

CROWS LANDING ROAD BRIDGE REPLACEMENT PROJECT INITIAL STUDY/MITIGATED NEGATIVE DECLARATION

PREPARED FOR:

Stanislaus County Public Works
1010 Tenth Street, Ste 4107
Modesto, CA 95354
Contact: Dave Leamon, P.E.
(209) 525-4184

PREPARED BY:

ICF International
75 East Santa Clara Street
San Jose, CA 95113
Contact: Christine Fukasawa
(408) 216-2811

May 2013



Table of Contents

Negative Declaration

CEQA Initial Study Pageii

I. Aesthetics..... 9

II. Agricultural Resources 10

III. Air Quality 13

IV Biological Resources 22

V. Cultural Resources 49

VI. Geology and Soils..... 52

VII. Greenhouse Gas Emissions..... 55

VIII. Hazards and Hazardous Materials 57

IX. Hydrology and Water Quality 60

X. Land Use..... 65

XI. Mineral Resources 68

XII. Noise 69

XIII. Population and Housing..... 72

XIV. Public Services 73

XV. Recreation..... 74

XVI. Transportation and Traffic..... 75

XVII. Utilities and Service Systems 77

XVIII. Mandatory Findings of Significance..... 79

Figures

Appendices

##

NEGATIVE DECLARATION

Lead Agency:
DEPARTMENT OF PUBLIC WORKS
1716 Morgan Road
Modesto, CA 95358

PROJECT NAME:

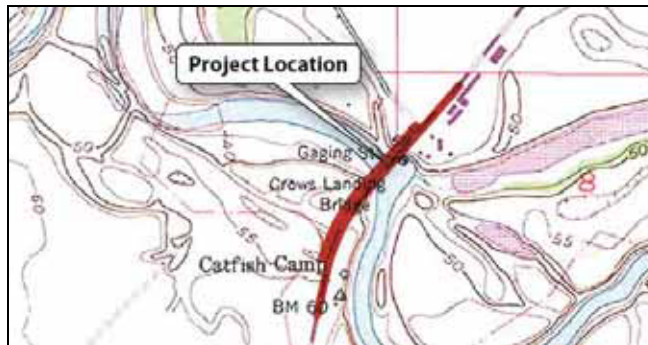
Crows Landing Road Bridge Over San Joaquin River

PROJECT PROPONENT:

Department of Public Works

PROJECT LOCATION:

Crows Landing Road Bridge over the San Joaquin River, adjacent to West Carpenter Road



PROJECT DESCRIPTION:

The Stanislaus County Department of Public Works is proposing to replace the existing functionally obsolete bridge structure on Crows Landing Road over the San Joaquin River (adjacent to West Carpenter Road). In addition to being functionally obsolete, the bridge is also scour critical and vulnerable to liquefaction and key pier foundations.

The project would remove the existing 670-foot long two-lane bridge and replace it with an approximately 670 to 700 foot long, two-lane bridge (including one 12-foot wide two-way turn lane for safe access to existing levee maintenance roads). The construction of the bridge (Bridge No. 38C0339) replacement structure and associated roadway approaches and features would be constructed just north of the existing roadway and bridge while the existing facilities are being used to maintain public traffic through the project site. Project features would include two (2) bridge abutments (one at each bank), four (4) bridge piers (consisting of two [2] columns); and rock slope protection along the banks of the San Joaquin River channel near and around the bridge abutment locations.

ENVIRONMENTAL DETERMINATION:

The Lead Agency has prepared an Initial Study, attached, which considers the potential environmental effects of the proposed project. The Initial Study shows that there is no substantial evidence, in light of the whole record before the Lead Agency, that the project may have a potentially significant effect on the environment, provided that the following mitigation measures are included in the project (complete text of the mitigation measures are included in the Initial Study).

AIR QUALITY

Mitigation Measure AQ-1: Prepare and Implement a Dust Control Plan to Comply with SJVAPCD Regulation VIII Requirements to Control Construction Emissions of PM10.

Mitigation Measure AQ-2: Implement Measures to Reduce Exhaust Emissions from Off-Road Diesel Powered Equipment.

Mitigation Measure AQ-3: Implement Measures to Comply with SJVAPCD Rule 9510, Indirect Source Review.

Mitigation Measure AQ-4: Implement Construction Mitigation Measures to Control Construction-Related Diesel Particulate Matter Exhaust Emissions.

BIOLOGICAL RESOURCES MITIGATION MEASURES

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

Mitigation Measure BIO-2. Conduct Environmental Awareness Training for Construction Employees.

Mitigation Measure BIO-3. Retain a Biological Monitor to Conduct Weekly Visits during Construction.

Mitigation Measure BIO-4. Avoid and Minimize Potential Disturbance of Riparian Communities.

Mitigation Measure BIO-5. Protect Water Quality and Prevent Erosion and Sedimentation in Drainages and Wetlands.

Mitigation Measure BIO-6. Compensate for Temporary and Permanent Loss of Riparian Vegetation.

Mitigation Measure BIO-7. Conduct Preconstruction Presence/Absence Surveys for Western Pond Turtle and Construct Exclusion Fencing, If Needed.

Mitigation Measure BIO-8. Remove Vegetation during the Nonbreeding Season and Conduct Preconstruction Surveys for Swainson's Hawk.

Mitigation Measure BIO-9. Remove Vegetation during the Nonbreeding Season and Conduct Preconstruction Surveys for Other Special-Status and Non-Special-Status Migratory Birds

Mitigation Measure BIO-10. Conduct Preconstruction Surveys and Implement Protective Measures for Western Burrowing Owl, If Necessary.

Mitigation Measure BIO-11. Compensate for the Loss of Habitat for Western Burrowing Owl.

Mitigation Measure BIO-12. Implement Protective Measures for Cliff Swallows to Avoid Disturbance to Active Nests.

Mitigation Measure BIO-13. Conduct Nighttime Emergence Surveys for Bats and Examine Suitable Roost Trees Prior to Trimming or Removal.

Mitigation Measure BIO-14. Install Bat Exclusion Devices in Late August.

Mitigation Measure BIO-15. Include Bat-Friendly Designs in the Final Bridge Design.

Mitigation Measure BIO-16. Conduct Preconstruction Surveys and Relocation of American Badger.

Mitigation Measure BIO-17. Avoid American Badger.

Mitigation Measure BIO-18. Compensate for Temporary Loss and Permanent Fill of In-Channel Habitat for Special-Status Fish Species.

Mitigation Measure BIO-19. Prevent Contaminants and Hazardous Materials from Entering the Stream Channel.

Mitigation Measure BIO-20. Restrict In-Water Work to Avoid Special-Status Fish Spawning Seasons.

Mitigation Measure BIO-21. Provide Alternate Migration Corridor through San Joaquin River Channel.

Mitigation Measure BIO-22. Retain Fish Biologist to Perform Fish Rescue Activities as Needed.

Mitigation Measure BIO-23. Minimize Impacts on River Channel.

Mitigation Measure BIO-24. Minimize Noise Impacts on Special-Status Fish Species.

Mitigation Measure BIO-25. Compensate for Permanent Loss of Seasonal Wetland.

Mitigation Measure BIO-26. Restore Temporarily Disturbed Drainage Habitat and Compensate for Permanent Loss of Drainage Habitat.

GEOTECHNICAL MITIGATION MEASURES

Mitigation Measure GEO-1. Stockpile Topsoil and Reuse Onsite.

HAZARDOUS MATERIALS MITIGATION MEASURES

Mitigation Measure HAZ-1: Implement Asbestos and Lead-Based Paint Abatement and Subsurface Soil Investigation.

Mitigation Measure HAZ-2: Stop Work and Implement Hazardous Materials Investigations and Remediation in the Event Hazardous Materials are Encountered during Construction.

NOISE MITIGATION MEASURES

Mitigation Measure NOI-1: Limit Construction Hours.

Mitigation Measure NOI-2: Employ Noise-Reducing Construction Practices.

Therefore, the Lead Agency proposes to adopt a Mitigated Negative Declaration for the project, in accordance with the provisions of the California Environmental Quality Act (CEQA) and the State CEQA Guidelines.



David A. Leamon, P.E., Stanislaus County Public Works Department

5/15/13

Date



CEQA INITIAL STUDY

Adapted from CEQA Guidelines APPENDIX G Environmental Checklist Form, Final Text, December 30, 2009

1. **Project title:** Crows Landing Road Bridge Replacement Project
2. **Lead agency name and address:** Stanislaus County
1010 10th Street, Suite 3400
Modesto, CA 95354
3. **Contact person and phone number:** Dave Leamon, P.E.
Stanislaus County Public Works Department
Phone: (209) 525-4184
4. **Project location:** Crows Landing Road Bridge over San Joaquin River at its intersection with West Carpenter Road. Four (4) miles northeast of Crows Landing and 12 miles from the City of Turlock (includes Assessor's Parcel Numbers [APN]: 049-003-011, 049-003-010, 057-001-008, 057-001-005, 057-001-006, 057-001-007, 057-001-011, 057-026-007).
5. **Project sponsor's name and address:** Stanislaus County, Department of Public Works
1716 Morgan Road
Modesto, CA 95358
6. **General Plan designation:** Agriculture
7. **Zoning:** General Agriculture District (A-2-40)
8. **Description of project:**

Introduction

The Crows Landing Road Bridge Project (herein referred to as the "project") is located within unincorporated Stanislaus County, approximately 4 miles northeast of Crows Landing and 12 miles from the City of Turlock, along Crows Landing Road. The bridge (Bridge Number: 38C0339) is predominately surrounded by agricultural uses (refer to **Figure 1**, Project Vicinity and **Figure 2**, Project Location). The approximately 13-acre project site (refer to **Figure 3**, Project Site Plan) is located on County right-of-way and several privately-owned parcels (including Assessor's Parcel Numbers [APN] 049-003-011, 049-003-010, 057-001-008, 057-001-005, 057-001-006, 057-001-007, 057-001-011, 057-026-007).

The purpose of the project is to replace the existing functionally obsolete (FO) bridge structure on Crows Landing Road over the San Joaquin River. The existing bridge is listed as FO in the September 10, 2009 Caltrans Bridge Inspection Report. The existing bridge is also scour critical and is vulnerable to liquefaction at key pier foundations during a seismic event. Two seismic retrofit studies have been conducted on the bridge by separate parties; both concluding that it is more cost effective to replace the existing bridge than seismically retrofit and rehabilitate it. Thus, the existing structure qualifies for replacement under the Local Seismic Safety Retrofit Program (LSSRP) and the Highway Bridge Program (HBP).

Existing Conditions

The approximately 670-foot long rural bridge is two-lanes (one lane in each direction) with a width of approximately 29 feet at its widest point and was built in 1949. It is a concrete cast-in-place bridge that was listed in a 2009 (as well as a 2001) in the Caltrans Bridge Inspection Report as being FO.

Surrounding Land Use and Setting

The project site crosses over the perennially flowing San Joaquin River and is characterized by active agricultural uses and disturbed riparian areas. Developed areas in the immediate vicinity includes the following:

- Vitoria Dairy and Hilmar Cheese Company (located along Crows Landing Road, southeast of the project site) - includes commercial and residential development and landscaping
- Medeiros Egg Store (north of the bridge and Crows Landing Road and east of Carpenter Road) – egg farm including commercial buildings
- Turlock Sportsman Club (north of the bridge and west of Carpenter Road) – private club, recreational buildings, landscaped areas, and amenities for trap shooting, archery, fishing, and camping
- Catfish Camp and Recreational Vehicle (RV) Park (east of Crows Landing Road at the southern end of the project site)
- Agricultural Fields – active agricultural fields to the southwest and northwest of Crows Landing Bridge
- Area Roadways – includes the Crows Landing Road, Carpenter Road, and the United States Bureau of Reclamation (BOR) access road which extends east of the bridge and south of the Vitoria Dairy and Hilmar Cheese Company site

Areas in the immediate vicinity of the existing bridge consist of disturbed riparian vegetation (refer to **Figure 6**).

Project Details

The project would remove the existing bridge and replace it with a five span bridge approximately 670 to 700 feet in length. The construction of the Crows Landing Road Bridge replacement structure and associated roadway approaches and features would be completed just north of the existing roadway and bridge while the existing facilities are being used to maintain public traffic through the project site (refer to **Figure 3**).

The superstructure of this bridge would either consist of a continuous cast-in-place, post tensioned box girder or a cast-in-place, post tensioned box girder with a precast pre-stressed span over the low flow channel of the San Joaquin River. In each case, the bridge would be supported by seat abutments at each end and two column intermediate piers. The abutments would be founded on driven piles (refer to **Table A**). Pile driving, included in the project, would include temporary falsework/trestle piles and permanent bridge foundation piles that are vibrated, driven, or drilled in to a depth of up to 400 feet depth. The only driven piles would be part of the permanent bridge foundation at the abutments (out of the channel). Temporary falsework/working trestle piles would be vibrated in, and intermediate piers would be supported on drilled shafts.

For the drilled shaft foundations, a steel casing will enclose the area around the shaft to support the surrounding soil and control water in the excavated hole. The steel casing would not be sealed at the bottom so water will enter the steel shaft. The contractor will use the below water placement for concrete which pumps concrete down to the base of the shaft and water is forced out the top of the shaft. The contractor will capture and treat water being forced out of the steel casing.

Table A. Pile Driving Assumptions for the Crows Landing Road Bridge

Pile Diameter/ Type	Driver/ Extractor	Number of Piles	Piles per Day	Minutes per Pile (Vibratory)	Total Driving Period
Temporary Falsework/Working Trestle Piles ^a					

14-inch Steel "H" piles	Vibratory Driver/ Extractor (API- 200) ^e	4 piles ^b per Falsework/ Trestle Bent	<u>Installation</u> <u>(Vibratory)</u>	<u>Installation</u> <u>(Vibratory)</u>	<u>Installation</u> <u>(Vibratory)</u>
			10-12 piles/day	10 minutes/pile	5-6 days
			<u>Removal</u> <u>(Vibratory)</u> ^{f,g}	<u>Removal</u> <u>(Vibratory)</u> ^{f,g}	<u>Removal</u> <u>(Vibratory)</u> ^{f,g}
			20-30 piles/day	5 minutes/pile	2-3 days

Permanent Bridge Foundation—Driven Pile - Abutments Only^c

14-inch Steel "H" piles	Delmag 30-32 Impact Hammer	20 piles ^d per Bent	<u>Installation</u> <u>(Impact)</u>	<u>Installation</u> <u>(Impact)</u>	<u>Installation</u> <u>(Impact)</u>
		15 piles ^d per Abutment	7-10 piles/day	100–120 strikes/pile (300- 400 foot pile depth)	14–20 days

Permanent Bridge Foundation—Drilled Piers^e

72-inch Drilled Steel Shelled Shafts at each Bent	Delmag Drilling Rig RHV 40	2 drilled shafts per Bent	<u>Installation</u> <u>(Drilling)</u>	<u>Installation</u> <u>(Drilling)</u>	<u>Installation</u> <u>(Drilling)</u>
			1-2 shafts/day	60-120 minutes/CIDH abutment pile 240-480 minutes/bent drilled shaft	7–14 days

Geotechnical Assumptions:

- ^a Temporary Falsework / Trestle Piles are assumed to be 30 ton capacity piles. The number of piles is based on 15 Falsework / Trestle bents with 4 piles per bent and a pile spacing of no more than 25 ft on center.
- ^b All Temporary Falsework / Trestle Piles are assumed to be 90 feet long with no splicing, continuous vibratory driving, and have a minimum 60-foot penetration into the sub-grade.
- ^c Permanent Bridge Foundation driven piles are assumed to be 70 ton capacity piles. The number of piles is assumed to be 15 per abutment.
- ^d All Permanent Bridge Foundation driven piles are assumed to be 300-400 feet long. Field splicing will be required to achieve 300-400 feet of penetration into the sub-grade.
- ^e Drilled Shafts are assumed to be 300-400 feet long. The number of piles is assumed to be 2 drilled shafts per pier.
- ^f The removal of the piles will depend on whether the pile is damaged (crumbled) at the tip. Removal may take between 5 minutes to several hours.
- ^g The removal of the piles also depends on the experience of the contractor, proper equipment, and possible damage at pile tip.

Permanent features that would remain in the San Joaquin River channel after construction of the project is complete are:

- Two (2) bridge abutments (one at each bank);
- Four (4) bridge piers (consisting of two [2] columns [0.0052 acres]); and,
- Rock Slope Protection (RSP) along the banks of the San Joaquin River channel near and around the bridge abutment locations (0.58 acres).

Approximately 250 feet of RSP will be placed along each bank. The maximum extent of RSP would be 50 feet from the face of the bridge for a total new area of 0.29 acres at each abutment or 0.58 acres total. The RSP would be placed starting from the top of bank down to the bank toe and have a 5 foot wide key in the channel at the base of the bank.

Work associated with the replacement of the existing bridge would include the reconstruction of the roadway approaches on each side of the bridge. In order to accommodate public traffic through the project site during construction, the new roadway approach will be constructed slightly north of the existing bridge which will remain open to public traffic. The vertical profile of the replacement ridge would be slightly higher (less than 2 feet higher) than the

vertical profile of the existing bridge in order to accommodate the flows from 50-, 80- and 100-year storm events through the San Joaquin River. The roadway approach work would extend approximately 1,300 feet beyond each end of the bridge.

The project would not increase or decrease capacity compared to the existing bridge, although part of the project is to construct one 12-foot two-way left turn lane for safe access to existing levee maintenance roads on each side of the bridge, which is anticipated to alleviate any traffic disruptions associated with occasional levee access. The existing bridge does not include dedicated left-turns lanes, only one through-lane in each direction.

Construction and Phasing

Construction activities would temporarily affect traffic in the project area and along local and regional roadways. Sources of vehicular traffic during the construction phase of the project would include construction worker commute trips, project equipment deliveries, and hauling of materials such as concrete, gravel, or asphalt, and construction waste.

In order for the contractor to construct the replacement bridge and associated roadway approach, a staging area would be required. A potential staging (contractor layout) area is at the southern end of the project site, south of the southern levee access road and to the west of Crows Landing Road (refer to **Figure 3**). This area is currently an agricultural field. The staging area should encompass an area of approximately 90,000 square feet. In addition, a temporary construction easement (TCEs) approximately 100-feet wide would also be needed along the western edge of the project between the construction staging area and Carpenter Road.

In addition to staging areas, the contractor would need to construct a temporary access road into the San Joaquin River channel in order to construct the replacement bridge and demolish the existing bridge structure. It is anticipated that access would need to be gained by the contractor from each end of the project site. A temporary construction trestle and/or falsework would also be needed to construct the replacement bridge across the San Joaquin River channel between the new roadway embankments. Refer to **Figure 3** for limits of work and construction easements.

In-Channel Work

Water bladder dams would be placed along the southern edge of the low flow channel and the northern edge of the channel during the construction season. These barriers would extend approximately 100 feet upstream of the existing bridge and 100 feet downstream of the replacement bridge to allow for the construction of the new bridge and demolition of the existing bridge.

Water bladder dams (aqua dams) will be used to create a barrier around the existing piles during the demolition of the old bridge. Water bladder dams will be used as a cofferdam/shoring system and construction would occur between June 1 and October 15 (dewatering timeframe). After installation of the water bladder dam, fish may become isolated within the area. After the water bladder dams have been placed and before any pumping begins, two people (one fisheries biologist) will seine the isolated area behind the dam(s) and remove fish. Dewatering for pier removal at the bridge site equates to 2,800 square feet. Only the pier walls for the main bridge span are within the vicinity of flowing water during the construction period. The area of both aqua dams is 20,000 square feet. The area of turbidity from the removal of the aqua dams is 1,000 square feet, which is 5 percent of the total footprint area assumed to address silt build-up over the 3 months the aqua dams will be in place. Therefore, the total square foot area estimate for in-water work during construction is 23,800 square feet.

Project Equipment

The following equipment are anticipated for use in the San Joaquin River channel:

- Front-end loaders
- Backhoes
- Graders
- Dump trucks
- Cranes
- Concrete trucks

- Concrete pump trucks
- Fork lifts
- Trailer-mounted portable generators
- Pickup trucks
- Light hand tools

On-site Improvements

Roadway improvements consist of the following:

- A 55-foot-wide bridge cross section to accommodate two 12-foot lanes of through traffic (one in each direction), one 12-foot wide two-way left turn lane for safe access to existing levee maintenance roads on each side of the bridge, two 8-foot shoulders, and two concrete barriers.
- Roadway approach fill slopes at each end of the bridge, similar to the existing roadway approaches.
- 52-foot-wide roadway approaches to accommodate two 12-foot wide lanes of through traffic (one in each direction), one 12-foot wide two-way left turn lane for safe access to existing levee maintenance roads, one 12-foot dedicated left turn lane for northbound Crows Landing Road traffic to Carpenter Road, one 12-foot acceleration lane for eastbound Carpenter Road traffic to northbound Crows Landing Road, and two 8-foot shoulders.
- Post construction planting and erosion control seeding (including review and verification by a licensed landscape architect).

Utilities

Electricity in the project area is provided by the Turlock Irrigation District (TID), and natural gas is provided by Pacific Gas and Electric (PG&E). Anticipated utility relocations to accommodate construction of the bridge include overhead telephone, electrical service lines, and an irrigation pump station. Other potential utilities are not anticipated to be affected, but may include underground irrigation, water, sanitary sewer, natural gas and petroleum lines. To the extent feasible, these utilities will be avoided, and utility service would be maintained.

Post bridge-construction, electric and natural gas lines, as well as the irrigation pump, would either be relocated onto the new bridge, or within the project site, in coordination with the utility and utility owner.

Right of Way Acquisition

Right of way and TCEs would be needed for the project. The right of way need is estimated to be 6.4 acres. The TCE area needed is estimated to be 6.2 acres (refer to **Figure 3**).

