily VMT (miles/day)			
	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Grubbing/Land Clearing	22	11	0	0	600	40
Grading/Excavation	9	0	0	0	600	40
Drainage/Utilities/Sub-Grade	0	0	0	0	600	40
Paving	0	8	0	0	600	40

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1, 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

Total Emission Estimates by Phase for -> Escalon Bellota Road Bridge														
Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	ROG (tons/phase)	CO (tons/phase)	NOx (tons/phase)	PM10 (tons/phase)	Exhaust PM10 (tons/phase)	Fugitive Dust PM10 (tons/phase)	Total PM2.5 (tons/phase)	Exhaust PM2.5 (tons/phase)	Fugitive Dust PM2.5 (tons/phase)	SOx (tons/phase)	CO2 (tons/phase)	CH4 (tons/phase)	N2O (tons/phase)	CO2e (MT/phase)
Grubbing/Land Clearing	0.00	0.02	0.02	0.01	0.00	0.01	0.00	0.00	0.00	0.00	3.54	0.00	0.00	3.24
Grading/Excavation	0.23	1.48	2.44	0.45	0.12	0.34	0.18	0.11	0.07	0.00	331.01	0.08	0.00	303.08
Drainage/Utilities/Sub-Grade	0.08	0.54	0.75	0.23	0.04	0.20	0.07	0.03	0.04	0.00	117.07	0.03	0.00	107.22
Paving	0.02	0.14	0.23	0.01	0.01	0.00	0.01	0.01	0.00	0.00	32.21	0.01	0.00	29.51
Maximum (tons/phase)	0.23	1.48	2.44	0.45	0.12	0.34	0.18	0.11	0.07	0.00	331.01	0.08	0.00	303.08
Total (tons/construction project)	0.33	2.16	3.44	0.71	0.17	0.54	0.26	0.15	0.11	0.00	483.83	0.12	0.00	443.05

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1, 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

The CO2e emissions are reported as metric tons per phase.

The maximum pounds per day in row 11 is summed over overlapping phases, but the maximum tons per phase in row 34 is not summed over overlapping phases.

Road Construction Emissions Model, Version 8.1.0

Daily Emission Estimates for -> Escalon Bellota Road Bridge														
Project Phases (Pounds)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	Total PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	SOx (lbs/day)	CO2 (lbs/day)	CH4 (lbs/day)	N2O (lbs/day)	CO2e (lbs/day)
Grubbing/Land Clearing	1.15	10.48	9.99	5.84	0.34	5.50	1.42	0.28	1.14	0.02	2,365.10	0.54	0.03	2,387.15
Grading/Excavation	3.85	24.21	32.39	6.59	1.09	5.50	2.12	0.98	1.14	0.05	5,432.91	1.37	0.05	5,483.34
Drainage/Utilities/Sub-Grade	2.11	14.98	17.25	6.11	0.61	5.50	1.67	0.52	1.14	0.03	3,276.56	0.83	0.04	3,308.01
Paving	2.81	17.52	24.09	0.78	0.78	0.00	0.68	0.68	0.00	0.04	4,136.50	1.09	0.04	4,176.89
Maximum (pounds/day)	8.77	56.71	73.73	13.48	2.48	11.00	4.47	2.18	2.29	0.13	12,845.97	3.29	0.13	12,968.24
Total (tons/construction project)	0.33	2.17	2.80	0.64	0.09	0.54	0.20	0.08	0.11	0.00	484.52	0.12	0.01	489.07

Notes:
 Project Start Year -> 2018
 Project Length (months) -> 7
 Total Project Area (acres) -> 5
 Maximum Area Disturbed/Day (acres) -> 1
 Water Truck Used? -> Yes

Phase	Total Material Imported/Exported Volume (yd ³ /day)		Daily VMT (miles/day)			
	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Grubbing/Land Clearing	22	11	0	0	600	40
Grading/Excavation	9	0	0	0	600	40
Drainage/Utilities/Sub-Grade	0	0	0	0	600	40
Paving	0	8	0	0	600	40

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1, 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