Project Access and Security

As previously discussed, the construction of the Crows Landing Road Bridge (Bridge Number: 38C0339) replacement structure and associated roadway approaches and features would be completed just north of the existing roadway and bridge while the existing facilities are being used to maintain public traffic through the project site. Construction activities would temporarily affect traffic in the project area and along local and regional roadways. Sources of vehicular traffic during the construction phase of the project would include construction worker commute trips, project equipment deliveries, and hauling of materials such as concrete, gravel, or asphalt, and construction waste.

Deconstruction Activities/Restoration of Site

The existing bridge would be demolished after construction of the new bridge is complete. This would not occur until the replacement bridge is open to the public and is anticipated to take no more than two (2) calendar months. Work associated with removal of the existing bridge would include the following steps:

- Bridge barrier rail and deck removal
- Removal and salvage of steel beams, main span steel plate girders
- Removal of the bridge support piers and abutments

- Pile foundation removal (cut off approximately five [5] feet below the existing channel grade)

Restoration of the project site would include implementation of a planting plan and erosion control seeding plan.

Project Schedule

Construction of the replacement bridge would begin in Spring 2014 and is anticipated to take about 11 months including demolition of the existing bridge. The duration of time that the contractor would need for work within the San Joaquin River channel is anticipated to be 120 working days or approximately 6 calendar months (June 1 to October 15).

Project Personnel

Up to 30 personnel would be on site during construction of the replacement bridge. Up to 10 personnel would be required on site during demolition of the existing bridge. Personnel are anticipated to be on the project site during regular working hours, consistent with County policies.

- | | |
|---|--|
| 9. Surrounding land uses and setting: | Primarily agricultural and recreational (associated with the San Joaquin River) (refer to Item 8, above). |
| 10. Other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement.): | Stanislaus County Public Works, West Stanislaus County Fire Protection District, United States Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS), Central Valley Regional Water Quality Control Board (RWQCB), United States Army Corps of Engineers (USACE), California Department of Fish and Wildlife (CDFW), Department of Transportation (Caltrans) District 10 |

STRIVING TO BE THE BEST COUNTY IN AMERICA

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

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

- | | | |
|--|--|---|
| <input type="checkbox"/> Aesthetics | <input checked="" type="checkbox"/> Agriculture & Forestry Resources | <input checked="" type="checkbox"/> Air Quality |
| <input checked="" type="checkbox"/> Biological Resources | <input type="checkbox"/> Cultural Resources | <input checked="" type="checkbox"/> Geology / Soils |
| <input type="checkbox"/> Greenhouse Gas Emissions | <input checked="" type="checkbox"/> Hazards & 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 checked="" type="checkbox"/> Transportation / Traffic | <input type="checkbox"/> Utilities / Service Systems | <input type="checkbox"/> Mandatory Findings of Significance |

DETERMINATION: (To be completed by the Lead Agency)

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 in 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 a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, 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 **EIR** or **NEGATIVE DECLARATION** pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier **EIR** or **NEGATIVE DECLARATION**, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.



Signature



Date

Dave Leamon, P.E.
Printed Name

Stanislaus County
For

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 where 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 off-site as well as on-site, 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, then 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 EIR is required.
- 4) “Negative Declaration: Less Than Significant With Mitigation Incorporated” applies where the incorporation of mitigation measures has reduced an effect from “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 where, pursuant to the 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 they 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 Measures Incorporated,” 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.
- 6) Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). References to a previously prepared or outside document should, where 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 significant criteria or threshold, if any, used to evaluate each question; and
 - b) the mitigation measure identified, if any, to reduce the impact to less than significant.

ISSUES

I. AESTHETICS – Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Included	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect on a scenic vista?				<input checked="" type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?			<input checked="" type="checkbox"/>	
c) Substantially degrade the existing visual character or quality of the site and its surroundings?			<input checked="" type="checkbox"/>	
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?				<input checked="" type="checkbox"/>

Setting:

The project area is in Stanislaus County, California, located in the Central Valley and crosses the San Joaquin River along Crows Landing Road approximately four (4) miles northeast of Crows Landing (refer to **Figure 1**). The project area is characterized by the flat valley floor and is mostly composed of agricultural fields and dairy production. The agricultural fields allow for expansive long range views. The Diablo Range can be seen in the background, to the west, 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. Development adjacent to the project site includes the following:

- The Hilmar Cheese Company
- The Egg Store
- The Turlock Sportsman's Club
- Catfish Camp RV Park

There is a permanent residential unit for the caretaker of the Sportsman's Club. It also has recreational campers using tents and RVs As does Catfish Camp. It is unknown if there is a permanent residence at Catfish Camp.

Neither of the two roads located near or within the project area, Crows Landing Road and Carpenter Road, are state or locally designated scenic highways, and there are no scenic vistas or historic buildings located within or adjacent to the project.

Viewer groups in the area include motorists using Crows Landing Road Bridge, employees and visitors to nearby businesses, and recreational users (recreationists) of the San Joaquin River.

Motorists make up the largest viewing group in the project area. Crows Landing Road and Carpenter Road are viewed daily by viewers commuting along these roadways, as well as those frequenting the businesses and recreational areas in the vicinity. Motorist sensitivity would be low as their attention is focused more on driving than viewing the surrounding landscape, and viewing time is brief as they pass the project site. Viewers associated with the Hilmar Cheese Company and the Egg Store are almost exclusively employees located indoors, that would not have long-term direct views of the project area except when entering and existing. Their sensitivity would be considered low. Recreationists using the Sportsman's Club would have vantage points of the project area from the facility entry, fishing dock, and boat ramp, though views from other areas of the property are obscured by riparian vegetation and a rip rap berm. Catfish Camp and RV Park also includes a fishing dock and boat ramp with views of the project site. Accordingly, boaters on the San Joaquin River and recreationists fishing from its banks also have views of the project site. Recreationists are anticipated to have the highest sensitivity to visual changes at the project site.

The project would not involve improvements that would increase daytime glare, and no lighting is proposed.

Discussion:

- The project site is not located in an area that has been designated as a scenic vista. Furthermore, Crows Landing Road and Carpenter Road are not state or locally designated scenic highways. Although the site is

visible to recreationists, the project would replace the existing view of a roadway bridge with a view of a similar, taller and wider, roadway bridge. Therefore, there are no impacts related to adverse effects on a scenic vista (No Impact).

- b. The project involves replacing the existing Crows Landing Road bridge slightly north of the existing alignment with a somewhat taller, five span structure that is wider to accommodate two lanes of traffic, turn lanes, shoulders, safety barriers, and rip rap along the riverbanks at the bridge. The entry to the Sportsman's Club would be slightly affected by the realignment of the intersection between Carpenter Road and Crows Landing Road. Despite the bridge being slightly taller, wider, and in a location north of the existing alignment, the new bridge would be consistent with existing visual character of the project site, and these changes would not substantially alter the visual character or quality of Carpenter Road, the Sportsman's Club entry, or the Sportsman's Club itself. Residential and recreational viewers in the area may have potential sensitivity to changes in views and some vegetation west of Crows Landing Road and south of the river (including trees) would be removed.

As part of the project, a planting plan and erosion control seeding plan would be prepared to restore the project site to pre-project conditions. Implementation of these plans would include review and verification by a licensed landscape architect. This would reduce potential scenic resources and visual character impacts by introducing landscaping to the area, approved by a licensed landscape architect. Impacts related to potential damage to scenic resources and visual character is considered to be less than significant (Less Than Significant).

- c. Refer to b.
- d. The project would not include any improvements that would increase light or glare, nor would any new lighting sources be introduced to the project area. Therefore, there are no impacts related to creation of a new source of substantial light or glare that would affect day or nighttime views in the area (No Impact).

Mitigation:

None.

References:

The following text is based on the May 2011 Visual Impact Assessment (VIA) Technical Memorandum prepared for this project.

II. AGRICULTURE AND FOREST RESOURCES: In determining whether impacts to 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 to 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 Forest Protocols adopted by the California Air Resources Board. – Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Included	Less Than Significant Impact	No Impact
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?			<input checked="" type="checkbox"/>	
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?			<input checked="" type="checkbox"/>	

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))?				<input checked="" type="checkbox"/>
d) Result in the loss of forest land or conversion of forest land to non-forest use?				<input checked="" type="checkbox"/>
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?			<input checked="" type="checkbox"/>	

Setting:

The Farmland Mapping and Monitoring Program (FMMP) data collected indicate that within the project area there is land designated as Prime Farmland on parcel 049-003-011 at the southern end of the project site, as well as Unique Farmland on parcel 057-001-011 at the northern end of the project site (**Figure 1**) (California Department of Conservation 2008). Four parcels in the project area are also under Williamson Act contract. There are no timberlands present within the project area. **Table B** below provides further details about farmland within the project area.

Table B. Farmland Data Within the Project Area (2006)

APN	FMMP Land Mapping	Acreage within Permanent Project Area ¹	Acreage within Temporary Project Area ^a	Williamson Act
049-003-011	Prime Farmland	1.26	1.81	Yes
	Nonagricultural or Natural Vegetation	0.05	NA	Yes
049-003-010	Prime Farmland	0.13	0.33	Yes
	Nonagricultural or Natural Vegetation	1.84	2.59	Yes
057-001-011	Unique Farmland	0.67	0.67	Yes
	Farmland of Statewide Importance	0.01	0.37	Yes
057-001-005	Semi-Agricultural and Rural Commercial Land	0.01	0.37	No
057-001-006	Semi-Agricultural and Rural Commercial Land	NA	0.85	No
057-001-007	Semi-Agricultural and Rural Commercial Land	0.35	0.11	No
057-001-008	Semi-Agricultural and Rural Commercial Land	0.12	NA	No
057-026-001	Semi-Agricultural and Rural Commercial Land	0.02	0.02	No
057-026-007	Confined Animal Agriculture	0.02	NA	Yes

Source: Rural Land mapping Edition—Stanislaus County Important Farmland 2006. January 2009. Re-calculated March 2011. Updated per Stanislaus County GIS in April 2011, and data in **Figure 1**.

^a Please note that this represents a conservative estimate based on the limits of disturbance. Actual takes or TCEs would be much less and finalized as the design process progresses.

The project area and surrounding land is zoned as general agricultural district (A-2-40) under Stanislaus County Code Zoning Ordinance, which allows for agricultural and agricultural-supporting uses.

Discussion:

- a. Approximately 3.0 acres of Prime Farmland located on parcel 049-003-011 would be temporarily used for construction activities. This area would be temporarily decommissioned from agricultural use and converted into a construction layout area during the four construction seasons (beginning Summer 2014). Upon completion, the area would be returned to pre-project conditions or better, at which point agricultural uses could resume. In addition to temporary impacts to farmland due to construction; 1.26 acres of Prime Farmland located on parcel 049-003-011 would be permanently converted to non-agricultural use. However, this area composes less than 0.000007 percent of the total Prime Farmland in Stanislaus County. The project would also permanently convert 0.67 acre of Unique Farmland located on parcel 057-001-011 to non-agricultural use. However, this area composes less than 0.000012 percent of the total Unique Farmland in Stanislaus County. In addition, up to 6.4 acres of non-agricultural land located on parcels 049-003-010, 049-003-011, 057-001-005, and 057-026-001 would also be permanently acquired into the project. However, this area accounts for less than 0.0003 percent of the total non-agricultural farmland in Stanislaus County.

Per Farmland Protection Policy Act (FPPA) requirements, a farmland conversion impact rating analysis has been conducted using U.S. Department of Agriculture's Form AD-1006. The FPPA requires the application of Land Evaluation and Site Assessment (LESA) criteria for activities or responsibilities of the federal government that involve the financing or construction of improvement projects. Upon completion of Form AD-1006, the project garnered a LESA score of 132 points. This score is below the 160 point threshold for lands to be protected, therefore the project and its associated land conversions should be given a minimal level of consideration for protection.

Furthermore, per the Uniform Relocation Act (1970) guidelines, the County will coordinate with Caltrans, to ensure provision of appropriate relocation advisory assistance and/or compensation for the temporary and permanent loss of agricultural productivity to any person, business, farm, or non-profit organization displaced as a result of the acquisition of real property for public use.

In conclusion, because of the temporary nature of impacts related to construction, the below-threshold LESA score on Form AD-1006, and because the project is subject to the requirements of the Uniform Relocation Act, impacts related to farmland conversion are considered less than significant (Less Than Significant).

- b. As shown in **Table B**, less than 4.0 acres of Williamson Act contracted land (on parcels 049-003-011, 049-003-010, 057-001-011, and 057-026-001) would be removed from contracts. This amount is well below the state threshold of 100 acres of Williamson Act contract cancellations. The project would result in lands currently designated as A-2-40 (General Agriculture) under the Stanislaus County Zoning Ordinance being converted for use as a transportation facility. As described in the environmental setting, this zoning designation allows for uses supporting agriculture. The project is acceptable in the A-2-40 zoning designation because the project supports existing agricultural uses in the area and is only replacing an existing use. The replacement bridge will provide the necessary infrastructure to allow for the long-term safe transport of agricultural goods throughout the Crows Landing area and adjacent regions, thereby providing economic and safety benefits to the local agricultural industry and populace. As such, impacts related to Williamson Act and zoning conflicts are considered less than significant (Less Than Significant).
- c. There is no land designated as forest land, timberland, or timberland zoned as Timberland Production in the project area. Therefore, no associated zoning conflicts exist and there is no impact (No Impact).
- d. There is no land designated as forest land in the project area, therefore no loss or conversion of forest land would occur and there is no impact (No Impact).
- e. The replacement of the existing Crows Landing Road Bridge would involve changes to the existing environment that require the conversion of approximately 2.0 acres of farmland to non-agricultural uses. However, according to the results of the farmland conversion impact rating analysis, impacts related to farmland conversion are considered less than significant (Less Than Significant).

Mitigation:

None.

References:

The following text is based on the May 2011 Community Impact Assessment (CIA) Technical Memorandum prepared for this project.

III. AIR QUALITY – Where 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:	Potentially Significant Impact	Less Than Significant With Mitigation Included	Less Than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?			<input checked="" type="checkbox"/>	
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?		<input checked="" type="checkbox"/>		
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?		<input checked="" type="checkbox"/>		
d) Expose sensitive receptors to substantial pollutant concentrations?		<input checked="" type="checkbox"/>		
e) Create objectionable odors affecting a substantial number of people?			<input checked="" type="checkbox"/>	

Setting:

The primary factors that determine air quality are the locations of air pollutant sources and the amount of pollutants emitted from those sources. Meteorological and topographical conditions are also important factors. Atmospheric conditions, such as wind speed, wind direction, and air temperature gradients, interact with the physical features of the landscape to determine the movement and dispersal of air pollutants. Air quality is indicated by ambient concentrations of criteria pollutants: ozone, carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), lead, and particulate matter (PM), which consists of PM less than or equal to 10 microns (PM₁₀) and PM less than or equal to 2.5 microns (PM_{2.5}).

Climate and Topography

The project area's climate is considered "inland Mediterranean" and is characterized by warm, dry summers and cool winters. Summer high temperatures often exceed 100°F, averaging in the low 90s in the northern valley and high 90s in the south.

Although marine air generally flows into the basin from the Sacramento–San Joaquin River Delta, the surrounding mountain ranges restrict air movement through and out of the valley. Wind speed and direction influence the dispersion and transportation of ozone precursors, PM₁₀, PM_{2.5}, and carbon monoxide (CO); the more wind flow, the less accumulation of these pollutants.

The vertical dispersion of air pollutants in the SJVAB is limited by the presence of persistent temperature inversion (warm air over cool air). Because of differences in air density, the air above and below the inversion does not mix. Ozone and its precursors will mix and react to produce higher concentrations under an inversion and will trap directly emitted pollutants, such as CO.

Precipitation and fog tend to reduce or limit pollutant concentrations. Ozone needs sunlight for its formation, and clouds and fog block the required radiation. CO is slightly water soluble, so precipitation and fog tend to reduce CO concentrations in the atmosphere. PM₁₀ is somewhat "washed" from the atmosphere with precipitation. Annual precipitation in the valley decreases from north to south, with about 20 inches in the north, 10 inches in the middle, and less than 6 inches in the southern part of the valley.

Existing Air Quality Conditions

Current ambient concentrations of criteria pollutants are regulated by both national and state air quality standards, or the National Ambient Air Quality Standards (NAAQS) and the California Ambient Air Quality Standards (CAAQS). **Table C** outlines the monitored air quality data for ozone, carbon monoxide, and particulate matter as they relate to

the NAAQS and CAAQS. The data is taken from the three most recent years (2007-2009) of available data from the Turlock S. Minaret Street Station. As indicated in **Table D**, the Turlock monitoring station has experienced frequent violations of the 1- and 8-hour ozone standards, the state PM10 standards and the national PM2.5 standards.

Table C. Air Quality Standards Applicable in California

Pollutant	Symbol	Average Time	Standard (parts per million)		Standard (micrograms per cubic meter)		Violation Criteria	
			California	National	California	National	California	National
Ozone*	O ₃	1 hour	0.09	NA	180	NA	If exceeded	NA
		8 hours	0.070	0.075	137	147	If exceeded	If fourth highest 8-hour concentration in a year, averaged over 3 years, is exceeded at each monitor within an area
Carbon monoxide (Lake Tahoe only)	CO	8 hours	9.0	9	10,000	10,000	If exceeded	If exceeded on more than 1 day per year
		1 hour	20	35	23,000	40,000	If exceeded	If exceeded on more than 1 day per year
		8 hours	6	NA	7,000	NA	If equaled or exceeded	NA
Nitrogen dioxide	NO ₂	Annual arithmetic mean	0.030	0.053	57	100	If exceeded	If exceeded on more than 1 day per year
		1 hour	0.18	0.100	339	188	If exceeded	NA
Sulfur dioxide	SO ₂	24 hours	0.04	NA	105	NA	If exceeded	If exceeded on more than 1 day per year
		3 Hour	NA	NA	NA	1300	NA	If exceeded on more than 1 day per year
		1 hour	0.25	0.075	655	196	If exceeded	NA
Hydrogen sulfide	H ₂ S	1 hour	0.03	NA	42	NA	If equaled or exceeded	NA
Vinyl chloride	C ₂ H ₃ Cl	24 hours	0.01	NA	26	NA	If equaled or exceeded	NA
Inhalable particulate matter	PM10	Annual arithmetic mean	NA	NA	20	NA	NA	NA
		24 hours	NA	NA	50	150	If exceeded	If exceeded on more than 1 day per year

	PM2.5	Annual arithmetic mean	NA	NA	12	15.0	NA	If 3-year average from single or multiple community-oriented monitors is exceeded
		24 hours	NA	NA	NA	35	NA	If 3-year average of 98 th percentile at each population-oriented monitor within an area is exceeded
Sulfate particles	SO ₄	24 hours	NA	NA	25	NA	If equaled or exceeded	NA
Lead particles	Pb	Calendar quarter	NA	NA	NA	1.5	NA	If exceeded no more than 1 day per year
		30-day average	NA	NA	1.5	NA	If equaled or exceeded	NA
		Rolling 3-month average	NA	NA	NA	0.15	If equaled or exceeded	Averaged over a rolling 3-month period
Source: California Air Resource Board 2010b								

Table D. Annual Ambient Air Quality Data at Turlock S. Minaret Street Station

Pollutant Standards	2007	2008	2009
Ozone			
Maximum 1-hour concentration (ppm)	0.101	0.138	0.125
Maximum 8-hour concentration (ppm) (State Standard)	0.088	0.130	0.102
Number of days standard exceeded ^a			
CAAQS 1-hour (>0.09 ppm)	1	21	8
CAAQS 8-hour (>0.09 ppm)	12	52	34
NAAQS 8-hour (>0.08 ppm)	3	29	18
Particulate Matter (PM10) ^b			
National ^c maximum 24-hour concentration (µg/m ³)	73.0	96.0	64.6
State ^d maximum 24-hour concentration (µg/m ³)	77.0	97.6	64.3
National annual average concentration (µg/m ³)	30.8	35.2	29.7
State annual average concentration (µg/m ³) ^e	31.4	-	31.0
Number of days standard exceeded ^a			
NAAQS 24-hour (>150 µg/m ³) ^f	0	0	0
CAAQS 24-hour (>50 µg/m ³) ^f	9	11	11
Particulate Matter (PM2.5) ^b			
National ^c maximum 24-hour concentration (µg/m ³)	-	67.4	65.7
State ^d maximum 24-hour concentration (µg/m ³)	107.1	118.8	-
National annual average concentration (µg/m ³)	-	-	16.0

State annual average concentration ($\mu\text{g}/\text{m}^3$) ^e	17.6	-	-
Number of days standard exceeded ^a			
NAAQS 24-hour ($>15 \mu\text{g}/\text{m}^3$) ^f	-	14	35
CAAQS 24-hour ($>12 \mu\text{g}/\text{m}^3$) ^f	-	-	-
Carbon Monoxide (CO)			
National ^c maximum 8-hour concentration ($\mu\text{g}/\text{m}^3$)	1.69	1.48	1.49
State ^d maximum 8-hour concentration ($\mu\text{g}/\text{m}^3$)	1.69	1.48	1.49
Number of days standard exceeded ^a			
CAAQS and NAAQS 8-hour ($>10 \mu\text{g}/\text{m}^3$) ^f	0	0	0

Sources: California Air Resources Board 2011, U.S. Environmental Protection Agency 2011.

Notes: CAAQS = California ambient air quality standards.
 NAAQS = national ambient air quality standards.
 – = insufficient data available to determine the value.
 ppm = parts per million.
 $\mu\text{g}/\text{m}^3$ = micrograms per cubic meter.

An exceedance is not necessarily a violation.

Measurements usually are collected every 6 days.

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

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.

State criteria for ensuring that data are sufficiently complete for calculating valid annual averages are more stringent than the national criteria. Insufficient or no data available to determine 2008 value.

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

Sensitive Receptors

The SJVAPCD defines sensitive receptors as “facilities that house or attract children, the elderly, people with illnesses, or others who are especially sensitive to the effects of air pollutants (San Joaquin Valley Air Pollution Control District 2002).” Typical sensitive receptors include residences, hospitals, schools, and places of worship. Within the project vicinity, sensitive receptors include scattered residences located approximately 70 feet east of the northern approach to the existing bridge structure.

Attainment Status

Areas are classified as either attainment or nonattainment with respect to state and federal air quality standards. These classifications are made by comparing actual monitored air pollutant concentrations to state and federal standards. If a pollutant concentration is lower than the state or federal standard, the area is classified as being in attainment of the standard for that pollutant. If a pollutant violates the standard, the area is considered a nonattainment area. If data are insufficient to determine whether a pollutant is violating the standard, the area is designated unclassified. Areas that were previously designated as nonattainment areas, but have recently met the standard are called maintenance areas.

The EPA has classified Stanislaus County as an extreme nonattainment area for the federal 8-hour ozone standard and a nonattainment area for the federal PM_{2.5} standard. For the federal CO standard, the EPA has classified the Modesto Urbanized Area of Stanislaus County as a moderate maintenance area (ppm ≤ 12.7). The project area is not located in the Modesto Urbanized Area. The San Joaquin Valley Air Basin, which contains Stanislaus County, is classified as a serious maintenance area with regards to the federal PM₁₀ standards (U.S. Environmental Protection Agency 2010).

The ARB has classified Stanislaus County as a severe nonattainment area for the state 1-hour ozone standard and a

nonattainment area for the state 8-hour ozone, PM10, and PM2.5 standards. The ARB has classified Stanislaus County as an attainment area for the state CO standard (California Air Resources Board 2010c).

Significance Criteria

SJVAPCD Thresholds

Appendix G in the CEQA Guidelines states that the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to determine the project's level of impact.

SJVAPCD's published guidelines, Guide for Assessing Air Quality Impacts (San Joaquin Valley Air Pollution Control District 2002), do not require the quantification of construction emissions. Rather, it requires implementation of effective and comprehensive feasible control measures to reduce PM10 emissions (San Joaquin Valley Air Pollution Control District 2002). SJVAPCD considers PM10 emissions to be the greatest pollutant of concern when assessing construction-related air quality impacts and has determined that compliance with its Regulation VIII, including implementation of all feasible control measures specified in its Guide for Assessing Air Quality Impacts (San Joaquin Valley Air Pollution Control District 2002), constitutes sufficient mitigation to reduce construction-related PM10 emissions to less-than-significant levels and minimize adverse air quality effects. All construction projects must abide by Regulation VIII. Since the publication of the District's guidance manual, the District has revised some of the rules comprising Regulation VIII. Guidance from District staff indicates that implementation of a Dust Control Plan would satisfy all of the requirements of SJVAPCD Regulation VIII (Cadrett pers. comm.). Further consultation with SJVAPCD staff indicates that, though explicit thresholds for construction-related emissions of ozone precursors are not enumerated in the Guide for Assessing and Mitigating Air Quality Impacts, the SJVAPCD considers a significant impact to occur when construction emissions of ROG or NOX exceed 10 tons per year or if PM10 or PM2.5 emissions exceed 15 tons per year (Barber pers. comm., Siong pers. comm.).

The SJVAPCD's thresholds of significance used in this analysis, as indicated in their Guide for Assessing and Mitigating Air Quality Impacts (San Joaquin Valley Air Pollution Control District 2002) and through consultation with SJVAPCD staff, are summarized below:

- Project implementation would produce emissions increases greater than 10 tons/year ROG.
- Project implementation would produce emissions increases greater than 10 tons/year NOX.
- Project implementation would produce emissions increases greater than 15 tons/year PM10.
- Project implementation would produce emissions increases greater than 15 tons/year PM2.5
-

Discussion:

The proposed project entails replacing an existing bridge with a new bridge and reconstructing roadway approaches. The proposed project will not add any mainline traffic lanes to the bridge structure or the approaches; thus, it is unlikely that the proposed project would affect vehicle miles traveled (VMT) or traffic speeds in the project area. As a result, there is no anticipated increase in operational emissions associated with the proposed project. Impacts related to construction activities are discussed below.

- a. A project is deemed inconsistent with air quality plans if it would result in either population or employment growth that exceeds growth estimates included in the applicable air quality plan. Such growth would generate emissions not accounted for in the applicable air quality plan emissions budget. Therefore, proposed projects need to be evaluated to determine whether they would generate population and employment growth and, if so, whether that growth would exceed the growth rates included in the relevant air plans.

Since the goal of the project is to replace an existing bridge without adding any mainline traffic lanes, it will not result in population and/or employment growth. Consequently, the project would not conflict with or obstruct implementation of the applicable air quality plan and is less than significant (Less Than Significant).

- b. Implementation of the project would result in the replacement of the bridge and roadway approaches. Temporary construction emissions would result from grubbing/land clearing/bridge demolition, grading/excavation, drainage/utilities/bridge construction, and paving activities. Short-term emissions of ROG, NOX, CO, PM10, and PM2.5 would be generated during the construction activities. Pollutant emissions would

vary daily, depending on the level of activity, specific operations, and prevailing weather.

The Sacramento Metropolitan Air Quality Management District's (SMAQMD) Road Construction Emissions Model (Version 6.3.2) was used to estimate construction-related ozone precursors (ROG and NO_x), CO, PM₁₀, PM_{2.5}, and CO₂ emissions from construction activities. Based on information from the project engineers, it was assumed that the project would be approximately 0.62 miles in length, with an area of 23.5 acres. It was assumed that a maximum of 1.2 acres would be disturbed per day. Construction is anticipated to last for approximately 11 months. The construction phases are anticipated as follows: grubbing/land clearing/bridge demolition will take approximately 3 months to complete, grading/excavation will take approximately 2 months to complete, drainage/utilities will take approximately 4 months to complete, and paving will take approximately 2 months to complete. One water truck will be used during the four phases of construction, and it is assumed to travel 25 miles per day. It is anticipated that 65 workers will commute 40 miles per day (25 workers during the grubbing and grading phases, and 40 people during the drainage/paving phases). It was also assumed that 640 cubic yards of soil will be imported per day, no soil will be exported and that the soil will be hauled 50 trips of 60 miles each. **Table E** shows the anticipated construction equipment, based on information provided by the County.

Table E. Anticipated Construction Equipment

Construction Phase	Equipment	Horsepower
Grubbing/land clearing	2 pick-up trucks	350
	1 water truck	275
	1 dump truck	275
	1 motor grader	200
	1 dozer	150
	1 back hoe loader	100
Grading/excavation/bridge demolition	1 tandem truck	475
	4 pick-up trucks	350
	1 water truck	275
	2 dump trucks	275
	1 motor grader	200
	1 dozer	150
	1 hydraulic excavator	150
Drainage/utilities/subgrade/bridge construction	1 back hoe loader	100
	2 tandem trucks	475
	1 concrete pump truck	400
	1 wheeled loader	350
	1 wheeled tractor scraper	350
	4 pick-up trucks	350
	2 soil compactors	300
	1 water truck	275
	3 concrete trucks	275
	2 dump trucks	275
	1 motor grader	200
	1 lattice crane	200
Paving	1 backhoe loader	100
	4 electrical generators	35
	1 cold planer	580
	2 pick-up trucks	350
	1 water truck	275
	1 paver	250
	1 asphalt compactor	130
	2 electrical generators	35

Emissions were calculated with the SMAMD's Road Construction Emissions Model based on the information

described above. The modeling results for construction activities are summarized in **Table F**.

Since construction is anticipated to last for less than 1 year, the project will be considered significant if the total emissions from the construction project are in excess of SJVAPCD threshold levels. **Table F** shows the maximum annual emissions for all pollutants are below the SJVAPCD's CEQA significance thresholds.

As previously indicated, guidance from District staff indicates that implementation of a Dust Control Plan would satisfy all of the requirements of SJVAPCD Regulation VIII (Cadrett pers. comm.). Implementation of **Mitigation Measure AQ-1** would minimize air quality impacts from construction activities to a less-than-significant level with mitigation. In accordance with Rule 9510, the project is required to reduce NO_x emissions by 20% and PM₁₀ emissions by 45% from the statewide average, as construction exhaust emissions for NO_x are estimated to be over 2.0 tons per year. This would result in a reduction of 1.8 tons of NO_x and 0.5 tons of PM₁₀. If the reduction cannot be achieved through on-site and off-site methods, the remaining NO_x and PM₁₀ emissions must be offset through a monetary payment to the SJVAPCD. Implementation of **Mitigation Measure AQ-2** will help to reduce on-site construction exhaust emissions. In the event that **Mitigation Measure AQ-2** is not sufficient to reduce on-site construction-related NO_x emissions by 1.8 tons and PM₁₀ emissions by 0.5 tons, the County shall implement **Mitigation Measure AQ-3** (Less Than Significant With Mitigation).

Table F. Construction Emissions Estimates (tons/year)

Project Phases	ROG	NO _x	CO	Total PM ₁₀	Exhaust PM ₁₀	Fugitive Dust PM ₁₀	Total PM _{2.5}	Exhaust PM _{2.5}	Fugitive Dust PM _{2.5}	CO ₂ ^a
Grubbing/ Land Clearing	0.5	1.4	5.5	0.5	0.1	0.4	0.1	0.1	0.1	821.6
Grading/ Excavation	0.5	2.7	4.6	0.2	0.1	0.1	0.1	0.1	0.0	828.7
Drainage/ Utilities/ Sub- Grade	0.9	4.1	8.3	0.3	0.3	0.0	0.2	0.2	0.0	1,372.3
Paving	0.3	0.8	3.6	0.1	0.1	0.0	0.0	0.0	0.0	528.2
Total Emissions	2.2	9.1	22.1	1.1	0.6	0.5	0.5	0.4	0.1	3,550.8
SJVAPCD Thresholds	10	10	NA	15	NA	NA	15	NA	NA	NA
Exceeds Thresholds? ^b	No	No	NA	No	NA	NA	No	NA	NA	NA

Source: SMAQMD's Road Construction Model (Version 6.3.2)

Notes:

a CO₂ emissions presented in metric tons per year

b After mitigation applied

c Construction phases are sequential, not concurrent

Project Start Year: 2013

Project Length (months): 11

Total Project Area (acres): 23.5

Maximum Area Disturbed/Day (acres): 1.2

Total Soil Imported/Exported (yd³/day): 640

- c. As described, the project would not create a significant air quality impact after implementation of **Mitigation Measure AQ-1**. Therefore, a cumulatively considerable net increase of any criteria pollutant would not occur and this impact is considered less than significant with mitigation incorporated (Less Than Significant With Mitigation).

- d. Construction activities are anticipated to involve the operation of diesel-powered equipment. In 1998, the ARB identified diesel exhaust as a TAC. The SJVAPCD does not consider construction-equipment-diesel-related cancer risks to be an issue because of the short-term nature of construction activities (Siong pers. comm.). Cancer health risks associated with exposures to diesel exhaust typically are associated with chronic exposure, in which a 70-year exposure period often is assumed. Although elevated cancer rates can result from exposure periods of less than 70 years, acute exposure (i.e., exposure periods of 2 to 3 years) to diesel exhaust typically are not anticipated to result in an increased health risk because acute exposure typically does not result in the exposure concentrations necessary to result in a health risk. Health impacts associated with exposure to diesel exhaust from project construction are not anticipated to be significant because construction activities are expected to last over a period of 11 months, well below the 70-year exposure period used in health risk assessments. Therefore, construction of the project is not anticipated to result in an elevated cancer risk to exposed persons. **Table F** indicates that PM10 emissions from diesel exhaust are relatively low. To reduce risks of health impacts even further, mitigation measures can be implemented to control diesel exhaust. **Mitigation Measure AQ-4** outlines strategies for minimizing construction impacts. Consequently, this impact is considered less-than-significant with mitigation incorporated (Less Than Significant With Mitigation).
- e. The use of diesel powered construction vehicles may generate temporary odors while construction of project improvements is underway. However, once construction activities have been completed, these odors would cease. Consequently, this impact is considered less than significant and no mitigation is required (Less Than Significant).

Mitigation:

Mitigation Measure AQ-1: Prepare and Implement a Dust Control Plan to Comply with SJVAPCD Regulation VIII Requirements to Control Construction Emissions of PM10.

To control the generation of construction-related PM10 emissions, construction contractors will prepare and submit for approval a dust control plan to the SJVAPCD at least 30 days prior to any earthmoving or construction activities. Potential measures that might be included in the dust control plan could include, but are not limited to:

- Pre-activity.
 - Pre-water the work site and phase work to reduce the amount of disturbed surface area at any one time.
- Active operations.
 - Apply water to dry areas during leveling, grading, trenching, and earthmoving activities.
 - Construct and maintain wind barriers and apply water or dust suppressants to the disturbed surface areas.
- Inactive operations, including after work hours, weekends, and holidays.
 - Apply water or dust suppressants on disturbed surface areas to form a visible crust, and vehicle access will be restricted to maintain the visible crust.
- Temporary stabilization of areas that remain unused for 7 or more days.
 - Restrict vehicular access and apply and maintain water or dust suppressants on all un-vegetated areas.
 - Establish vegetation on all previously disturbed areas.
 - Pave previously disturbed areas.
- Unpaved Access and haul roads, traffic and equipment storage areas.
 - Apply water or dust suppressants to unpaved haul and access roads.
 - Post a speed limit of not more than 15 miles per hour, using signs at each entrance and again every 500 feet.
 - Water or dust suppressants will be applied to vehicle traffic and equipment storage areas.
- Wind events.
 - Water application equipment will apply water to control fugitive dust during wind events, unless unsafe to do so.
 - Outdoor construction activities that disturb the soil will cease whenever visible dust emissions cannot

be effectively controlled.

- Outdoor handling of bulk materials.
 - Water or dust suppressants will be applied when handling bulk materials.
 - Wind barriers with less than 50% porosity will be installed and maintained, and water or dust suppressants will be applied.
- Outdoor storage of bulk materials.
 - Water or dust suppressants will be applied to storage piles.
 - Storage piles will be covered with tarps, plastic, or other suitable material and anchored in such a manner that prevents the cover from being removed by wind action.
 - Wind barriers with less than 50% porosity will be installed and maintained around the storage piles, and water or dust suppressants will be applied.
 - A three-sided structure with less than 50% porosity that is at least as high as the storage piles will be used.
- On-site transporting of bulk materials.
 - Vehicle speed will be limited on the work site.
 - All haul trucks will be loaded such that the freeboard is not less than six inches when transported across any paved public access road.
 - A sufficient amount of water will be applied to the top of the load to limit visible dust emissions.
 - Haul trucks will be covered with a tarp or other suitable cover.
- Off-site transporting of bulk materials.
 - The following practices will be performed:
 - The interior of emptied truck cargo compartments will be cleaned or covered before leaving the site.
 - Spillage or loss of bulk materials from holes or other openings in the cargo compartment's floor, sides, and tailgates will be prevented.
- Outdoor transport using a chute or conveyor:
 - No open chutes or conveyors will be used.
 - Chutes or conveyors will be fully enclosed.
 - Water spray equipment will be used to sufficiently wet the materials.
 - Transported materials will be washed or screened to remove fines (PM10 or smaller).

Mitigation Measure AQ-2: Implement Measures to Reduce Exhaust Emissions from Off-Road Diesel Powered Equipment.

The construction contractor will be required to implement measures to reduce construction-related exhaust emissions. Such measures could include, but are not limited to: maintaining properly tuned engines; minimizing the idling time of diesel powered construction equipment to two minutes; using alternative-fuel-powered construction equipment (i.e., compressed natural gas, biodiesel, electric); using add-on mitigation devices such as diesel oxidation catalysts or particulate filters; using equipment that meets ARB's most recent certification standard for off-road heavy-duty diesel engines; phasing project construction; and limiting heavy-duty equipment operating hours.

Mitigation Measure AQ-3: Implement Measures to Comply with SJVAPCD Rule 9510, Indirect Source Review.

The County will enter into an agreement with the SJVAPCD and conduct an air impact assessment as required by SJVAPCD Rule 9510. Off-site emission reduction fees sufficient to comply with Rule 9510 and reduce construction-related NOX emissions by 20%, compared to the statewide fleet average will be calculated. Based on the emissions presented in **Table F**, it is anticipated that emissions reductions of 1.8 tons NOX and 0.5 tons PM10 are required to comply with Rule 9510.

Mitigation Measure AQ-4: Implement Construction Mitigation Measures to Control Construction-Related Diesel Particulate Matter Exhaust Emissions.

The construction contractor will be responsible for implementing the following measures:

- Minimize the idling time of diesel powered construction equipment to two minutes.
- Develop a plan demonstrating that the off-road equipment (more than 50 horsepower) to be used in the construction project (i.e., owned, leased, and subcontractor vehicles) would achieve a project wide fleet-average 20 percent NOX reduction and 45 percent PM reduction compared to the most recent ARB fleet

average. Acceptable options for reducing emissions include the use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, add-on devices such as particulate filters, and/or other options as such become available.

- Require that all construction equipment, diesel trucks, and generators be equipped with Best Available Control Technology for emission reductions of NOX and PM.
- Require all contractors use equipment that meets CARB's most recent certification standard for off-road heavy duty diesel engines.

References:

None.

IV. BIOLOGICAL RESOURCES – Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Included	Less Than Significant Impact	No Impact
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 checked="" type="checkbox"/>		
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?		<input checked="" 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, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?		<input checked="" 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 checked="" type="checkbox"/>		
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?				<input checked="" 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 checked="" type="checkbox"/>

Setting:

Pre-Field Research

The biological resources impact analysis is based on pre-field investigations, on-site biological surveys, and the sources of information listed as follows:

- U.S. Fish and Wildlife Service (USFWS) lists of endangered and threatened species that may occur in or be affected by projects in the Crows Landing U.S. Geological Survey (USGS) 7.5-minute quadrangle or in Stanislaus County (U.S. Fish and Wildlife Service 2013) (see **Appendices**);
- California Natural Diversity Database (CNDDB) records search of the Crows Landing, Hatch, Ceres, Brush

Lake, Patterson, Newman, Gustine, Denair, Turlock, Westley, and Stevinson USGS 7.5-minute quadrangles (California Department of Fish and Wildlife 2013) (see **Appendices**);

- California Native Plant Society (CNPS) records search of Crows Landing 7.5-minute quadrangle with surrounding quadrangles (California Native Plant Society 2013) (see **Appendices**);
- List of plant species observed during the field survey (see **Appendices**);
- California list of noxious weed species (California Department of Food and Agriculture 2009) and invasive plant inventory (California Invasive Plant Council 2006, 2007); and,
- Soil Survey of Stanislaus County, California, Western Part (Ferrari and McElhiney 2002).

The above information sources were used to develop lists of special-status species and to identify other sensitive biological resources that could be present in the project region. Special-status species were listed if they were known to occur in the project region (i.e., within a 10-mile radius of the project area) or if suitable habitat for the species was known to be present in the project area (see **Appendices**).

Field Surveys

Habitat-based field assessments for special-status plants and animals were conducted by ICF biologists on June 14 and 21, 2010. All areas with the potential to be affected by project construction were accessed by foot during the field visits. A preliminary wetland delineation was also conducted on these dates. Additional special-status plant surveys were conducted for spring-blooming species on May 27, 2011 and for late-summer-blooming species on September 2, 2011.

The project area lies within the San Joaquin Valley and is fairly level, with an alluvial terrace along the west side of the San Joaquin River. Elevations range from 40 feet above mean sea level (AMSL) along the San Joaquin River to 60 feet AMSL along Crows Landing Road. (Caltrans 2011)

The San Joaquin River channel in the project area is natural, with setback levees bordering both sides. The west side of the river is bordered by a wide floodplain that supports patches of riparian vegetation. This floodplain becomes inundated at very high flows. Draining of adjacent agricultural fields and upstream flow regulation through dams also add to the inundation of the floodplain during peak-flow conditions. (Caltrans 2011)

Natural Communities and Wildlife Habitats

The project area is located in the San Joaquin California Floristic Province subregion (Hickman 1993). The project area supports both common natural communities and natural communities of special concern.

Common natural communities are not generally protected by agencies unless the specific site is habitat for or supports sensitive species (e.g., raptor foraging or nesting habitat, upland habitat adjacent to wetlands). The common natural communities in the project area are ruderal grassland and agricultural crops (**Figure 6**).

Natural communities of special concern are habitats considered sensitive because of their high species diversity, high productivity, unusual nature, limited distribution, or declining status. Local, state, and federal agencies consider these habitats important. The CNDDDB contains a list of rare natural communities throughout the state (California Department of Fish and Game 2003). The USFWS considers certain habitats, such as wetlands and riparian communities, important to wildlife; and the U.S. Army Corps of Engineers (USACE) and U.S. Environmental Protection Agency (EPA) consider wetland habitats important for water quality and wildlife. The habitats in the project area that meet criteria for natural communities of special concern are Great Valley cottonwood riparian forest, seasonal wetland, perennial drainage, and seasonal drainage (**Figure 6**).

The general locations, representative plant species, and typical wildlife or fish species found in each of the natural communities in the project area are described below. Lists of all plant and wildlife species observed during the field

surveys are included in the **Appendices**.

Great Valley Cottonwood Riparian Forest

Great Valley cottonwood riparian forest is a dense, broadleafed, winter-deciduous forest that occupies part of the floodplain along the San Joaquin River in the project area (**Figure 6**). The part of the riparian forest located in the lower-elevation area on the west bank of the river is inundated during high flows, resulting in annual input of nutrients, soil, and new germination sites. The higher-elevation portions of riparian forest are located on small knolls that are above the flooded areas on the west bank and on the sloped east bank of the river. The cottonwood and willow trees in the higher-elevation forest area tap groundwater with their deep growing roots. The lower-elevation part of the forest is considered a wetland, because of the inundation during the wet season, while the higher-elevation part is considered upland. The dominant plant species present include Fremont's cottonwood (*Populus fremontii*) and Goodding's willow (*Salix gooddingii*), along with several herbaceous understory species. Willowherb (*Epilobium ciliatum*), mugwort (*Artemisia douglasiana*), annual wateraster (*Aster subulatis* var. *ligulatus*), and Canada horsetweed (*Conyza canadensis*) are common plants in the forest openings. There are several valley oaks (*Quercus lobata*) located between Crows Landing Road and the San Joaquin River in the southern part of the project area. Giant reed (*Arundo donax*) is also found in this habitat on the east bank of the San Joaquin River.