Total Emission Estimates by Phase for -> Escalon Bellota Road Bridge														
Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	ROG (tons/phase)	CO (tons/phase)	NOx (tons/phase)	PM10 (tons/phase)	Exhaust PM10 (tons/phase)	Fugitive Dust PM10 (tons/phase)	Total PM2.5 (tons/phase)	Exhaust PM2.5 (tons/phase)	Fugitive Dust PM2.5 (tons/phase)	SOx (tons/phase)	CO2 (tons/phase)	CH4 (tons/phase)	N2O (tons/phase)	CO2e (MT/phase)
Grubbing/Land Clearing	0.00	0.02	0.01	0.01	0.00	0.01	0.00	0.00	0.00	0.00	3.55	0.00	0.00	3.25
Grading/Excavation	0.23	1.48	1.98	0.40	0.07	0.34	0.13	0.06	0.07	0.00	331.41	0.08	0.00	303.44
Drainage/Utilities/Sub-Grade	0.08	0.54	0.62	0.22	0.02	0.20	0.06	0.02	0.04	0.00	117.30	0.03	0.00	107.44
Paving	0.02	0.14	0.19	0.01	0.01	0.00	0.01	0.01	0.00	0.00	32.26	0.01	0.00	29.56
Maximum (tons/phase)	0.23	1.48	1.98	0.40	0.07	0.34	0.13	0.06	0.07	0.00	331.41	0.08	0.00	303.44
Total (tons/construction project)	0.33	2.17	2.80	0.64	0.09	0.54	0.20	0.08	0.11	0.00	484.52	0.12	0.01	443.68

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1, 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

The CO2e emissions are reported as metric tons per phase.

Appendix B

Plant Species Observed

Table B-1. Plant Species Observed in the Biological Study Area

Scientific Name	Common Name
<i>Abutilon theophrasti</i>	velvet-leaf
<i>Acer saccharinum</i>	silver maple
<i>Agave americanus</i>	century plant
<i>Amaranthus albus</i>	tumbleweed
<i>Amaranthus blitoides</i>	procumbent pigweed
<i>Ammi visnaga</i>	bisnaga
<i>Amsinckia intermedia</i>	common fiddleneck
<i>Artemisia douglasiana</i>	mugwort
<i>Asclepias fascicularis</i>	fascicled milkweed
<i>Avena barbata</i>	slender wild oat
<i>Avena sativa</i>	cultivated oats
<i>Brassica nigra</i>	black mustard
<i>Bromus catharticus</i>	rescue grass
<i>Bromus diandrus</i>	riggut brome
<i>Capsella bursa-pastoris</i>	shepherd's-purse
<i>Cardamine oligosperma</i>	few-seeded bittercress
<i>Carduus pycnocephalus</i>	Italian thistle
<i>Carya illinoensis</i>	pecan
<i>Centaurea solstitialis</i>	yellow star-thistle
<i>Cephalanthus occidentalis</i>	buttonwillow
<i>Conium maculatum</i>	poison hemlock
<i>Convolvulus arvensis</i>	field bindweed
<i>Croton setigerus</i>	turkey mullein
<i>Cupressus sempervirens</i>	Italian cypress
<i>Cynodon dactylon</i>	Bermuda grass
<i>Cyperus eragrostis</i>	umbrella sedge
<i>Datura wrightii</i>	sacred thorn-apple
<i>Echinochloa crus-gallii</i>	barnyard grass
<i>Epilobium brachycarpum</i>	panicled willow-herb
<i>Erigeron bonariensis</i>	flax-leaved horseweed
<i>Erigeron canadensis</i>	horseweed
<i>Erodium moschatum</i>	white-stemmed filaree
<i>Erodium cicutarium</i>	red-stemmed filaree
<i>Euphorbia maculata</i>	warty spurge
<i>Festuca myuros</i>	rat-tail fescue
<i>Festuca perennis</i>	Italian ryegrass
<i>Foeniculum vulgare</i>	fennel
<i>Fraxinus latifolia</i>	Oregon ash
<i>Galium aparine</i>	cleavers
<i>Geranium molle</i>	dove's-foot geranium
<i>Hedera canariensis</i>	Canary Islands ivy
<i>Helianthus annuus</i>	common sunflower