Despite local disturbances from urbanization and agricultural conversion, riparian forest in the project area is an important wildlife resource because of its scarcity regionally and statewide and because the riparian community is used by a large variety of wildlife species. This natural community produces abundant habitat for aquatic and terrestrial invertebrates, amphibians, reptiles, insectivorous birds, and small mammals. Riparian corridors such as the one along the San Joaquin River within the project area are important migration or dispersal corridors for numerous wildlife species, as they act as forested connectors between habitats. Bobcat (*Lynx rufus*), coyote, gray fox, and American badger are just a few among many that may use the San Joaquin River riparian corridor within the project area to move between habitats or disperse to new habitats when habitats are lost due to conversion to development or other unsuitable land uses.

Riparian vegetation overhanging and shading the river is called shaded riverine aquatic habitat (SRA). This vegetation provides cover, water temperature moderation and prey species in the form of invertebrates for salmonids.

Seasonal Wetland

One seasonal wetland occurs under the Crows Landing Road Bridge and spans the area between a set of bridge supports (**Figure 6**). This wetland is within the high flow area of the San Joaquin River and was probably created by the original bridge construction. This wetland floods annually. Species observed in this wetland were common rush, tall flatsedge (*Cyperus eragrostis*), cattail (*Typha* sp.), and water hyacinth (*Eichhornia crassipes*), which is an invasive aquatic plant species. Other similar areas between other bridge supports may support seasonal wetland vegetation that is scoured during high flows. No other vegetated areas were observed during the field surveys. Because this wetland floods annually and may be subject to scouring it is unlikely to function as habitat for special-status plant species.

Wetland functions of the seasonal wetland in the project area include flood storage, groundwater recharge, and wildlife habitat. State and federal agencies recognize seasonal wetlands as sensitive natural communities. Because the seasonal wetland directly abuts a navigable water (the San Joaquin River), it is considered jurisdictional by USACE and is subject to regulation under Clean Water Act (CWA) Section 404. The RWQCB regulates jurisdictional wetlands under CWA Section 401. In addition, federal agencies must comply with EO 11990 to protect wetlands.

Many wildlife species are dependent on wetland habitats for foraging, nesting, and cover. Seasonal and perennial wetlands (especially those associated with streams and ponds) provide important nesting and foraging habitat for birds migrating south, such as the Canada goose (*Branta canadensis*), mallard (*Anas platyrhynchos*), and cinnamon teal (*Anas cyanoptera*). Wetlands generally support a high density of invertebrate and amphibian larvae that are prey for several bird species, including black-necked stilt (*Himantopus mexicanus*), American avocet (*Recurvirostra*

americana), killdeer (*Charadrius vociferus*), American coot (*Fulica americana*), great blue heron (*Ardea herodias*), great egret (*Ardea alba*), and greater yellowlegs (*Tringa melanoleuca*). Wetlands also provide habitat for a variety of amphibian and reptile species, such as Pacific treefrog, western toad, and western pond turtle (Zeiner et al. 1988; Zeiner et al. 1990a).

Perennial Drainage

The San Joaquin River is the only perennial drainage in the project area (**Figure 6**). The San Joaquin River is a meandering, slow-gradient depositional stream that has floodplain areas where it can overtop its banks and deposit sediments annually. Flows in the San Joaquin River are regulated by upstream dams and are subject to occasional extreme high flows. The project area encompasses a bend in the river with a wide floodplain on the west side. Part of the high-flow area of the river is vegetated by willow riparian scrub and seasonal wetland communities, which are described above. The high-flow river channel is approximately 485 feet wide beneath the bridge, narrowing to 180 feet north of the bridge. The northeast bank has rip rap along the low water edge to approximately 20 feet above the low-water elevation. Plant species in the river and on the northeast bank include cocklebur (*Xanthium strumarium*), dallisgrass (*Paspalum dilatatum*), and water hyacinth.

Functions of the San Joaquin River include flood conveyance, groundwater recharge, fish production, and wildlife habitat. The San Joaquin River is a navigable water considered jurisdictional by USACE, and it is subject to regulation under CWA.

The San Joaquin River provides habitat for a variety of wildlife. The riparian vegetation along the river provides habitat for a variety of wildlife species, as described above under Great Valley cottonwood riparian forest and narrow-leaf willow riparian scrub. Mammals including beaver (*Castor canadensis*) and river otter (*Lontra canadensis*) primarily utilize open water areas for foraging and refuge. Birds such as green-backed heron (*Butorides striatus*) and belted kingfishers (*Ceryle alcyon*) forage within riverine communities (Zeiner et al. 1990a:40, 372). Many species of insectivorous birds, including barn swallow (*Hirundo rustica*), cliff swallow (*Petrochelidon pyrrhonota*), black phoebe, and ash-throated flycatcher (*Myiarchus cinerascens*), catch their prey over open water. Bats species including Mexican free-tailed bat (*Tadarida brasiliensis*), California myotis (*Myotis californicus*), Yuma myotis (*Myotis yumanensis*), big brown bat (*Eptesicus fuscus*), hoary bat (*Lasiurus cinerius*), pallid bat (*Antrozous pallidus*), Townsend's big-eared bat (*Corynorhinus townsendii*), and western red bat (*Lasiurus blossevillei*) also utilize open water areas for foraging (Zeiner et al. 1988; Zeiner et al. 1990a, 1990b).

Degraded water quality in various segments of the San Joaquin River has been a serious problem for several decades due to low river flows and discharges from agricultural areas, wildlife refuges, and municipal waste water treatment plants. Degraded water quality has been identified as a potential limiting factor for Chinook salmon and other native fishes. Constituents such as pesticides and other urban and agricultural wastes may affect water quality parameters such as dissolved oxygen and turbidity, creating habitat unsuitable for Chinook salmon. Increasing flows in the San Joaquin River from Friant Dam to the Merced River and downstream reaches has the potential to improve water quality conditions under various hydrologic conditions in some reaches of the river (SJRRP 2010).

The waterways of the Delta, including the San Joaquin River, have been severely affected by nonnative aquatic species. Fishes of the San Joaquin River are predominately introduced species, including striped bass (*Morone saxatilis*), catfishes (*Ictalurus* sp.), sunfishes (*Lepomis cyanellus*), crappie (*Pomoxis nigromaculatus*), threadfin shad (*Dorosoma petenense*), and carp (*Cyprinus carpio*) (Herbold and Moyle 1989). Native fish include steelhead, Chinook salmon, Sacramento pikeminnow (*Ptychocheilus grandis*), Sacramento sucker (*Catostomus occidentalis*), and tule perch (*Hysterothorax traski*) (Jones & Stokes 2004). The San Joaquin River within the project area provides a migratory corridor for steelhead, Chinook salmon, and possibly green sturgeon. Steelhead and Chinook salmon migrate upstream into tributaries such as the Merced, Tuolumne, and Stanislaus rivers to spawn. The San Joaquin River is designated as critical habitat for Central Valley steelhead.

Seasonal Drainage

A seasonal drainage crosses the project area on the east side of the San Joaquin River and drains to the river on the east bank (**Figure 6**). Most of the drainage supports ruderal grassland vegetation. The drainage begins as a 2-foot wide ditch east of Carpenter Road and crosses under the road in a corrugated-metal pipe. This section of the drainage is vegetated, but consists of primarily upland grassland species. The next section of the drainage widens to 5 feet and enters a flap-gated culvert under a dirt road inside a shooting range facility. The flap gate opens into another section of the drainage that varies from 2 to 5 feet wide and appears to have once continued directly to the river, but is now divided by a dirt road, creating a gap of approximately 15 feet. No culvert under this road could be found during the field visit. The last section of the drainage continues down the river bank and drains to the San Joaquin River.

Functions of the seasonal drainage include flood conveyance during and after storm events and wildlife habitat. This drainage appears to carry flow only during the wet season, and flows directly into a navigable waterway (the San Joaquin River). Because the drainage clearly was once continuous across the gap created by the dirt road, the entire drainage is considered jurisdictional by USACE, and it is subject to regulation under CWA.

During the wet season, the seasonal drainage could be used for breeding by amphibians including Pacific treefrog and western toad. When dry, the seasonal drainage provides habitat for species associated with the adjacent ruderal grassland (as described below).

Ruderal Grassland

Ruderal vegetation occurs along and between the roads in the project area (**Figure 6**). The edges of Crows Landing Road appear to be subject to on-going disturbance from mowing to maintain the roadside. Weedy species dominate this habitat, including annual grasses, sorghum (*Sorghum halapense*), doveweed (*Croton setigerus*), common knotweed (*Polygonum arenastrum*), alkali weed (*Cressa truxillensis*), bur clover (*Medicago polymorpha*), and horehound (*Marrubium vulgare*). The ruderal vegetation between Carpenter Road and the river also supports a shrub layer, including Russian thistle (*Salsola tragus*) in the fenced area closest to Crows Landing Road and big saltbush (*Atriplex lentiformis*) in the area north of the shooting range entrance road. This area does not have wetland soils or hydrology.

Although wildlife species richness in ruderal grasslands is lower than that of riparian habitats, these habitats provide important breeding and foraging habitat for numerous species. Grasslands are important because they support insects, amphibians, reptiles, and small birds and mammals that are preyed on by other wildlife, including red-tailed hawk, burrowing owl, Swainson's hawk, northern harrier (*Circus cyaneus*), American kestrel, coyote, and gray fox. Annual grasslands in the project area occur near open water and riparian woodland habitats, which are used by the greatest number of wildlife species because they provide places for resting, breeding, and escape cover. Wildlife species that would be expected to occupy this habitat include western fence lizard, gopher snake (*Pituophis melanoleucus*), western king snake (*Lampropeltis getula*), Botta's pocket gopher (*Thomomys bottae*), western harvest mouse (*Reithrodontomys megalotis*), deer mouse, Audubon cottontail, black-tailed jackrabbit (*Lepus californicus*), gray fox, and coyote. Additionally, outside of the San Joaquin River floodplain, grasslands may be used for breeding by burrowing owl, and American badger (Zeiner et al. 1988; Zeiner et al. 1990a, 1990b).

Agricultural Crops

The project area has agricultural habitat in the form of actively growing row crops in the northwest portion of the project area, and a narrow strip of a larger field north of Crows Landing Road at the northeast end of the project area (**Figure 5 and 6**). Crops were not identifiable at the time of the field surveys.

Depending on the crop pattern and the proximity to native habitats, agricultural lands can provide relatively high-value habitat for wildlife, particularly as foraging habitat. Several species of common rodents including deer mice and California meadow vole, are found in agricultural habitats and are preyed on by a variety of raptor species. Raptor

species that use these areas for foraging are comparable to grassland foraging raptors discussed above. Because agricultural fields in the project area are either low growing or unplanted, they provide a high value to foraging raptors by increasing the visibility of prey species. Agricultural fields also provide foraging and resting habitat for migrating and wintering waterfowl and shorebirds such as Canada geese, snow geese (*Chen caerulescens*), mallard, northern pintails (*Anas acuta*), killdeer (*Charadrius vociferus*), and long-billed curlew (*Numenius americanus*).

Special-Status Species

Special-Status Plants

Based on the USFWS list, CNDDDB search results, the CNPS Inventory for the project region, 20 special-status plant species were determined to have the potential to occur in the project area (see **Appendices**). Suitable or potentially suitable habitat, based on plant communities, soil types, and hydrologic conditions, for 13 of these species was identified in the project area. However, many parts of the project area have a high level of disturbance from previous and ongoing activities, such that suitable microhabitat conditions for special-status plant species are present only in limited areas. No special-status plant species were found in the project area during 2010 summer, 2011 spring, or 2011 late-summer botanical surveys. Although marginal habitat is present in the project area for heartscale (*Atriplex cordulata*), San Joaquin spearscale (saltbush) (*Atriplex joaquiniana*), lesser saltscale (*Atriplex minuscula*), big tarplant (*Blepharizonia plumosa* ssp. *plumosa*), round-leaved filaree (*California macrophylla*), hispid bird's-beak (*Cordylanthus mollis* ssp. *hispidus*), delta button-celery (*Eryngium racemosum*), and Sanford's arrowhead (*Sagittaria sanfordii*), these species were not observed during blooming-period surveys and are considered absent from the project area. Based on these results, there are no special-status plant species in the project area.

Special-Status Wildlife

Based on a review of CNDDDB (2013) and USFWS (2013) species lists, 34 special-status wildlife species were determined to have the potential to occur in the project region (**Appendices**). There is habitat for 11 of these 34 species within the project area, but one of these species, tricolored blackbird, has low potential for occurrence because the project area contains only foraging habitat for this species. Therefore, ten species have a moderate to high potential to occur in the project area based on known occurrences for these species within the project region (10 mile radius from the project area) and the presence of suitable or potentially suitable habitat within the project area. Swainson's hawk was the only special-status species observed in the project area during the June 2010 reconnaissance level surveys. No focused surveys for special-status species have been conducted in the project area.

Special-Status Fish

Based on a review of existing information, seven special-status fish species were identified as having the potential to occur within the project region. Of these seven species, two (delta smelt and Sacramento River winter-run Chinook salmon) would not occur within the project area because they are outside the species' known range. The remaining five special-status fish species (Central Valley steelhead, San Joaquin fall-run Chinook salmon, spring-run Chinook salmon, green sturgeon, and river lamprey) have the potential to occur in the project area.

Discussion:

The following impact discussion is separated by check list letters and into plants and wildlife. Potential impacts on individual plant and wildlife species are discussed under these headings, respectively. **Table G** summarizes the permanent and temporary impacts on habitats within the project area from construction of the proposed project.

Table G. Permanent and Temporary Impacts on Natural Communities in the Crows Landing Road Bridge Replacement Project Site

Natural Community Type	Permanent Work Area (acres)	Temporary Work Area (acres)	Total Work Area (acres)
Great Valley cottonwood riparian forest	2.28	3.53	5.81
Seasonal wetland	0.01	0.05	0.06
Perennial drainage (San Joaquin River)	0.08	2.00	2.08
Seasonal drainage	0.01	0.05	0.06
Ruderal grassland	3.77	1.81	5.58
Agricultural crops	0.58	1.99	2.57
Total Area	6.73	9.43	16.16

Notes:

1. Staging area is included in temporary work area calculations.
2. Rock slope protection area is included in permanent work area calculations.
3. The total acreages do not include 3.28 acres, 0.75 acres, and 4.04 acres, respectively, of developed areas (includes paved and dirt roads).

a. Special-Status Plants

Floristic surveys of the project area were conducted during the blooming periods for all special-status plant species with potential to occur in the project area. No special-status plant species were observed, therefore, the project will not impact special-status plants and no mitigation is required.

Special-Status Wildlife

The following special-status wildlife species have at least a moderate potential to occur in the project area: western pond turtle, Swainson's hawk, white-tailed kite, northern harrier, burrowing owl, loggerhead shrike, pallid bat, Townsend's big-eared bat, western red bat, and American badger (**Figure 7**). A discussion of potential impacts related to each species is provided below.

Western Pond Turtle

Western pond turtle is a California species of special concern. There are four recorded occurrences for western pond turtle within 10 miles of the project area, with the closest record located approximately 2 miles northeast of the project area (see **Figure 7**) (California Natural Diversity Database 2013). Three of these occurrences are downstream from the project area within the San Joaquin River or channels directly connected to the San Joaquin River. The San Joaquin River and adjacent riparian corridor have potential to support breeding of western pond turtle and higher elevation areas just outside of the river's floodplain provides upland cover habitat safe from high winter flows.

Implementation of the proposed project would result in temporary disturbance to 2.0 acres of aquatic habitat within the San Joaquin River channel and 3.53 acres of riparian habitat (Great Valley cottonwood riparian [upland and wetland], narrow-leaf willow riparian scrub, and ruderal riparian) that provides suitable nesting and overwintering habitat for pond turtle as well as a permanent loss of 0.08 acre of aquatic habitat and 2.28 acres of riparian habitat. If present in the project area, construction activities could result in direct effects on pond turtle including destruction of active nests and injury and/or loss of individuals.

Implementation of **Mitigation Measures BIO-1** through **BIO-5** would avoid and minimize potential impacts on western pond turtle, and **Mitigation Measure BIO-6** will compensate for the loss of riparian habitat. In

addition, **Mitigation Measure BIO-7** would be implemented to avoid potential injury and mortality of individuals. Therefore, impacts related to western pond turtle would be considered less-than-significant with mitigation incorporated.

Swainson's Hawk

Swainson's hawk is a state-listed threatened species and is protected under the MBTA. Numerous Swainson's hawk nesting records were recorded within 10 miles of the project area, with the closest record located within 0.5 mile (**Figure 7**) (California Natural Diversity Database 2013). Trees within the project area, particularly those within the San Joaquin River riparian corridor are suitable for nesting and suitable foraging areas are located in adjacent grasslands and the agricultural field west of the river. A Swainson's hawk was observed foraging adjacent to the project area during wildlife surveys.

The project would result in removal of 0.99 acre of suitable nesting habitat and 4.35 acres of suitable foraging habitat (agricultural fields and ruderal grassland) for Swainson's hawk. Construction of the project could affect, either directly or indirectly through habitat modifications, the state-threatened Swainson's hawk. Tree removal, grading, or other construction activities during the nesting season could remove or cause abandonment of active Swainson's hawk nests if they are found nesting on or adjacent to the project area. Because the availability of foraging habitat has been closely tied to the breeding success of this species, projects that will adversely modify suitable Swainson's hawk foraging habitat within a 16-kilometer (10-mile) radius of active Swainson's hawk nests are considered to have the potential to result in adverse impacts to this species (California Department of Fish and Game 1994).

Implementation of **Mitigation Measures BIO-1** through **BIO-4** will avoid and minimize potential impacts on Swainson's hawk. Implementation of **Mitigation Measure BIO-6** will compensate for the loss of Swainson's hawk nesting habitat, and **Mitigation Measure BIO-8** will be implemented to avoid potential injury and mortality of individual Swainson's hawks. Therefore, impacts related to Swainson's hawk are considered less-than-significant with mitigation incorporated.

White-tailed Kite

The white-tailed kite is protected under the MBTA and is a fully protected species under the CFGC. There are no nest records for white-tailed kite within 10 miles of the project area. No white-tailed kites were observed in the project area during any of the field visits. Trees within the project area, particularly those within the San Joaquin River riparian corridor, provide potential nesting habitat and grasslands provide suitable foraging habitat.

Tree removal, grading, or other construction activities during the nesting season (generally February 1 through August 31) could remove or cause abandonment of active nests if they are found in or adjacent to the project area. Additionally, the project would result in removal of 0.99 acres of suitable nesting habitat and 4.35 acres of suitable foraging habitat (agricultural fields and ruderal grassland) for white-tailed kite. CDFW does not require compensatory mitigation for projects resulting in the loss of foraging habitat for this species.

Implementation of **Mitigation Measure BIO-1** through **BIO-4** will avoid and minimize potential impacts on white-tailed kite. Implementation of **Mitigation Measure BIO-6** will compensate for the loss of white-tailed kite nesting habitat, and **Mitigation Measure BIO-9** will be implemented to avoid potential injury and mortality of individuals. Therefore, impacts related to white-tailed kite are considered less-than-significant with mitigation incorporated.

Northern Harrier

The northern harrier is a California species of special concern and is protected under the MBTA and CFGC sections 3503 and 3503.5. There are no nest records for northern harrier within 10 miles of the project area (California Natural Diversity Database 2013). Northern harrier was not observed in or adjacent to the project

area during any of the site visits. Grasslands in the project area within the floodplain of the river provide potential nesting habitat for this species. Grasslands and agricultural fields in the project area provide potential foraging habitat for this species.

Construction activities during the nesting season (generally February 1 through August 31) could remove or cause abandonment of active nests if they occur in or adjacent to the project area. Additionally, the project would result in removal of 3.77 acres of suitable nesting habitat (ruderal grassland) and 4.35 acres of suitable foraging habitat (agricultural fields and ruderal grassland) for northern harrier. CDFW does not require compensatory mitigation for projects resulting in the loss of nesting or foraging habitat for this species.

Implementation of **Mitigation Measure BIO-1** through **BIO-4** and **Mitigation Measure BIO-9** will avoid and minimize potential impacts to northern harrier. Therefore, impacts related to northern harrier are considered less-than-significant with mitigation incorporated.

Western Burrowing Owl

Western burrowing owls are a California species of special concern and are protected under the MBTA and CFGC Sections 3503 and 3503.5. There is one record of nesting burrowing owl 8 miles west of the project area (**Figure 7**) (California Department of Fish and Wildlife 2013). The project area contains suitable nesting and foraging habitat for this species in grasslands northeast of the San Joaquin River, which are outside of the floodplain. No burrowing owls were observed during the June 2010 site visits.

Construction activities during the nesting season (generally February 1 through August 31) could remove or cause abandonment of active nests if they occur in or adjacent to the project area. Additionally, 3.77 acres of potential nesting (ruderal grassland) and 4.35 acres of foraging habitat (ruderal grassland and agricultural fields) would be lost.

Implementation of **Mitigation Measures BIO-1** through **BIO-3** will avoid and minimize potential impacts on western burrowing owl. In addition, preconstruction surveys proposed in **Mitigation Measure BIO-10** will be implemented to determine if burrowing owls are present in the project area at the time of construction, and if present, provide measures to avoid potential injury and mortality of individuals. If burrowing owls are observed during preconstruction surveys, implementation of **Mitigation Measure BIO-11** will be required to compensate for the loss of habitat for this species. Therefore, impacts related to western burrowing owl are considered less-than-significant with mitigation incorporated.

Loggerhead Shrike

The loggerhead shrike is designated as a California species of special concern and is protected under the MBTA. There are no records of loggerhead shrike nests within 10 miles of the project area. Within the project area, grasslands provide suitable foraging habitat and trees and shrubs provide suitable nesting habitat for this species.

Construction activities including tree/shrub removal during the nesting season (generally February 1 through August 31) could remove or cause abandonment of active nests if they occur in or adjacent to the project area. Additionally, scattered trees and shrubs within ruderal grassland and ruderal riparian areas would be lost, as would potential foraging habitat within ruderal grassland and agricultural fields. CDFW does not require compensatory mitigation for projects resulting in the loss of nesting or foraging habitat for this species.

Implementation of **Mitigation Measures BIO-1** through **BIO-4** and **Mitigation Measure BIO-9** would avoid and minimize potential impacts to this species. Therefore, impacts related to loggerhead shrike are considered less-than-significant with mitigation incorporated.

Other Migratory Birds

Numerous non-special-status migratory birds (including raptors) could nest in and adjacent to the project

area. The occupied nests and eggs of these birds are protected by federal and state laws, including the MBTA and CFGC sections 3503 and 3503.5.

Suitable nesting habitat for migratory birds is present within shrubs, trees, and grassy areas within and adjacent to the project area. Additionally, cliff swallows are utilizing the Crows Landing Road Bridge for nesting. Though the site visits were conducted during the breeding season, a formal nest survey was not conducted and no nests were incidentally observed during the site visits.

Implementation of the proposed project could impact nesting migratory birds, including raptors, if construction activities remove or otherwise disturb occupied nests during the breeding season (generally February 1 through August 31, though some species nest as early as January 1). Construction activities during the breeding season that result in death of young or loss of reproductive potential would violate MBTA and CFGC Sections 3503 and 3503.5. Additionally, the project would remove nesting and foraging habitat for these species. No compensatory mitigation for the loss of nesting and foraging habitat for migratory birds is required.

Implementation of **Mitigation Measures BIO-1** through **BIO-4** and **Mitigation Measure BIO-9** will avoid and minimize potential impacts to nesting birds. Additionally, **Mitigation Measure BIO-12** should be implemented to avoid impacts to bridge nesting swallows. Therefore, impacts related to other migratory birds are considered less-than-significant with mitigation incorporated.

Pallid Bat, Townsend's Big-Eared Bat, Western Red Bat and Roosts of Common Bats

The project area is within the expected range of three special-status bat species (pallid bat, Townsend's big-eared bat, and western red bat), all of which are California species of special concern. There are no recorded occurrences of bat roosts for any of these species within 10 miles of the project area (California Natural Diversity Database 2013). Of these three bat species, only pallid bat and Townsend's big-eared bat are known to roost in bridges, whereas western red bats are known to roost in trees (Erickson 2001). All three bats species may utilize open water in the project area for foraging.

Some common bat species whose expected range includes the project area and are known to roost on bridges in California include Mexican free-tailed bat, big brown bat, Yuma myotis, and California myotis (Erickson 2002, Johnston et al. 2004). Although common bats species do not have the same protection as special-status bat species, maternal roosts are afforded protection by CDFW due to the sensitivity of these roosts to disturbance.

The Crows Landing Bridge contains an expansion joint that could support day or night bat roosts for pallid bat, Townsend's big-eared bat, and other common bridge dwelling bats mentioned above. The joint and the area below the joint were visually examined using binoculars for sign of bats (urine stains and guano) during the June 21, 2010, field survey though no sign was observed. Because the bridge is heavily utilized by swallows whose excrement may mask bat urine that may be present and because the joint is located over an area that frequently floods potentially washing guano away, the lack of bat sign does not dismiss the potential that the joint could seasonally contain roosting bats. Bats may also utilize trees cavities or foliage for day or night roosts. The proposed project would involve the removal and replacement of the existing bridge, which contains suitable bat roosting habitat within an expansion joint, and removal of riparian forest, which contains trees that may support foliage or cavity roosting bats.

The replacement of the bridge will require the removal of the existing bat roosting habitat, which could affect roosting bats, if present, through habitat modification. Permanent removal of these areas without providing alternative onsite habitats could significantly impact the bat colonies. Therefore, **Mitigation Measure BIO-13** (conduct a nighttime emergence survey and examine potential roost trees prior to trimming or removal) should be implemented to determine if bat colonies are utilizing bridge structures or trees for roosting. If active roosts are found to be utilizing trees or bridge structures on the site, **Mitigation Measure BIO-14** should be implemented. Additionally, if roosts occur on the bridge **Mitigation Measures BIO-15** should also

be implemented to avoid permanent loss of habitat for bats. Implementation of **Mitigation Measures BIO-13, BIO-14, and BIO-15** would avoid and minimize effects to special-status and common bat species. As a result, impacts related to special-status and roosts of common bat species are considered less-than-significant with mitigation incorporated.

American Badger

American badger is a California species of special concern. There is one occurrence of American badger located approximately 9 miles west of the project area (**Figure 7**). The project area contains limited potential denning and foraging habitat for this species in grasslands northeast of the San Joaquin River outside of the floodplain. Grasslands within the floodplain may support foraging of this species, though the lack of small mammal burrows in these areas suggests a limited prey base. No potential badger dens were observed during the June 2010 site visits.

Construction of the project would result in the temporary disturbance of 1.73 acres of low quality foraging and denning habitat for American badger and permanent loss of 4.46 acres of low quality foraging habitat and 3.88 acres of low quality denning habitat. CDFW does not require compensation for removal of potential or occupied habitat for this species.

If present in the project area, potential impacts to American badgers could include:

- Damage to or destruction of dens.
- Direct mortality from construction vehicles or heavy equipment.
- Direct mortality from den collapse and subsequent suffocation.
- Temporary disturbance from noise and human presence.
- Harassment by construction crews.

The project area contains a movement corridor along the San Joaquin River that may be used by badgers, though the potential for badgers to occur in the project vicinity is considered low to moderate due to the limited prey base. Though movement through the project site would be disrupted during construction, replacement of the bridge would not significantly alter the accessibility of the corridor along the river for use as a movement corridor.

Implementation of **Mitigation Measures BIO-16 and BIO-17** will avoid and minimize potential impacts to American badger. Therefore, impacts related to American badger are considered less-than-significant with mitigation incorporated.

Special-Status Fish

The following special-status fish species have at least a moderate potential to occur in the project area: Central Valley steelhead, San Joaquin fall-run Chinook salmon, spring-run Chinook salmon, green sturgeon and river lamprey. Critical habitat for Central Valley steelhead is designated in the project area.

Central Valley Steelhead

Central Valley steelhead was federally listed as threatened on March 19, 1998 (63 FR 13347). The NMFS designated critical habitat for Central Valley steelhead in the San Joaquin River (70 FR 52488, September 2, 2005). Critical habitat for Central Valley steelhead in the San Joaquin River extends from the confluence of the Merced and San Joaquin River, north into the Delta (FR 70 52605 September 2, 2005), which includes the project area. The project area is not suitable for spawning, but serves as a migratory corridor for spawning adults headed to the Merced River and for juvenile steelhead emigrating out of the tributaries (McEwan 2001).

Potential impacts to Central Valley steelhead include sediment input, contaminant input, disturbance and direct injury, water bladder dam installation, and habitat modification (see discussions below).

Implementation of **Mitigation Measures BIO-1** through **BIO-6** will minimize and compensate for potential impacts on special-status fish habitat and riparian vegetation adjacent to the construction area.

Implementation of **Mitigation Measure BIO-18** will compensate for the temporary disturbance and permanent fill of in-channel habitat of special-status fish species. Additionally, implementation of **Mitigation Measures BIO-19** through **BIO-24** will avoid and minimize potential impacts on the San Joaquin River and special-status fish species. Therefore, impacts related to Central Valley steelhead are considered less-than-significant with mitigation incorporated.

Sediment Input

Construction activities in the channel (water bladder dam installation, demolition of old bridge) and on the banks of the San Joaquin River would disturb soils and could cause sediment to be transported to the river channel; this would result in temporary increases in turbidity and sedimentation downstream of the project area. Periods of localized, high suspended sediment concentrations and turbidity resulting from channel disturbance can result in a reduction of feeding opportunities for sight-feeding fish, as well as the clogging and abrasion of gill filaments. Increased sediment loading can also degrade food-producing habitat downstream of the project area and interfere with photosynthesis of aquatic flora, resulting in the displacement of aquatic fauna.

Contaminant Input

During construction, the potential exists for spills of fuel and concrete into the San Joaquin River. In addition, various contaminants (e.g., fuel oils, grease, and other petroleum products used in construction activities) could be introduced into the waterways directly or through surface runoff. Currently, contaminant runoff occurs from vehicle travel over the existing Crows Landing Bridge. These contaminants may be toxic to fish or cause altered oxygen diffusion rates and acute and chronic toxicity to aquatic organisms, thereby reducing growth and survival. However, because a Stormwater Pollution Prevention Plan (SWPPP) would be developed and implemented, the potential for water quality degradation and impacts on listed fish species would be substantially reduced or minimized.

Disturbance and Direct Injury

Noise, vibrations, and other physical disturbances can harass fish, disrupt or delay normal activities, or cause injury or mortality. In fish, the hearing structures and swim bladder and surrounding tissues are particularly vulnerable to high pressure sounds (Popper et al. 2006). The type and severity of impacts depends on several factors, including the intensity and characteristics of the sound, the distance of the fish from the source, the timing of actions relative to the occurrence of sensitive life stages, and the frequency and duration of the noise-generating activities. The range of impacts potentially includes behavioral effects, physiological stress, physical injury (including hearing loss), and mortality.

Based on proposed construction activities, the effects of noise on fish would be primarily limited to avoidance behavior in response to movements, vibrations, and noise caused by construction personnel and equipment operating in or adjacent to the San Joaquin River.

For the proposed project, all of the structural piles for the temporary falsework/working trestle piles would be driven in place by a vibratory hammer, requiring approximately 10 minutes to vibrate each pile in place.

Water Bladder Dam Installation

Water bladder dams will be used to create a dam around the existing piles during the demolition of the old bridge. Water bladder dams will be used as a cofferdam/shoring system and construction would occur between June 1 and October 15 (when special-status fish are not present). After installation of the water

bladder dam, fish may become isolated within the area. Depending on the size of the area, fisheries biologists may be able to enter the water bladder dam area with a seine and salvage fish. The proposed timing for fish relocation is June 1 to October 15.

Nearly all Chinook salmon and steelhead smolts are expected to have moved past the project area by June 1, so most of the relocation effort will result in the capture and handling of juvenile (i.e., nonsmolting) fish. Juvenile steelhead and Chinook salmon juveniles may be killed or injured from capture or handling during efforts to relocate fish from areas of the river where dewatering or fish exclusion with nets is proposed. In addition, individual fish that elude capture in fish exclusion zones may be killed or injured as a result of dewatering.

Riparian Habitat

Construction of the project would result in a permanent loss of 2.28 acres of cottonwood riparian forest within the project footprint. The permanent impact area would include riparian trees, as well as woody understory plants such as young trees. Permanent impacts would result from vegetation removal and shading by the new bridge structure. Removal of the old bridge would uncover previously shaded areas that could revegetate and compensate for the shading effect.

Approximately 3.53 acres of cottonwood riparian forest would be temporarily disturbed during construction. This impact would include the probable removal of additional trees and understory vegetation to provide equipment access.

Impacts on riparian woodland vegetation could also occur from adjacent construction activity. Riparian vegetation is adjacent to the construction area and would not be removed for construction, but it could sustain damage from equipment.

In addition to riparian vegetation disturbance, approximately 0.58 acres of RSP will be added on the channel bank and will extend from the top of bank down to the bank toe. The RSP will only be inundated during high flows. During low flows, the RSP is 100 feet from the channel on the west bank, and 25 feet away from the channel on the east bank. Measures to reduce adverse effects to riparian habitat are discussed below under b).

The suitability of aquatic habitat for juvenile salmonids and other fishes depends on the presence of nearshore areas with shallow water, instream woody material, and aquatic and riparian vegetation. These attributes provide juvenile salmonids and other fishes with valuable feeding and resting habitat, concealment from predators, and refuge during high flows.

Under existing conditions, the project area is dominated by deep, open water with direct exposure to the current and little natural shade. The low-flow shoreline consists largely of herbaceous vegetation. Adult salmon and steelhead likely occur in the project area during their upstream migration and may hold temporarily in the deep portions of the channel adjacent to the shoreline. Juvenile salmon and steelhead may occur in the nearshore zone during their rearing and downstream migration periods. However, utilization of shoreline areas by juveniles is expected to be low because of the low suitability of nearshore areas for juvenile rearing.

Bridge construction may result in the removal or disturbance of shoreline vegetation and riparian vegetation. Following construction, all disturbed or exposed soils will be stabilized and planted with native woody and herbaceous vegetation to control erosion and offset any unavoidable losses of vegetation.

Inchannel Habitat

Construction of the proposed project would result in a permanent loss of 0.08 acre and a temporary impact on 2.00 acres of perennial drainage in the San Joaquin River within the project area. These impact acreages are based on the preliminary delineation of waters of the United States.

Permanent impacts on perennial drainage would include construction associated with the new bridge, demolition of the existing bridge, and shading created by the new bridge. New bridge construction would include placement of two sets of piers below the OHWM, totaling 0.08 acre of permanent impact on the river bed. Demolition of the existing bridge would include removal of piers and supports from the riverbed. The removal may result in the need for placing fill and recontouring the bed, but would ultimately restore that part of the river to perennial drainage habitat and would be a beneficial impact.

Temporary impacts on perennial drainage would be caused by installation of the water bladder dam during construction. For the purpose of this impact analysis, it is assumed that the area between the sets of piers in the San Joaquin River, as well as the work area upstream and downstream of the existing and new bridges will be temporarily affected during construction.

The San Joaquin River is a water of the U.S., subject to regulation under CWA Section 404. Both permanent and temporary placement of material within the OHWM of the river, including water bladder dams and bridge supports, would be considered placement of fill within waters of the United States. This activity would require Section 404 authorization from USACE and CWA Section 401 water quality certification from the RWQCB.

An SAA from CDFW would be required for construction activity within the river and its floodplain. Stanislaus County currently holds a Master Lease Agreement (#7183.9) with the SLC for the Crows Landing Road Bridge. Upon completion of the CEQA process, an amendment to the lease (#7183.9) with SLC approval will be required (Hayes pers. comm.).

Overwater and In-Water Structures

Overwater and in-water structures can alter underwater light conditions and provide potentially favorable holding conditions for adult fish, including species that prey on juvenile fishes. Permanent shading from the new bridge and the permanent installation of piles and other structures in the San Joaquin River could increase the number of predatory fishes (e.g., striped bass, largemouth bass) holding in the project area and their ability to prey on juvenile salmonids and other fishes. The new bridge will provide approximately the same amount of shade as the old bridge and the number of piles will be fewer than what currently exists. The existing bridge piers have a volume of 66.0 cubic yards (cy) and the replacement bridge will have a volume of 54.5 cy, for a net reduction in 11.5 cy upon project completion.¹ A substantial change in shading in comparison to existing conditions is not anticipated.

Predation rates on juvenile salmon and steelhead at this location are unknown and will likely remain the same as existing conditions because channel conditions are expected to remain the same.

Spring-Run Chinook Salmon

Central Valley spring-run Chinook salmon, which includes populations spawning in the Sacramento River and its tributaries, is listed as threatened under ESA and CESA. Spring-run Chinook salmon have been extirpated from the San Joaquin River system. However, as part of the San Joaquin River litigation settlement, spring-run fish will be reintroduced into the upper reaches of the San Joaquin in the near future (Friant Water Users Authority, no date). Therefore, spring-run Chinook salmon are addressed in this document.

Project impacts to spring-run Chinook salmon would be the same as for Central Valley steelhead (described above).

Implementation of **Mitigation Measure BIO-1** through **BIO-6** and **BIO-18** through **BIO-24** will minimize impacts on spring-run Chinook salmon and their habitat occurring in the San Joaquin River within the project area. Therefore, impacts related to spring-run Chinook salmon are considered less-than-significant with mitigation incorporated.

¹ The following volumes were based on the OHWM. Personal communication with Mike Pugh, May 27, 2011.

Fall-Run Chinook Salmon

On March 9, 1998 (63 FR 11481), NMFS issued a proposed rule to list Central Valley fall/late fall-run Chinook salmon as threatened, but determined the species did not warrant listing and identified it as a candidate species (64 FR 50393, September 16, 1999). On April 15, 2004, NMFS downgraded their status back to a species of concern (69 FR 19975).

Due to high water temperatures in the San Joaquin River during the summer and late fall months, San Joaquin Chinook salmon may not migrate upstream until after the first precipitation events in October to November.

The project area would be used as a migratory corridor for both adult and juvenile fall-run Chinook salmon. The project area is designated as Essential Fish Habitat (EFH) for Central Valley fall/late fall-run Chinook salmon. EFH is the aquatic habitat (water and substrate) necessary for fish to spawn, breed, feed, or grow to maturity (National Marine Fisheries Service 1998) that will allow a level of production needed to support a long-term, sustainable commercial fishery and contribute to a healthy ecosystem.

Project impacts to Central Valley fall/late fall-run Chinook salmon would be the same as for Central Valley steelhead (described above).

Implementation of **Mitigation Measure BIO-1** through **BIO-6** and **BIO-18** through **BIO-24** will minimize impacts on fall-run Chinook salmon and their habitat occurring in the San Joaquin River within the project area. Therefore, impacts related to fall-run Chinook salmon are considered less-than-significant with mitigation incorporated.

Green Sturgeon

NMFS has divided sturgeon into two distinct population segments (DPS): the southern and northern DPS. The northern DPS comprises sturgeon from the Eel River northward; the southern DPS comprises populations below the Eel, specifically the Sacramento River population (71 FR 17757). The southern DPS, which occurs in the project area, is federally listed as threatened (71 FR 17757 April 7, 2006).

No green sturgeon have been documented in the San Joaquin River or its tributaries (California Department of Fish and Game 2002; Beamesderfer et al. 2004). Small numbers of adult sturgeon occur in the San Joaquin River, but have been identified as white sturgeon. Since the 1940s, the San Joaquin River and its tributaries have been heavily modified in ways that reduce suitability for sturgeon, but the lack of contemporary information cannot be considered evidence of historical green sturgeon absence (NMFS 2005).

Project impacts to green sturgeon would be the same as for Central Valley steelhead (described above).

Implementation of **Mitigation Measure BIO-1** through **BIO-6** and **BIO-18** through **BIO-24** will minimize impacts on green sturgeon and their habitat occurring in the San Joaquin River within the project area. Therefore, impacts related to green sturgeon are considered less-than-significant with mitigation incorporated.

River Lamprey

River lamprey (*Lampetra ayressii*) are currently listed by CDFW as a Species of Special Concern (California Department of Fish and Game 2005). River lamprey could occur in the San Joaquin River. Their distribution and habitat requirements could fall within the project area.

The proposed project is not expected to affect river lamprey due to lack of spawning habitat in the project area. If juvenile lamprey were present in the silt and sand, they could be disturbed due to project construction. When disturbed, lamprey will move up or downstream into a new location. Implementation of **Mitigation Measure BIO-1** through **BIO-6** and **BIO-18** through **BIO-24** will minimize impacts on river lamprey and their habitat occurring in the San Joaquin River within the project area. Therefore, impacts related to river lamprey are considered less-than-significant with mitigation incorporated.

Conclusion

In conclusion, with implementation of the mitigation measures described above (**Mitigation Measure BIO-1** through **BIO-9** and **BIO-11** to **BIO-24**) adverse effects, either directly or through habitat modification, on any species identified as a candidate, sensitive, or special-status species, would be considered less than significant (Less Than Significant With Mitigation).

- b. Construction of the project would result in a permanent loss of 2.28 acres of cottonwood riparian forest within the project footprint. The permanent impact area would include riparian trees, as well as woody understory plants such as young trees. Permanent impacts would result from vegetation removal and shading by the new bridge structure. Removal of the old bridge would uncover previously shaded areas that could revegetate and compensate for the shading effect. Therefore, no net effect on cottonwood riparian forest due to shading is anticipated.

Approximately 3.53 acres of riparian woodland vegetation would be temporarily disturbed during construction. This impact would include the probable removal of additional trees and understory vegetation to provide equipment access. Impacts on riparian woodland vegetation could also occur from adjacent construction activity. Riparian vegetation is adjacent to the construction area and would not be removed for construction, but it could sustain damage from equipment.

State and federal agencies would require avoidance, minimization, and compensatory mitigation for the loss of riparian habitat. The loss or disturbance of riparian forest vegetation is considered significant because it provides a variety of important ecological functions and values. The California Department of Fish and Wildlife would require a streambed alteration agreement (SAA) for construction within the riparian vegetation. The jurisdictional wetland part of the riparian forest is also subject to regulation under CWA Sections 404 and 401. Placement of bridge structures or fill within the riparian forest wetland would require a Section 404 permit from the USACE and a Section 401 permit from the RWQCB. In addition, federal agencies must comply with EO 11990 to protect wetlands.

With implementation of **Mitigation Measures BIO-1** through **BIO-6**, impacts to the riparian forest would be less than significant (Less Than Significant With Mitigation).

- c. Project construction would affect three different types of federally protected wetlands and other waters of the United States, including seasonal wetland, perennial drainage, and seasonal drainage. Impacts on each of these habitats is discussed below.

Seasonal Wetland

Construction of the new bridge would result in placement of fill in 0.01 acre of the seasonal wetland (**Figure 6**). However, demolition of the existing bridge would likely result in impacts on the wetland due to destruction of wetland vegetation and disruption of the wetland hydrology. The wetland is located next to a set of bridge piers, which could not be removed without affecting the wetland. Therefore, this impact is assumed to result in the loss of the 0.06-acre seasonal wetland.

Seasonal wetlands that abut jurisdictional drainages are considered waters of the United States, subject to regulation under CWA Section 404. Placement of material in the seasonal wetland during demolition would be considered placement of fill within waters of the United States. This activity would require Section 404 authorization from USACE and CWA Section 401 water quality certification from the RWQCB.

Implementation of **Mitigation Measures BIO-2**, **BIO-5**, and **BIO-25** would compensate for the impacts of construction on seasonal wetland.