Scientific Name	Common Name
<i>Helminthotheca echioides</i>	bristly ox-tongue
<i>Hirschfeldia incana</i>	Mediterranean mustard
<i>Holocarpha virgata</i>	common tarweed
<i>Juglans hindsii</i>	Northern California black walnut
<i>Juglans regia</i>	English walnut
<i>Juncus usitatus</i>	rush
<i>Lactuca serriola</i>	prickly lettuce
<i>Lamium amplexicaule</i>	common henbit
<i>Lepidium didymum</i>	lesser wartcress
<i>Ligustrum lucidum</i>	glossy privet
<i>Ludwigia sp.</i>	yellow waterweed
<i>Malva neglecta</i>	common mallow
<i>Marrubium vulgare</i>	horehound
<i>Morus alba</i>	fruitless mulberry
<i>Nereum oleander</i>	oleander
<i>Arecaceae sp.</i>	fan palm
<i>Paspalum dilatatum</i>	Dallis grass
<i>Pennisetum clandestinum</i>	Kikuyu grass
<i>Phytolacca americana</i>	pokeweed
<i>Plantago lanceolata</i>	English plantain
<i>Poa annua</i>	annual bluegrass
<i>Polygonum aviculare</i>	common knotweed
<i>Populus sp.</i>	poplar
<i>Prunus sp.</i>	wild cherry
<i>Quercus lobata</i>	valley oak
<i>Raphanus sativus</i>	wild radish
<i>Rosa sp.</i>	cultivated rose
<i>Rumex crispus</i>	curly dock
<i>Salix lasiolepis</i>	arroyo willow
<i>Sambucus nigra subsp. caerulea</i>	blue elderberry
<i>Schoenoplectus sp.</i>	bulrush
<i>Senecio vulgaris</i>	common groundsel
<i>Sequoia sempervirens</i>	coast redwood
<i>Silybum marianum</i>	milk thistle
<i>Sinapis arvensis</i>	charlock
<i>Sonchus asper</i>	prickly sow-thistle
<i>Sorghum halepense</i>	Johnson grass
<i>Stellaria media</i>	common chickweed
<i>Stipa miliacea</i>	smilo grass
<i>Thuja occidentalis</i>	arborvitae
<i>Torilis arvensis</i>	tall sock-destroyer
<i>Toxicodendron diversilobum</i>	poison-oak
<i>Tribulus terrestris</i>	puncture vine
<i>Urtica urens</i>	dwarf nettle
<i>Vinca major</i>	periwinkle
<i>Xanthium strumarium</i>	cocklebur
<i>Zantedeschia aethiopica</i>	calla-lily

Table B-2. Trees Observed in the Biological Study Area

Number	Tree Species	DBH (inches)	Comment	Impacts
2	Valley oak	6		Removal
3	Valley oak	24		Removal
4	Valley oak	24		None
5	Valley oak	< 6	multiple trunks	None
6	Valley oak	18		Trimming
7	Valley oak	10, 18	two trunks	Trimming
8	Black walnut	8		Trimming
22	Valley oak	18, 18	two trunks	Removal
23	Valley oak	30		Removal
24	Valley oak	18		Removal
25	Valley oak	6, 12, 18	multiple trunks	Removal
26	Valley oak	24		Removal
27	Valley oak	24		Removal
28	Valley oak	15, 18	two close trees	Removal
29	Pecan	15/18	two trunks	Removal
30	Valley oak	40		None
31	Valley oak	18, 36	two trunks	None
32	Valley oak	48		None
33	English walnut	15		None
35	Valley oak	24	multiple trunks	None
36	Valley oak	24		None
37	Black walnut	10		Removal
38	Valley oak	36		None

Appendix C

Wildlife Species Observed

Table C-1. Wildlife Species Observed or Detected in the Biological Study Area

Scientific Name	Common Name
Birds	
<i>Accipiter cooperii</i>	Cooper's hawk
<i>Aphelocoma californica</i>	Western scrub-jay
<i>Buteo lineatus</i>	Red-shouldered hawk
<i>Buteo jamaicensis</i>	Red-tailed hawk
<i>Calypte anna</i>	Anna's hummingbird
<i>Carduelis psaltria</i>	Lesser goldfinch
<i>Cathartes aura</i>	Turkey vulture
<i>Colaptes auratus</i>	Northern flicker
<i>Corvus brachyrhynchos</i>	American crow
<i>Haemorhous mexicanus</i>	House finch
<i>Mimus polyglottos</i>	Northern mockingbird
<i>Myiarchus cinerascens</i>	Ash-throated flycatcher
<i>Passer domesticus</i>	House sparrow
<i>Sayornis nigricans</i>	Black phoebe
<i>Sayornis saya</i>	Say's phoebe
<i>Tyrannus verticalis</i>	Western kingbird
<i>Zenaida macroura</i>	Mourning dove
<i>Zonotrichia leucophrys</i>	White-crowned sparrow
<i>Picoides nuttallii</i>	Nuttall's woodpecker
<i>Streptopelia decaocto</i>	Eurasian collared dove
<i>Sitta carolinensis</i>	White-breasted nuthatch
Mammals	
<i>Canis latrans</i>	Coyote
<i>Procyon lotor</i>	Raccoon
<i>Spermophilus beecheyi</i>	California ground squirrel