Perennial Drainage

Construction of the proposed project would result in a permanent loss of 0.08 acre and a temporary impact on 2.00 acres of perennial drainage in the San Joaquin River within the project area. These impact acreages are based on the preliminary delineation of waters of the United States.

Permanent impacts on perennial drainage would include construction associated with construction of the new bridge, demolition of the existing bridge, and shading created by the new bridge. New bridge construction would include placement of two sets of piers below the OHWM, totaling 0.08 acre of permanent impact on the river bed. Demolition of the existing bridge would include removal of piers and supports from the riverbed. The removal may result in the need for placing fill and recontouring the bed, but would ultimately restore that part of the river to perennial drainage habitat and would be a beneficial impact. The new bridge would create shading in a new location however the removal of the old bridge would uncover previously shaded area. The open water part of the river supports minimal, if any, vegetation. Therefore, no net effect on open water habitat due to shading is anticipated.

Temporary impacts on perennial drainage would be caused by installation of water bladder dams during construction. For the purpose of this impact analysis, it is assumed that the area between the sets of piers in the San Joaquin River, as well as the work area upstream and downstream of the existing and new bridges will be temporarily affected during construction.

The San Joaquin River is a water of the United States, subject to regulation under CWA Section 404. Both permanent and temporary placement of material within the OHWM of the river, including water bladder dams and bridge supports, would be considered placement of fill within waters of the United States. This activity would require Section 404 authorization from USACE and CWA Section 401 water quality certification from the RWQCB.

An SAA from CDFW would be required for construction activity within the river and its floodplain. Stanislaus County currently holds a Master Lease Agreement (#7183.9) with the SLC for the Crows Landing Road Bridge. Upon completion of the CEQA process, an amendment to the lease (#7183.9) with SLC approval will be required (Hayes pers. comm.).

Implementation of **Mitigation Measures BIO-1, BIO-2, BIO-3, BIO-5, and BIO-26** would compensate for the temporary and permanent impacts of construction on perennial drainage.

Seasonal Drainage

Construction of the proposed project would result in a permanent loss of 0.01 acre and a temporary loss of 0.05 acre of jurisdictional seasonal drainage within the project area (**Figure 6**). These impact acreages are based on the preliminary delineation of waters of the United States. Permanent impacts on the seasonal drainage would occur in the area east of the bridge for new road construction. Temporary impacts on the seasonal drainage would occur during project construction activities for equipment access.

The seasonal drainage is a water of the United States, subject to regulation under CWA Section 404. Both permanent and temporary placement of material within the seasonal drainage would be considered placement of fill within waters of the United States. This activity would require Section 404 authorization from USACE and CWA Section 401 water quality certification from the RWQCB.

Implementation of **Mitigation Measures BIO-1, BIO-2, BIO-3, BIO-5, and BIO-26** would compensate for the temporary and permanent impacts of construction on seasonal drainage.

Conclusion

With implementation of **Mitigation Measures BIO-1, BIO-2, BIO-3, BIO-5, BIO-25, and BIO-26**, impacts of the project on federally protected wetlands would be less than significant (Less Than Significant With

Mitigation).

- d. Riparian corridors such as the one along the San Joaquin River within the project area are important migration or dispersal corridors for numerous wildlife species, as they act as forested connectors between habitats. Bobcat, coyote, gray fox, and American badger are just a few among many that may use the San Joaquin River riparian corridor within the project area to move between habitats or disperse to new habitats when habitats are lost due to conversion to development or other unsuitable land uses. Additionally, the San Joaquin River within the project area provides a migratory corridor for native fish species as well as steelhead, Chinook salmon, and possibly green sturgeon. Steelhead and Chinook salmon migrate upstream into tributaries such as the Merced, Tuolumne, and Stanislaus rivers to spawn. The San Joaquin River is designated as critical habitat for Central Valley steelhead and late-/fall-run Chinook salmon.

With implementation of **Mitigation Measures BIO-6** and **BIO-21**, potential impacts to the riparian and aquatic migration corridors that occur within the project area would be less than significant (Less Than Significant With Mitigation).

- e. No local policies or ordinances regulate or protect biological resources in the project area; therefore, the project will not conflict with local policies or ordinances and there will be no impact (**No Impact**).
- f. There are no applicable HCPs or NCCPs in the project area. Therefore, there would be no impact from the project related to the provisions of an adopted HCP, NCCP, or other approved local, regional or state HCP. Therefore, no mitigation is required (**No Impact**).

Mitigation:

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

The County or its contractor will install orange construction barrier fencing to identify environmentally sensitive areas. A qualified biologist will identify sensitive biological resources adjacent to the construction area before the final design plans are prepared so the areas to be fenced can be included in the plans. The area that would generally be required for construction, including staging and access, is shown in **Figure 6**. Portions of this area that are to be avoided during construction will be fenced off to avoid disturbance. Sensitive biological resources that occur adjacent to the construction area include sensitive natural communities; riparian trees to be retained; potential sensitive wildlife habitats for western pond turtle and American badger; and trees with nesting birds or roosting bats.

Temporary fences around the environmentally sensitive areas will be installed as one of the first orders of work following County specifications. Before construction, the construction contractor will work with the project engineer and a resource specialist to identify the locations for the barrier fencing and will place stakes around the sensitive resource sites to indicate these locations. The protected areas will be designated as environmentally sensitive areas and clearly identified on the construction plans. The fencing will be installed before construction activities are initiated, maintained throughout the construction period, and removed after completion of construction.

Mitigation Measure BIO-2. Conduct Environmental Awareness Training for Construction Employees.

The County will retain a qualified biologist to develop and conduct environmental awareness training for construction employees on the importance of onsite biological resources, including sensitive natural communities; riparian trees to be retained; potential special-status wildlife including western pond turtle, American badger, nesting birds, and roosting bats. In addition, construction employees will be educated about invasive plants and the importance of controlling and preventing the spread of invasive plant infestations.

The environmental awareness program will be provided to all construction personnel to brief them on the life history of all sensitive species in or adjacent to the project area, the need to avoid impacts on sensitive biological resources, any terms and conditions required by state and federal agencies, and the penalties for not complying with biological mitigation requirements. If new construction personnel are added to the project, the contractor's superintendent will ensure that the personnel receive the mandatory training before starting work. An environmental awareness handout

that describes and illustrates sensitive resources to be avoided during project construction and identifies all relevant permit conditions will be provided to each person.

Mitigation Measure BIO-3. Retain a Biological Monitor to Conduct Weekly Visits during Construction.

The County will retain a qualified biologist to conduct construction monitoring in and adjacent to all sensitive habitats in the construction area. The frequency of monitoring will range from daily to weekly depending on the biological resource. The monitor, as part of the overall monitoring duties, will inspect the fencing once a week along the river in the construction area that support riparian vegetation, surrounding native trees and woodlands, special-status plants, and special-status wildlife habitats. The biological monitor will assist the construction crew as needed to comply with all project implementation restrictions and guidelines. The biological monitor also will be responsible for ensuring that the contractor maintains the staked and flagged perimeters of the construction area and staging areas adjacent to sensitive biological resources.

Mitigation Measure BIO-4. Avoid and Minimize Potential Disturbance of Riparian Communities.

The County will avoid and minimize potential disturbance of riparian communities by implementing the following measures.

- The potential for long-term loss of riparian vegetation will be minimized by trimming vegetation rather than removing entire shrubs. Shrubs that need to be trimmed will be cut at least 1 foot above ground level to leave the root systems intact and allow for more rapid regeneration. Cutting will be limited to the minimum area necessary within the construction zone. To protect nesting birds and western pond turtles, the County will not allow pruning or removal of woody riparian vegetation between February 1 and August 31 without preconstruction surveys.
- A certified arborist will be retained to perform any necessary pruning or root cutting of retained riparian trees.

The areas that undergo vegetative pruning and tree removal will be inspected immediately before construction, immediately after construction, and one year after construction to determine the amount of existing vegetative cover, cover that has been removed, and cover that resprouts. If, after one year, these areas have not resprouted sufficiently to return the cover to the pre-project level, the County will replant the areas with the same species to reestablish the cover to the pre-project condition.

Mitigation Measure BIO-5. Protect Water Quality and Prevent Erosion and Sedimentation in Drainages and Wetlands.

Features to be protected include the San Joaquin River, the unnamed seasonal drainage, riparian forest and scrub wetlands, and the seasonal wetland in and adjacent to the project area. The County will implement the following BMPs before and during construction.

- All earthwork or foundation activities within the river, its floodplain, or the seasonal drainage will occur in the dry season (generally between June 1 and October 15).
- Equipment used in and around drainages and wetlands will be in good working order and free of dripping or leaking engine fluids. All vehicle maintenance, staging, and materials storage will be performed at least 300 feet from all drainages and wetlands. Any necessary equipment washing will be carried out where the water cannot flow into drainages or wetlands.
- Any surplus concrete rubble, asphalt, or other rubble from construction will be taken to the Stanislaus County landfill or a recycling facility.
- An erosion control plan will be prepared and implemented for the proposed project. It will include the following provisions and protocols:
 - Discharge from dewatering operations, if needed, and runoff from disturbed areas will be made to conform to the water quality requirements of the waste discharge permit issued by the RWQCB.

- Material stockpiles will be located in non-traffic areas only. Side slopes will not be steeper than 2:1. All stockpile areas will be surrounded by a filter fabric fence and interceptor dike.
- Temporary erosion control measures, such as sandbagged silt fences, will be applied throughout construction of the proposed project and will be removed after the working area is stabilized or as directed by the engineer. The Storm Water Pollution Prevention Plan (SWPPP) for the project will detail the applications and type of measures and the allowable exposure of unprotected soils.
- Soil exposure will be minimized through use of temporary BMPs, groundcover, and stabilization measures. Exposed dust-producing surfaces will be sprinkled daily, if necessary, until wet; this measure will be controlled to avoid producing runoff. Paved streets will be swept daily following construction activities.
- The contractor will conduct periodic maintenance of erosion and sediment control measures.

An appropriate seed mix of native species will be planted on disturbed areas upon completion of construction.

Mitigation Measure BIO-6. Compensate for Temporary and Permanent Loss of Riparian Vegetation.

The County will compensate for temporary construction-related loss of riparian vegetation by replanting the temporarily disturbed area with the native species removed, including Fremont's cottonwood, Goodding's willow, narrow-leaf willow, and valley oak. Replanting will occur after completion of the construction activities and before October 15 to minimize erosion and creek sedimentation, and to avoid impacts on fish.

The County will compensate for the permanent loss of riparian vegetation at a minimum ratio of 1:1 (1 acre restored or created for every 1 acre permanently affected). The actual compensation ratios will be determined through coordination with the RWQCB and USACE as part of the permitting process for the wetland impacts and through coordination with the CDFW for the upland riparian impacts. Mitigation will be onsite or immediately adjacent to the impact area within the ruderal riparian habitat.

The County will compensate for the temporary and permanent loss of riparian vegetation through the preparation of a mitigation planting plan, including a species list and number of each species, planting locations within the mitigation area, and maintenance requirements. Plantings will consist of cuttings taken from local plants, or plants grown from local material.

Planted species will be similar to those removed from the project area and will include Fremont's cottonwood, Goodding's willow, narrow-leaf willow, and valley oak. Native understory species, such as California blackberry, mugwort, and willow, or other suitable species will be planted. Plantings will be monitored annually for 3 years or as required in the project permits.

If 75 percent of the plants survive at the end of the monitoring period, the revegetation will be considered successful. If the survival criterion is not met at the end of the monitoring period, planting and monitoring will be repeated after mortality causes have been identified and corrected.

Mitigation Measure BIO-7. Conduct Preconstruction Presence/Absence Surveys for Western Pond Turtle and Construct Exclusion Fencing, If Needed.

- To avoid and minimize impacts on western pond turtles, the County will retain a qualified wildlife biologist to conduct a preconstruction survey one week before and within 48 hours of disturbance in aquatic habitats. The surveys objectives are to determine presence or absence of pond turtles within the construction work area.
- If possible, the surveys should be timed to coincide with the time of day and year when turtles are most likely to be active (during the cooler part of the day 8 a.m.–12 p.m. during spring, summer and late summer). Prior to conducting the presence/absence surveys the biologist should locate the microhabitats for turtle basking (logs, rocks, brush thickets) and determine a location to quietly observe turtles.
- The surveys should include a 30 minute wait time after arriving onsite to allow startled turtles to return to open

basking areas. The surveys should consist of a minimum 15 minute observation time per area where turtles could be observed.

- Two preconstruction surveys, if conducted at the appropriate time to year, are sufficient to determine presence/absence.
- If turtles are observed during either survey, they will be relocated outside of the construction area to appropriate aquatic habitat by a biologist with a valid memorandum of understanding from CDFW and as determined during coordination with CDFW.
- If turtles are present they can either be hand-captured during dewatering or trapped and then moved.
- If turtles are captured and moved up or downstream, install exclusion fence perpendicular to the river extending upslope an appropriate distance, determined based on topography and site vegetation. If this is determined to be infeasible, a monitor will need to be present during in-water construction (and construction within riparian habitat areas) to ensure that turtles do not move into the construction area.

Mitigation Measure BIO-8. Remove Vegetation during the Nonbreeding Season and Conduct Preconstruction Surveys for Swainson's Hawk.

To avoid and minimize impacts to Swainson's hawk, which is protected under the MBTA and CFGC sections 3503 and 3503.5 and the CESA, the County or its contractor will implement the following restrictions and surveys:

- Vegetation (trees and shrubs) removal will occur during the general non-breeding season for migratory birds (generally between September 1 and January 31).
- If construction activities, including tree and shrub (and other vegetation) removal, are scheduled to occur during the migratory bird breeding season (generally between February 1 and August 31), the County will retain a qualified wildlife biologist to conduct nesting surveys before the start of construction. A minimum of two separate surveys will be conducted for the species. These surveys will occur in the project area and a 0.5 mile area around the project area. At least one survey should occur during the height of the breeding season (March 1 to June 1) and one within 1 week of the start of construction.
- If no active nests are detected during these surveys, no additional mitigation is required.
- If active nests are found in the survey area, a no-disturbance buffer will be established around the site to avoid disturbance or destruction of the nest site until the end of the breeding season (August 31) or until after a qualified wildlife biologist determines that the young have fledged and moved out of the project area (this date varies by species). The extent of these buffers will be determined by the biologist in coordination with CDFW and will depend on the level of noise or construction disturbance, line-of-sight between the nest and the disturbance, ambient levels of noise and other disturbances, and other topographical or artificial barriers.

Mitigation Measure BIO-9. Remove Vegetation during the Nonbreeding Season and Conduct Preconstruction Surveys for Other Special-Status and Non-Special-Status Migratory Birds

To avoid and minimize impacts on special-status and other nesting migratory birds and raptors, which are protected under the MBTA and CFGC sections 3503 and 3503.5, the County or its contractor will implement the following restrictions and surveys:

- Vegetation (trees and shrubs.) removal will occur during the non-breeding season for most migratory birds (generally between September 1 and January 31).
- If construction activities, including tree and shrub (and other vegetation) removal, are scheduled to occur during the breeding season for migratory birds and raptors (generally between February 1 and August 31), the County will retain a qualified wildlife biologist with knowledge of the relevant species to conduct nesting surveys before the start of construction. A minimum of two separate surveys will be conducted for both migratory birds and raptors. Surveys for nesting migratory birds should be conducted within 30 days prior to

the initiation of construction activities (including vegetation removal) that are scheduled to begin during the breeding season with at least one survey occurring within one week prior to the start of construction. These surveys will occur in the project area and include trees, shrubs, and ground nesting areas within and immediately adjacent to the project area. Surveys for nesting raptors will occur in the project area and a 500-foot buffer area around the project area and should occur during the height of the breeding season (March 1 to June 1) with at least one survey occurring within one week prior to the start of construction.

- If no active nests are detected during these surveys, no additional mitigation is required.
- If active nests are found in the survey area, a no-disturbance buffer will be established around the site to avoid disturbance or destruction of the nest site until the end of the breeding season (August 31) or until after a qualified wildlife biologist determines that the young have fledged and moved out of the project area (this date varies by species). The extent of these buffers will be determined by the biologist in coordination with CDFW and will depend on the level of noise or construction disturbance, line-of-sight between the nest and the disturbance, ambient levels of noise and other disturbances, and other topographical or artificial barriers. Suitable buffer distances may vary between species.

Mitigation Measure BIO-10. Conduct Preconstruction Surveys and Implement Protective Measures for Western Burrowing Owl, If Necessary.

In conformance with federal and state regulations regarding the protection of raptors, a preconstruction survey for burrowing owls will be completed, in accordance with CDFW guidelines described in the Staff Report on Burrowing Owl Mitigation (California Department of Fish and Game 1995), prior to the start of construction within suitable habitat and (where possible) in areas within 500 feet of the construction zone. Surveys should be conducted during the wintering (December 1 through January 31 recommended) and nesting (April 15 through July 15 recommended) seasons. Surveys should be conducted from 2 hours before sunset to 1 hour after, or from 1 hour before or 2 hours after sunrise. If no burrowing owls are located during these surveys, no additional action would be warranted. However, if breeding or resident owls are located on, or immediately adjacent to, the site the following measures will be implemented.

- No burrowing owls will be evicted from burrows during the nesting season (February 1 through August 31). Eviction outside the nesting season may be permitted pending evaluation of eviction plans and receipt of formal written approval from the CDFW authorizing the eviction.
- A 250-foot buffer, within which no new activity would be permissible, would be maintained between project activities and nesting burrowing owls. This protected area would remain in effect until August 31, or at the CDFW's discretion and based on monitoring evidence, until the young owls are foraging independently.
- If accidental take (disturbance, injury, or death of owls) occurs, the CDFW would be notified immediately.

Mitigation Measure BIO-11. Compensate for the Loss of Habitat for Western Burrowing Owl.

If burrowing owls are found to occur in the project area, the following compensatory mitigation will be carried out in accordance with CDFW's Staff Report on Burrowing Owl Mitigation (California Department of Fish and Game 1995).

- When destruction of occupied burrows is unavoidable during the nonbreeding season (September 1–January 31), unsuitable burrows will be enhanced (enlarged or cleared of debris) or new burrows created (by installing artificial burrows) at a ratio of 2:1 on protected lands approved by CDFW. Newly created burrows will follow guidelines established by CDFW.
- If active burrowing owl burrows are found and the owls must be relocated outside of the breeding season, the County or their contractor will offset the loss of foraging and burrow habitat on the project area by acquiring and permanently protecting a minimum of 6.5 acres of foraging habitat per occupied burrow identified on the project area. The protected lands should be located adjacent to the occupied burrowing owl habitat on the project area or in other occupied habitat near the project area. The location of the protected lands will be determined in coordination with CDFW. The project sponsor should provide funding for long-term

management and monitoring of the protected lands. The monitoring plan should include success criteria, remedial measures, and an annual report to CDFW.

If no burrowing owls are observed to occur in the project area, compensatory mitigation is not required.

Mitigation Measure BIO-12. Implement Protective Measures for Cliff Swallows to Avoid Disturbance to Active Nests.

To the extent possible, the County or their contractor will limit construction activities that could disturb swallows, particularly bridge removal, to the period outside the breeding season (September 1 to January 31).

If construction activities are to occur during the swallows' breeding season, the following measures will be implemented:

- Hire a qualified biologist to inspect the underside of the bridge during the swallows' nonbreeding season. Nests that are abandoned may be removed during this time only. To avoid damaging active nests, nests must be removed before the breeding season occurs (before February 1). A permit from CDFW and USFWS is required if active nests are to be removed.
- After nests are removed, cover the underside of the viaduct with a 0.5- to 0.75-inch-mesh net, poultry wire, or other CDFW-approved swallow exclusion device. All devices will be installed before February 1. The device must be anchored so swallows cannot attach their nests to the bridge through gaps in the device. An alternative to netting is to continually hose down inactive nests until construction occurs. If netting is not in place by February 1 and swallows colonize the bridge, modifications to these structures will not begin until after the breeding season has ended (September 1) or until the young have fledged and all nest use has been completed.

If steps are taken to prevent swallows from constructing new nests, work can proceed at any time of the year, notwithstanding other restrictions specified in the mitigation measures identified above.

Mitigation Measure BIO-13. Conduct Nighttime Emergence Surveys for Bats and Examine Suitable Roost Trees Prior to Trimming or Removal.

Prior to project construction, two bat emergence surveys should be conducted for the bridge expansion joint or other crevices that may support bat roosts. The surveys should be conducted during the period of April through mid-July when bat breeding colonies may be present. The survey should start 30 minutes-1 hour before dark and continue for at least 1 hour after dark. A bat acoustical recording device such as Pettersson bat detector should be used to determine which bat species are present. If any trees will be trimmed or removed for project access or construction, a qualified wildlife biologist will examine these trees prior to removal for nesting cavities and evidence of roosting bats. If bats or evidence of bats are observed, tree trimming and removal will be delayed until the bats leave the roosting sites or until CDFW authorizes trimming/ removal of the tree.

Mitigation Measure BIO-14. Install Bat Exclusion Devices in Late August.

If bats are observed to be utilizing tree cavities or the bridge for roosting bat exclusion methods will be utilized outside of the breeding season in August, as recommended in *California Bat Mitigation—Techniques, Solutions, and Effectiveness* (H. T. Harvey and Associates 2004), to ensure that direct impacts on bat roosts are avoided.

Exclusion involves installing one-way devices that allow bats to exit roost structures but not to return. To implement an exclusion, all primary exit points are first identified and marked. All other emergence points larger than 0.25 inch are sealed with suitable material such as steel wool, wood, backer rod, expanding foam, or caulk. Access to unused portions of long crevices can also be minimized by sealing them with these materials. One-way valves are then placed over the primary exit points to prevent re-entry. Simple one-way valves can be constructed using wire mesh cones, polyvinyl chloride, and strips of clear plastic sheeting attached over exit points.

Once the bats have been excluded, roosts spaces can be permanently filled with a suitable substance. Care should

be taken to avoid sealing bats into a roost, particularly during the breeding season when non-flying young are present. To ensure that bats do not become trapped in the roost, a bat survey should be conducted from just before dark until complete darkness prior to sealing the roosting habitat.

Mitigation Measure BIO-15. Include Bat-Friendly Designs in the Final Bridge Design.

Implementation of the following bat-friendly designs or an alternative appropriate design that contains an expansion joint comparable to the existing one, would avoid long-term impacts on nursery or hibernation bat roosts by providing suitable replacement habitat to accommodate existing bat colonies if present. Off-structure mitigation for bats on bridges has been marginally or not at all effective and is not considered adequate mitigation (H. T. Harvey and Associates 2004).

The following basic design recommendations (H. T. Harvey and Associates 2004) should serve as examples only as the final bridge design depends on engineering requirements for the new bridge.

Bridge Design—Two Separate Box Girder Roadways

Two-inch-thick, cast, lightweight concrete panels mounted on spacers on the two facing exterior box girder surfaces. These should be installed longitudinally. The top edge of the panels should be capped, with the panels mounted as close to the deck/girder joint as reasonable. They should extend down at least 36 inches (up to 72 inches, if possible). The gap created by mounting on spacers should be equal to the size of the gap in the existing expansion joints. It can be varied by mounting on tapered spacers. The total roost area should replicate that available in the existing bridge.

This mitigation will provide primarily day-roost habitat but will not replace night-roost habitat lost with the box girder replacement design.

Bridge Design—Two Separate Bulb T-Girder Roadways

Two-inch-thick, cast, lightweight concrete panels mounted on vertical surfaces of selected bulb T-girders. These should be installed longitudinally. The top edge of the panels should be capped, with the panels mounted as close to the deck/girder joint as reasonable. Panel height should be at least 24 inches, although 36 inches or more is preferable. The bottom, open portion of the panel will be mounted at least 12 inches above the girder bulb to permit unrestricted ingress/egress. The gap created by mounting on spacers should be equal to the size of the gap in the existing expansion joints. It can be varied by mounting on tapered spacers. The total roost area should replicate that available in the existing bridge.

This design will provide primarily day-roost habitat. To replace lost night-roost habitat, lateral interstices between bulb T-girders should be designed, such as where the girders rest on pier platforms, to create pockets similar to those found in the existing bridge that trap warm air.

Bridge Design—Single-Width Box Girder Design of Two Sections with Closure Pour

Two-inch-thick, cast, lightweight concrete panels mounted on spacers for one or both of the vertical surfaces of the closure pour. These should be installed longitudinally. The top edge of the panels should be capped, with the panels mounted as close to the deck/girder joint as reasonable. They should extend down at least 36 inches (up to 72 inches, if possible). The gap created by mounting on spacers should be equal to the size of the gap in the existing expansion joints. It can be varied by mounting on tapered spacers. The total roost area should replicate that available in the existing bridge.

Hanging, cast, lightweight, concrete single-crevice sections mounted on the ventral surface of the closure pour. These should be installed centrally along the axis of the closure pour. They should extend down at least 36 inches (or farther, if possible). The total roost area should replicate that available in the existing bridge.

These designs will provide primarily day-roost habitat. They will probably replace only a small percentage of the existing night-roost habitat lost with the box girder replacement design. To replace lost night-roost habitat, lateral interstices should be designed into the closure pour to create pockets similar to those found in the existing bridge that

trap warm air.

Bridge Design—Single-Width Bulb T-Girder Roadways with Closure Pour

Two-inch-thick, cast, lightweight concrete panels mounted on vertical surfaces of selected Bulb T-Girders. These should be installed longitudinally. The top edge of the panels should be capped, with the panels mounted as close to the deck/girder joint as reasonable. Panel height should be at least 24 inches, although 36 inches is preferable. The bottom, open portion of the panel will be mounted at least 12 inches above the girder bulb to permit unrestricted ingress/egress. The gap created by mounting on spacers should be equal to the size of the gap in the existing expansion joints. It can be varied by mounting on tapered spacers. The total roost area should replicate that available in the existing bridge.

Hanging, cast, lightweight, concrete single-crevice sections mounted on the ventral surface of the closure pour. These should be installed centrally along the axis of the closure pour. They should extend down at least 36 inches (or farther, if possible). The total roost area should replicate that available in the existing bridge.

These designs will provide primarily day-roost habitat. To replace lost night-roost habitat, lateral interstices between bulb T-girders should be designed, such as where girders rest on pier platforms, to create pockets similar to those found in the existing bridge that trap warm air.

Upon implementation of the chosen bat-friendly design, the structure(s) should be surveyed for night emergence just following construction during both the early and late breeding seasons (May to June and mid-July to mid-August). These surveys will provide information on the efficacy of the design and insights into adaptive management, which may be required to correct problems with the replacement habitat.

Mitigation Measure BIO-16. Conduct Preconstruction Surveys and Relocation of American Badger.

Prior to ground-disturbing activities, the contractor's biologist will conduct preconstruction surveys within the construction footprint for American badger den sites. American badgers range widely in search of ground squirrels and other burrowing rodents and are reliably found only at active den sites. If badger dens are present, a 50-foot buffer will be established around occupied dens.

If a maternity den is present, the contractor's biologist will verify that a minimum 200-foot buffer is established through the pup-rearing season (February 15 through July 1). Buffers may be modified with the concurrence of the regulatory agencies.

After the breeding season (February 15 through July 1), the contractor's biologist will clear active burrows located within the construction footprint of badgers using one-way gates installed over burrow entrances. Den sites identified by the contractor's biologist to be vacant will be demolished to prevent the reoccupation by American badgers. All mitigation measures for American badgers will be coordinated with the regulatory agencies prior to implementation.

A written report documenting the American badger relocation will be provided to CDFW within 30 days by the project biologist.

Mitigation Measure BIO-17. Avoid American Badger.

Prior to ground-disturbing activities, if a maternity den is present, the project biologist will ensure that a minimum 200-foot buffer will be established through the pup-rearing season (February 15 through July 1). Buffers may be modified with the concurrence of CDFW. The project biological monitor will be present during ground-disturbing activities.

Mitigation Measure BIO-18. Compensate for Temporary Loss and Permanent Fill of In-Channel Habitat for Special-Status Fish Species.

The County will restore portions of the San Joaquin River temporarily disturbed by the water bladder dam construction and seasonal drainage disturbed by construction access to original grade and preconstruction conditions after construction is completed, and no permanent impacts will result.

The County will compensate for the permanent fill of other waters of the United States in the San Joaquin River and seasonal drainage at a minimum ratio of 1:1 (1 acre restored or created for every 1 acre permanently affected). The actual compensation ratios will be determined through coordination with the Regional Water Quality Control Board (RWQCB) and U.S. Army Corps of Engineers (USACE) as part of the permitting process. The County will compensate for permanent loss of perennial drainage by implementing one or a combination of the following options.²

- Purchase credits for created riparian stream channel at a locally approved mitigation bank. The County will provide written evidence to the resource agencies that compensation has been established through the purchase of mitigation credits.
- Compensate out-of-kind for loss of drainages by implementing compensatory mitigation for riparian forest impacts described above. The acreage restored to compensate for loss of drainages will be added to the acreage restored for loss of riparian habitat.

Mitigation Measure BIO-19. Prevent Contaminants and Hazardous Materials from Entering the Stream Channel.

The contractor will implement a SWPPP as part of the NPDES permit and a General Construction Activity Storm Water Permit to minimize the potential for sediment input to the San Joaquin River and potential adverse effects on Chinook salmon and steelhead migratory and rearing habitat. The contractors will also develop and implement a toxic materials control and spill response plan to regulate the use of hazardous materials, such as the petroleum-based products used as fuel and lubricants for equipment and other potentially toxic materials associated with project construction. In addition, the following measures will be implemented.

- Falsework will be installed to keep bridge debris and construction and maintenance materials from falling into streams during demolition, construction, and substantial maintenance activities.
- When concrete is poured to construct bridge footings or other infrastructure in areas of flowing water, work must be conducted to prevent contact of wet concrete with water (e.g., within a water bladder dam casing).

Mitigation Measure BIO-20. Restrict In-Water Work to Avoid Special-Status Fish Spawning Seasons.

In-channel construction, including riverbank and channel bed construction below the OHWM, will be limited to the summer low-precipitation period, June 1 to October 15, to reduce the likelihood of adverse effects on emigrating and rearing juvenile steelhead and migrating adult steelhead, unless otherwise approved by appropriate resource agencies.

Mitigation Measure BIO-21. Provide Alternate Migration Corridor through San Joaquin River Channel.

Water bladder dams will affect no more of the stream channel than is necessary to support completion of the construction activity. Flow will be diverted the minimum distance necessary to isolate the construction area. Water will be released downstream at an appropriate rate to maintain downstream flows at all times.

Mitigation Measure BIO-22. Retain Fish Biologist to Perform Fish Rescue Activities as Needed.

Because special-status fish might be present and subject to potential injury or mortality from water bladder dam installation and resulting isolation of fish, a qualified biologist will determine whether listed or proposed species are present or likely to be present near the project area. If special-status fish could be isolated by water bladder dam s, the project biologist will identify appropriate methods to capture, handle, exclude, and relocate those individuals. All fish exclusion and salvage activities will adhere to accepted NMFS and CDFW protocols.

Mitigation Measure BIO-23. Minimize Impacts on River Channel.

² The proposed project may result in a net gain of perennial drainage.

The following measures will be implemented to decrease impacts on the river channel and habitat.

- The duration and extent of in-water activities will be limited to the maximum extent practicable.
- The minimum amount of wood, sediment and gravel, and other natural debris will be removed to maintain and protect bridge function, ensure suitable fish passage conditions, and minimize disturbance of the streambed.
- Immediately upon completion of in-channel work, temporary fills (as needed), water bladder dams, and other in-channel structures will be removed in a manner that minimizes disturbance to downstream flows and water quality.
- Streamflow through the widened portion of the bridges must meet the velocity, depth, and other passage criteria for salmonids as described by NMFS and CDFW—or as developed in cooperation with NMFS and CDFW—to accommodate site-specific conditions.
- The river channel will be returned to pre-project conditions.

Mitigation Measure BIO-24. Minimize Noise Impacts on Special-Status Fish Species.

Potential injury and mortality associated with pile driving will be avoided or minimized by implementing the following measures.

- Vibratory hammers will be used to install the falsework/trestle bents and remove falsework piles. The permanent piers will be drilled.
- The smallest pile driver and minimum force necessary will be used to complete the work.
- Water bladder dams will be used to isolate in-channel work areas when existing piles are removed. The water bladder dams will isolate the pile removal areas and prevent excess sedimentation from being released in the channel.

Mitigation Measure BIO-25. Compensate for Permanent Loss of Seasonal Wetland.

For compliance with the CWA Section 404 permit, the County will be required to compensate for the permanent loss (fill) of seasonal wetland and to ensure no net loss of habitat functions. Loss of seasonal wetland will be compensated at a minimum ratio of 1:1 (1 acre of mitigation for every 1 acre filled). The actual compensation ratios will be determined through coordination with the RWQCB and USACE as part of the permitting process. Compensation may be a combination of mitigation bank credits and restoration/creation of habitat. The County will compensate for permanent loss of wetland habitat by implementing one or a combination of the following options.

- Purchase credits for seasonal wetland at a locally approved mitigation bank. The County will provide written evidence to the resource agencies that compensation has been established through the purchase of mitigation credits.
- Develop and ensure implementation of a wetland restoration plan that involves replacing the seasonal wetland on the project area after bridge demolition is completed. A restoration plan will be developed that describes where and when restoration will occur and who will be responsible for developing, implementing, and monitoring the restoration plan. The plan will also include a species list and number of each species, planting locations, and maintenance requirements. Plantings will be similar to those removed from the project area and will consist of cuttings taken from local plants. Plantings will be monitored annually for 3 years or as required in the project permits. If 75 percent of the plants survive at the end of the monitoring period, the revegetation will be considered successful. If the survival criterion is not met at the end of the monitoring period, planting and monitoring will be repeated after mortality causes have been identified and corrected. Mitigation sites will be protected in perpetuity in a conservation easement.

Mitigation Measure BIO-26. Restore Temporarily Disturbed Drainage Habitat and Compensate for Permanent Loss of Drainage Habitat.

The County will restore portions of the San Joaquin River temporarily disturbed by water bladder dam construction and seasonal drainage disturbed by construction access to original grade and preconstruction conditions after construction is completed, and no permanent impacts will result.

The County will compensate for the permanent fill of other waters of the United States in the San Joaquin River and seasonal drainage at a minimum ratio of 1:1 (1 acre restored or created for every 1 acre permanently affected). The actual compensation ratios will be determined through coordination with the RWQCB and USACE as part of the permitting process. The County will compensate for permanent loss of perennial drainage by implementing one or a combination of the following options.

- Purchase credits for created riparian stream channel at a locally approved mitigation bank. The County will provide written evidence to the resource agencies that compensation has been established through the purchase of mitigation credits.
- Compensate out-of-kind for loss of drainages by implementing compensatory mitigation for riparian forest impacts described in **Mitigation Measures BIO-1** through **BIO-6**. The acreage restored to compensate for loss of drainages will be added to the acreage restored for loss of riparian habitat.

Table H. Mitigation Ratios for Impacts on Sensitive Natural Communities in the Crows Landing Road Bridge Replacement Project Site

Natural Community Type	Permanent Work Area (acres)	Temporary Work Area (acres)	Mitigation Ratio	Total Mitigation (acres)
Great Valley cottonwood riparian forest	2.28	3.53		
Seasonal wetland	0.01	0.05		
Perennial drainage (San Joaquin River)	0.08	2.00		
Seasonal drainage	0.01	0.05		
Total Area	6.73	9.43		

Notes:

1. Staging area is included in temporary work area calculations.
2. Rock slope protection area is included in permanent work area calculations.

References: The above references the Natural Environmental Study (NES), Biological Assessment (BA), and Biological Opinion (BO prepared for and related to this project, prepared in 2011-2013).

V. CULTURAL RESOURCES – Would the project:

Potentially Significant Impact	Less Than Significant With Mitigation Included	Less Than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource as defined in § 15064.5?			<input checked="" type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?		<input checked="" type="checkbox"/>	
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input checked="" type="checkbox"/>		
d) Disturb any human remains, including those interred outside of formal cemeteries?		<input checked="" type="checkbox"/>	

Setting:

The proposed project is located approximately four miles northeast of Crows Landing, Stanislaus County, California. Crow's Landing Road forms the southerly border of the project, which is bisected at the center by the San Joaquin River. The west side of the project consists of a large agricultural field. The west side of the project consists of a recreational property adjacent to the San Joaquin River, a segment of Carpenter Road, and an agricultural property east of Carpenter Road. Buildings and structures are limited to the east side of the project, and include a single-family residence, recreational clubhouse, bathrooms, barbecue pits, shooting ranges, and utilitarian buildings.

Area of Potential Effects

The Archaeological and the Architectural APEs for the project are included in the cultural resources technical reports prepared for this project. An APE is the geographic area(s) within which an undertaking may affect historic properties (i.e. cultural resources that are eligible for listing on the National Register of Historic Places [NRHP]), should they exist. The extent of the APE takes into consideration the construction activities expected to result in ground disturbance, which would entail construction of the new bridge and the two roadway approaches (one on either side) to the bridge, and utility relocations.

The APEs take into consideration the project's effects on archaeology as well as the built environment (architecture). As such, the Archaeological APE differs slightly from the Architectural APE.

The Architectural APE takes into account the potential for direct or indirect alterations to the setting, character or use of historical resources, meaning resources eligible for or listed in the NRHP. Therefore, if a portion of a parcel is included within the limits of work (including construction easements), then the entire parcel is considered part of the Architectural APE. The architectural APE for the project comprises 205.15 acres.

The Archaeological APE is determined by overall potential for ground disturbance and has two components: horizontal and vertical. The horizontal APE is the maximum extent of potential surface ground disturbance, while the vertical APE is the potential depth of ground disturbing activities. For this project, the horizontal APE comprises approximately 4,000 feet along Crows Landing Road from right-of-way to right-of-way and encompasses the permanent work area. A small staging area adds about 300 feet to the APE at the southwestern portion of the project area, and a small temporary work area adds about 250 feet to the northwestern portion of the project area. The horizontal archaeological APE for the project, which includes the permanent work area, the temporary work area, and the staging area, as noted above, is approximately 20 acres. The vertical APE will range from 300-400 feet for the piles, and may extend down to 500 feet for the piles in the San Joaquin River. The vertical APE for the stone columns for the roadway fill adjacent to the bridge from the western approach will be 50 feet below existing grade. The vertical APE for the utilities will be considerably shallower (no more than 10 feet).

Description of Architectural Cultural Resources

In accordance with Caltrans guidelines for inventorying architectural properties, ICF evaluated the historical significance of buildings, structures, and objects in the APE. A California Department of Parks and Recreation (DPR) Historic Resource Inventory Form (DPR 523 form)—primary record, building/structure/object record, and continuation sheet—for the evaluated property is contained in **Appendices**.

The survey population in the APE includes one property (APN 057001005, a private recreational facility known as the Turlock Sportsman's Club) that required evaluation under the criteria for listing in the National Register of Historic Places (NRHP). One bridge constructed in 1949 and administered through the Caltrans historic bridge inventory, the Crow's Landing Bridge (38C0010), has been evaluated and is listed as category 5 (not eligible for the NRHP).

Table I. Evaluated Properties in the APE

Name	Address/Location	Community	OHP Status Code
Turlock Sportsman's Club	13949 Carpenter Road (APN 057001005)	Crows Landing, CA	6U

Description of Archaeological Cultural Resources

The Central California Information Center (CCIC) records search, Native American correspondence, historical society

correspondence, planning department correspondence, literature review, and the archaeological field survey did not identify any archaeological resources within the APE. The entire project area can be considered moderately sensitive for prehistoric archaeological resources due to the proximity of the San Joaquin River. However, only one prehistoric archaeological site (location unconfirmed) was identified about ½-mile northwest of the project area, and no other archaeological resources were identified within ½-mile of the APE.

Paleontological Resources

The Society of Vertebrate Paleontology identifies significant paleontological resources as those fulfill one or more of the following criteria (Society of Vertebrate Paleontology Conformable Impact Mitigation Guidelines Committee 1995).

- Provides important information shedding light on evolutionary trends and/or helping to relate living organisms to extinct organisms.
- Provides important information regarding the development of biological communities.
- Demonstrates unusual circumstances in the history of life.
- Represents a rare taxon or a rare or unique occurrence; is in short supply and in danger of being destroyed or depleted.
- Has a special and particular quality, such as being the oldest of its type or the best available of its type.
- Provides important information used to correlate strata for which it may be difficult to obtain other types of age dates.
- Significant paleontological resources may include vertebrate fossils and their associated taphonomic and environmental indicators, invertebrate fossils, and/or plant fossils.

The University of California Museum of Paleontology reports 924 fossil sites in Stanislaus County. Of these, 56 are from the Quaternary period, and some of the localities are within 10 miles of the project site. These nearby fossil localities include fossils for plants and mammals (University of California Museum of Paleontology n.d.). No fossils are known to occur at the project site.

Discussion:

- a. The Turlock Sportsman's Club (see **Table I** for location information) was evaluated in accordance with State CEQA Guidelines Section 15064.5(a)(2-3), using criteria outlined in California Public Resources Code Section 5024.1. The Turlock Sportsman's Club does not appear to be a historical resource for the purposes of CEQA. No buildings or structures located within the project area appear to be historic resources for the purposes of CEQA. There does not appear to be a potential historic district or landscape that might include any portion of the property as a contributing element.

Therefore, the project would not cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5, and there would be no impact, and no mitigation is required (No Impact).

- b. As discussed in the Description of Archaeological Cultural Resources section above, only one prehistoric archaeological site (location unconfirmed) was identified about ½-mile northwest of the project area, and no other archaeological resources were identified within ½-mile of the APE. Given the nature of the project area and the proposed construction impacts, it is not anticipated that previously unidentified prehistoric or historic archaeological sites are located in the APE.

No further studies within the APE for direct or visual effects on archaeological resources should be necessary unless: 1) project plans change to include unsurveyed areas; or 2) project plans change to include the construction of additional facilities; or 3) cultural materials are encountered during project construction activities.

It is Caltrans' policy to avoid cultural resources whenever possible. Further investigations may be needed if the site(s) cannot be avoided by the project. If buried cultural materials are encountered during construction, it is Caltrans' policy to stop work in that area until a qualified archaeologist can evaluate the nature and significance of the find. Additional surveys will be required if the project changes to include areas not previously surveyed.

As long as the project does not change to include areas not previously surveyed, the project would not cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5, and there would be no impact.

However, the possibility still exists that project construction could result in exposure of, and impacts to, unknown potentially significant resources. Implementation of Caltrans' standard discovery procedures described above would be required as part of the project, and would therefore reduce the level of this impact to be less than significant (Less Than Significant).

- c. While no fossils are known at the project site, it is possible that unanticipated discovery of such resources could result from construction activities. Substantial damage to or destruction of significant paleontological resources as defined by the Society of Vertebrate Paleontology (Society of Vertebrate Paleontology Conformable Impact Mitigation Guidelines 1995) would represent a significant impact. Implementation of **Mitigation Measure GEO-2** would address potential impacts related to direct or indirect impacts to unique paleontological resources or geologic features this impact (Less Than Significant With Mitigation).
- d. As discussed for Impact b, given the nature of the project area and the construction impacts, it is not anticipated that previously unidentified prehistoric or historic archaeological sites are located in the APE. If buried cultural materials are encountered during construction, it is Caltrans' policy to stop work in that area until a qualified archaeologist can evaluate the nature and significance of the find. Additional surveys will be required if the project changes to include areas not previously surveyed.

Therefore, as long as the project does not change to include areas not previously surveyed, the proposed project would not disturb any human remains, including those interred outside of formal cemeteries, and there would be no impact.

However, the possibility still exists that project construction could result in exposure of, and impacts to, unknown potentially significant resources. Implementation of Caltrans' standard discovery procedures described above (and in Impact b) would be required as part of the project, and would therefore reduce the level of this impact to be less than significant (Less Than Significant).

Mitigation:

No mitigation specific to cultural resources, however refer to **Section VI. Geology and Soils** for potential impacts related to paleontological resources.

References:

The above cultural resources assessment is based on the Historic Resources Evaluation Report for the Crows Landing Bridge Replacement Project, Stanislaus County (HRER) (ICF International 2011), and the Archaeological Survey Report for the Crows Landing Bridge Replacement Project, Stanislaus County (ASR) (ICF International 2011). The purpose of the HRER is to document identification, recordation and evaluation efforts for built environment resources within the Area of Potential Effects (APE) of the proposed project. The purpose of the ASR is to document the results of the background research of cultural resources within a half-mile radius of the project area, results of the correspondence with interested parties, and the methods and results of the archaeological field survey that was conducted for the proposed project.

VI. GEOLOGY AND SOILS – Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Included	Less Than Significant Impact	No Impact
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) 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.				
ii) Strong seismic ground shaking?			<input checked="" type="checkbox"/>	
iii) Seismic-related ground failure, including liquefaction?				
iv) Landslides?			<input checked="" type="checkbox"/>	
b) Result in substantial soil erosion or the loss of topsoil?		<input checked="" 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 on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?			<input checked="" type="checkbox"/>	
d) Be located on expansive soil creating substantial risks to life or property?			<input checked="" type="checkbox"/>	
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?				<input checked="" type="checkbox"/>

Setting:

The project site is located in the San Joaquin Valley. The valley floor consists of several hundred feet of sediment eroded from the Coast Range in the west and the Sierra Nevada in the east since the late Quaternary, and deposited in this broad alluvial valley (GeoLogic Associates 2011, Jennings 1977). Topography at the project site is level to gentle hills, with some locally steep slopes (GeoLogic Associates 2011).

The sediments near the project site were carried by the San Joaquin River and its local tributaries. Studies of bank deposits, aerial photography, and historic site topography suggest a "northerly migrating river meander." Loose and soft soils juxtaposed with fine-grained deposits to a depth of 30 feet, related to active erosion and deposition, appear near project elements. (GeoLogic Associates 2011.)

Soils

Boring studies have shown that soils are poorly graded sand and silty sand with layers of clay to depths of 10 to 20 feet. Below 20 feet, soils are compact to very dense. (GeoLogic Associates 2011.)

Soil types in the project area range from moderately to highly corrosive to uncoated steel. Shrink-swell potential ranges from low to high (**Table J**). (Natural Resources Conservation Service 2002, 2012.)

Table J. Soils at the Project Site

Map Unit Symbol	Map Unit Name	Drainage Class	Risk of Corrosion		Shrink-Swell Potential
			Uncoated Steel	Concrete	
153	Columbia fine sandy loam, channeled, partially drained, 0 to 2 percent slopes, frequently flooded	Somewhat poorly drained	Moderate	Low	Low
180	Dello fine sandy loam, channeled, 0 to 2 percent slopes, frequently flooded	Very poorly drained	High	Low	Low
ThA	Temple silty clay loam, slightly saline, 0 to 1 percent slopes	Somewhat poorly drained	High	Low	High
WaA	Waukena fine sandy loam, slightly saline-alkali, 0 to 1 percent slopes	Moderately well drained	High	Low	Low
WbA	Waukena fine sandy loam, moderately salinealkali, 0 to 1 percent slopes	Moderately well drained	High	Low	Low

Sources: Natural Resources Conservation Service 2002, 2012.

Geologic Hazards

The project site is located near active and potentially active faults (**Table K**). Earthquakes within 60 miles could cause significant groundshaking at the project site. The Midway-San Joaquin South (Great Valley 8) and the Midway-San Joaquin North faults are the known faults most likely to have a significant effect on the project site. No known fault underlies the project site. (California Geological Survey 2009, GeoLogic Associates 2011.)

Table K. Faults near the Project Site

Fault	Distance (miles)	Maximum Credible Earthquake	
		Moment Magnitude (M_w)	Peak Ground Acceleration (g)
Midway – San Joaquin Valley South – Great Valley 8	7.3	6.6	0.31
Midway – San Joaquin Valley South – Great Valley 8	8.3	6.7	0.31
Ortogonalita	18.4	7.1	0.18
Greenville	29.3	6.9	0.18
Calaveras	36.5	6.9	0.11
Foothill Fault 1	36.6	6.5	0.09
Quien Sabe	36.9	6.4	0.07
Hayward	45.9	7.3	0.09
San Andreas	49.4	7.9	0.13

Source: GeoLogic Associates 2011.

Groundshaking can cause loose, granular, saturated soils to liquefy, or temporarily behave as a liquid, and thus lose shear strength. The Draft Foundation Report indicates that soils underlying some of the project elements could be subject to liquefaction to a depth between approximately 5 and 50 feet, with potential for settlement between approximately 2 and 14 inches (GeoLogic Associates 2011).

Landslide

The project area is in an area of very low susceptibility to landslide (Wills et al. 2011). Slope gradients in the immediate vicinity of the project study area are gentle, and risk of slope failure, including seismically induced landslides, is low.

Discussion:

- a. Because no known fault underlies the project site, risk of surface fault rupture. The potential for impacts related to surface fault rupture are less than significant. No mitigation is required.
The principal concern related to human exposure to groundshaking, liquefaction, and seismically induced settlement is that these processes can result in severe structural damage. The project site is in an area subject to strong groundshaking. However, the project will adhere to construction recommendations in the Foundation Report, which include adherence to the Caltrans Design Manual CBC/ASCE 7-05 and the current design parameters of the Structural Engineers of California Uniform Building Code (UBC) and remediating potentially liquefiable material. Adherence to these recommendations and requirements will substantially reduce the potential for structural damage from these seismic processes. Furthermore, the project site is located in an area of low susceptibility to landslides. Therefore, the potential for impacts related to rupture of a known fault, groundshaking, ground failure (liquefaction), seismically induced settlement, and landslides are

less than significant, and no mitigation is required (Less Than Significant).

- b. The loose and soft soils on the river banks are subject to erosion and deposition. However, because the project will disturb more than one acre of soil, a SWPPP will be prepared and implemented. This SWPPP will include erosion control measures. Further, the project will adhere to recommendations in the Foundation Report, which include planting graded slopes with drought-tolerant vegetation, protecting abutment slopes from wave scour, and designing slopes such that water does not overtop the slopes and cause rilling. Adherence to these recommendations and requirements will substantially reduce the potential for erosion. The impact would be less than significant.

The project site is located on topsoil with agricultural importance. The amount of topsoil that would be removed during project construction is small. However, with implementation of **Mitigation Measure GEO-1**, potential loss of topsoil would be minimized by stockpiling topsoil on site, and impacts related to loss of topsoil would be considered less than significant (Less Than Significant With Mitigation).

- c. Earthwork during grading and construction activities would temporarily create slopes that could be unstable if improperly designed or constructed. Shoring may be required to support excavations. Further, there is potential for liquefaction and lateral spreading. However, the project will adhere to recommendations in the Foundation Report, which includes requirements that shoring design be in accord with the Caltrans Trenching and Shoring Manual and that unstable soils be remediated during prior to project construction consistent with UBC. Further, during construction, the site would be subject to periodic monitoring and inspection by Caltrans to ensure implementation of all design recommendations. The potential for safety risks related to instability of cut and fill slopes would be less than significant and no mitigation is required (Less Than Significant).
- d. Most of the soils at the project site have low shrink-swell potential. One soil type with high shrink-swell potential does appear to be located at the project site. Project elements constructed on this soil could be subject to stresses that could lead to instability if improperly designed. The project will be required to adhere to recommendations in the Foundation Report, which includes requirements that unstable soils be remediated before project construction. Therefore, impacts related to expansive soils would be less than significant and no mitigation is required (Less Than Significant).

The project does not involve structures that would require use of septic tanks or alternative waste water systems. There would be no impact (No Impact).

Mitigation:

Mitigation Measure GEO-1. Stockpile Topsoil and Reuse Onsite.

To minimize impacts on topsoil resources, Stanislaus County will require contractors to implement the following procedures.

- The area of disturbance will be limited to the minimum needed for construction, staging, and access.
- Where topsoil is removed, it will be sidecast and stockpiled for onsite reuse during site finishing. Site finishing will include topsoil replacement and revegetation with appropriate native species. Topsoil will be stockpiled separate from other excavated materials to facilitate effective reuse.

Mitigation Measure GEO-2: Stop Work if Substantial Fossil Remains are Encountered during Covered Activities.

If paleontological resources are discovered during project construction, all work within 100 feet of the discovery site will stop until a qualified paleontologist can assess the significance of the find and recommend appropriate treatment. The Stanislaus County will be responsible for ensuring that recommendations regarding treatment are implemented.

References:

The above section is based on information from the 2011 geotechnical report prepared by GeoLogic Associates.

VII. GREENHOUSE GAS EMISSIONS – Would the project:				
	Potentially Significant Impact	Less Than Significant With	Less Than Significant Impact	No Impact

		Mitigation Included		
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?			<input checked="" type="checkbox"/>	
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?			<input checked="" type="checkbox"/>	

Discussion:

a. Implementation of the project would result in short-term construction emissions of CO₂, CH₄, and N₂O from the use of construction equipment on-site as well from on-road fuel combustion from employee commutes. Because no additional through lanes are being added, increases in traffic volume as a result of the new bridge structure are unlikely; thus, operational GHG emissions are not anticipated to change and are not evaluated further.

Table L presents emissions associated with construction of the proposed project and indicates that construction activities would result in 3,550 metric tons of CO₂e. Construction GHG emissions would be temporary, confined to the duration of construction activities and cease once construction has ended. In addition, GHG emissions associated with project construction would not directly result in impacts to climate change (i.e., increased sea level rise, changes in global climate, etc.) To further minimize construction impacts, as part of the project, implementation of best management practices (e.g., use of biodiesel, electric vehicles) will reduce GHG emissions generated during construction.

Table L. Construction-Related GHG Emissions from the Proposed Project

Project Phases	Metric Tons CO ₂ e
Grubbing/Land Clearing	821.6
Grading/Excavation	828.7
Drainage/Utilities/Sub-Grade	1,372.3
Paving	528.2
Total Emissions^a	3,550.8

Source: SMAQMD's Road Construction Model (Version 6.3.2)

Notes:

a Construction phases are sequential, not concurrent

Project Start Year: 2013

Project Length (months): 11

Total Project Area (acres): 23.5

Maximum Area Disturbed/Day (acres): 1.2

Total Soil Imported/Exported (yd³/day): 640

b. The State has adopted several policies and regulations for the purpose of reducing GHG emissions. The most stringent of these is AB 32, which is designated to reduce statewide GHG emissions to 1990 levels by 2020. Implementation of the project would not conflict with applicable plans, policies or regulations adopted for the purpose of reducing the emission of GHG gases, including AB 32. Thus, this impact is considered less than significant (Less Than Significant).

Mitigation:

None.				
References:				
None.				
VIII. HAZARDS AND HAZARDOUS MATERIALS – Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Included	Less Than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?			<input checked="" 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 checked="" type="checkbox"/>		
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?				<input checked="" type="checkbox"/>
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?				<input checked="" type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?				<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?				<input checked="" type="checkbox"/>
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?			<input checked="" 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 checked="" type="checkbox"/>
Setting:				
<p>Baseline Environmental Consulting conducted an ISA and Lead/Asbestos Survey for the proposed project site. The purpose of the ISA was to evaluate potential risks associated with hazardous materials, hazardous waste, and contamination of the project site that could potentially affect proposed construction activities and/or operations. The scope of work for the ISA included a review of historical land use information; site reconnaissance of current land uses; interviews with a project engineer; a review of federal, state, and local regulatory agency database records and files; and development of recommendations for further actions. To evaluate the potential presence of lead and asbestos in bridge materials, a lead-based paint and asbestos-containing materials survey of the bridge structure was also conducted (Baseline Environmental Consulting 2010).</p> <p>Baseline Environmental Consulting contracted Environmental Data Resources, Inc. (EDR) to conduct a search of federal, state, and local regulatory agency records pertaining to past and present hazardous material uses and releases at the project site and nearby properties. The records search was conducted on October 13, 2010. The EDR records search did not identify any sites with hazardous material uses or releases at or within one mile of the project</p>				

site (Baseline Environmental Consulting 2011). Based on information in the EDR report, there are no businesses in the vicinity of the project site under active regulatory agency oversight with the potential to affect the project site due to hazardous materials use, storage, generation, or disposal (Baseline Environmental Consulting 2010).

Based on a review of the project site history, a bridge and road have been present since at least 1916. Soils adjacent to major roadways often contain elevated concentrations of lead. The lead depositions the result of airborne particulates and surface water runoff associated with tailpipe emissions prior to the time lead was phased out of vehicle fuels, which began in the 1970s, but was not complete until around 1990. Studies by Caltrans suggest that hazardous waste levels of lead, if present, are generally found in soils within 30 feet of the pavement edge (Department of Toxic Substances Control 2000). Given the site history, there is a potential for soils within 30 feet of Crows Landing Road to contain aerially-deposited lead. Historical land uses at and adjacent to the project site include a dairy farm and agricultural fields (Baseline Environmental Consulting 2010).

A survey for asbestos-containing materials and lead-based paints was conducted on the existing bridge structure on October 21 and November 15, 2010. Thirteen representative samples of bridge building materials were collected and analyzed for asbestos content (surface soil, concrete, paint, expansion joint sheeting material, and cloth pipe/conduit material). None of the bridge building materials contained asbestos above laboratory reporting limits. One of the surface soil samples contained a trace concentration of asbestos. The survey concluded that additional testing would be necessary to determine if asbestos in soil at the project site was present at concentrations that would trigger California Air Resources Board (ARB) or California Division of Occupational Safety and Health (DOSH) requirements.

Five paint chip samples were collected from steel portions of the existing bridge structure and analyzed for lead content. Four of the samples contained total lead at concentrations ranging from 570,000–630,000 milligrams per kilogram (mg/kg). These concentrations significantly exceed the State threshold for lead-based paint (600 ppm; Title 8 CCR § 1532.1) (Baseline Environmental Consulting 2010).

Once project design has determined the areas that will be disturbed during project development, a surface soil investigation for asbestos and ADL should be conducted.

Discussion:

- a. Project construction is not expected to create a hazard to the public through the routine use of hazardous materials. Hazardous materials present at the project site would likely include substances such as fuels, oils, solvents, paving materials, and paints. In accordance with contractor's specifications, these construction-related hazardous materials would be transported, stored, and handled in a manner consistent with relevant regulations and guidelines, including those recommended and enforced by the U.S. Department of Transportation, Stanislaus County Environmental Resources Department, and the Regional Water Quality Control Board (RWQCB). These measures would include provisions for appropriate handling of any hazardous materials used on the project site, as well as a Spill Prevention and Response Plan to minimize the potential for, and effects from, spills occurring during project construction. The Plan will describe transport, storage, and disposal procedures; construction site housekeeping practices; and monitoring and spill response protocols. With these plans and procedures in place, potential impacts related to hazardous materials use, transport, storage, or disposal at the project site are considered to be less than significant (Less Than Significant).
- b. Site workers, the public, and the environment could be inadvertently exposed to pre-existing contaminants onsite during project construction. Due to the former agricultural-related uses at the site, including crop production and equipment and vehicle use, fuel, oil residues, aerially-deposited lead, and residual concentrations of agricultural chemicals such as herbicides and pesticides may be present in the soil. Additional hazards at the site may include surface soil contaminated with asbestos and lead. None of the building materials tested contained asbestos levels above laboratory reporting limits, but one soil sample tested did contain a trace concentration of asbestos. Four paint samples tested from steel structural portions of the existing bridge contained lead at concentrations that significantly exceed the State threshold for lead-based paint. During demolition of the existing bridge, it is possible that site workers, the public, and the environment could be inadvertently exposed to the lead-based contaminants. Therefore, this impact is considered potentially significant. With implementation of **Mitigation Measure HAZ-1** potential impacts related to exposure to lead as a result of project construction, would be reduced to a less-than-significant

level (Less Than Significant With Mitigation).

Furthermore, if any unidentified sources of contamination are encountered during grading or excavation, the activities required could pose potentially significant health and safety risks capable of resulting in various short-term or long-term adverse health effects in exposed persons. Implementation of **Mitigation Measure HAZ-2**, and adherence to all local, state and federal regulations discussed under Impact a, would reduce the potential for adverse health effects to occur. With this measure in place, impacts related to reasonably foreseeable upset and accident conditions involving hazardous materials are considered less than significant (Less Than Significant With Mitigation).

- c. There are no existing or planned schools within $\frac{1}{4}$ of a mile of the project site. There would be no impact (No Impact).
- d. The project site is not included on any hazardous site lists compiled pursuant to Government Code Section 65962.5 (Environmental Database Report 2010). Therefore, the project is not expected to create a significant hazard to the public or environment and there would be no impact (No Impact).
- e. The closest public or private airport is the Patterson Airport (public) that is located approximately nine (9) miles east of the project site. The project would have no impact to public or private airports (No Impact).
- f. Refer to e.
- g. Two districts provide fire services in the project area: Westport Fire District and West Stanislaus Fire District. The San Joaquin River serves as the dividing line that determines which station responds to service calls (Sullivan pers. comm.). The Westport Fire District serves the project area on the northeast side of the bridge, and the West Stanislaus Fire District serves the project area on the southwest side of the bridge (West Stanislaus County Fire Protection District 2011). The closest Westport Fire District station is located approximately nine (9) miles north of the project site, and the closest West Stanislaus Fire District station is located approximately five (5) miles southwest of the project site.

Construction activities would not block any public or private right-of-ways that could be necessary for emergency access. The replacement bridge would be constructed adjacent to the existing bridge, which would remain operational during construction, thereby maintaining existing emergency vehicle access to the surrounding area. It is not anticipated that the project would impair implementation of, or physically interfere with, any emergency response or evacuation plans and potential impacts are considered less than significant (Less Than Significant).

- h. The project site is not located within or adjacent to wildlands. No impact related to wildland fires is anticipated (No Impact).

Mitigation:

Mitigation Measure HAZ-1: Implement Asbestos and Lead-Based Paint Abatement and Subsurface Soil Investigation.

All aspects of the proposed project associated with removal, storage, transportation, and disposal of lead-based paint will be in strict accordance with appropriate regulations of the California Health and Safety Code. Prior to demolition activities, loose or peeling paint on the steel bridge structural elements, as well as any painted surfaces on those elements proposed to be welded or torched, should be removed by a California Department of Public Health-certified lead paint abatement contractor and disposed of at a Class 1 disposal facility.

Structural elements with intact paint may be managed as construction debris, subject to standard landfill profiling and disposal regulations.

To address potential asbestos and ADL risk, a surface soil investigation should be conducted once the area of project disturbance is determined.

The following scope is recommended:

- 16 shallow soil samples be collected from areas within 30 feet of Crows Landing Road to be analyzed for total and soluble lead.
- 8 shallow soil samples be collected from areas near the Crows Landing Road Bridge to be analyzed for asbestos content.
- 8 shallow soil samples be collected from areas north and south of the Crows Landing Road Bridge that are adjacent to current and former agricultural fields to be analyzed for Title 22 heavy metals and organochlorine pesticides.

The findings of the soil investigation should be evaluated to determine if additional measures, such as dust control, worker health and safety, and/or soil management procedures, may be necessary during project construction (Baseline Environmental Consulting 2010).

Mitigation Measure HAZ-2: Stop Work and Implement Hazardous Materials Investigations and Remediation in the Event Hazardous Materials are Encountered during Construction.

In the event that hazardous materials are encountered during construction, all construction activities in the area of the discovery will stop and the County will conduct a Phase I and, if required, Phase II hazardous materials investigations to identify the nature and extent of contamination and evaluate potential impacts on project construction and human health. If necessary, the County will also implement Phase III remediation measures consistent with all applicable local, state, and federal codes and regulations. Construction will not resume until remediation is complete. If waste disposal is necessary, the County will ensure that all hazardous materials removed during construction are handled and disposed of by a licensed waste-disposal contractor and transported by a licensed hauler to an appropriately licensed and permitted disposal or recycling facility, in accordance with local, state, and federal requirements.

References:

The above text is based on the December 2010 Initial Site Assessment (ISA) and Lead/Asbestos Survey prepared by Baseline Environmental Consulting for the project.

IX. HYDROLOGY AND WATER QUALITY – Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Included	Less Than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements?			<input checked="" type="checkbox"/>	
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?				<input checked="" 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 which would result in substantial erosion or siltation on- or off-site?			<input checked="" 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 which would result in flooding on- or off-site?			<input checked="" type="checkbox"/>	
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?			<input checked="" type="checkbox"/>	
f) Otherwise substantially degrade water quality?			<input checked="" 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 checked="" type="checkbox"/>	
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?			<input checked="" 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 checked="" type="checkbox"/>	
j) Inundation by seiche, tsunami, or mudflow?				<input checked="" type="checkbox"/>

Setting:**Surface Water Hydrology**

The project area is located in the San Joaquin River basin, which covers approximately 15,880 square miles and yields an average annual surface runoff of approximately 1.6 million acre-feet (maf) (Central Valley Regional Water Quality Control Board 2009a). The principal streams in the basin are the San Joaquin River and its larger tributaries, the Cosumnes, Mokelumne, Calaveras, Stanislaus, Tuolumne, Merced, Chowchilla, and Fresno Rivers, which all drain the east side of the basin. Major reservoirs and lakes include Camanche, Pardee, New Hogan, Millerton, McClure, Don Pedro, and New Melones.

The project area is within the area being studied in the San Joaquin River Restoration Project (SJRRP) (Reach 5), which was established upon court acceptance of a Stipulation of Settlement in Natural Resources Defense Council, et al., v. Kirk Rodgers, et al., in October 2006 on litigation related to the renewal of long-term water supply contracts in the Friant Division of the Central Valley Project, California.³

Restoration of the San Joaquin River by this project covers 153 miles from Friant Dam to the mouth of the Merced River and includes restoring flows to approximately 60 miles of dry river bed, as well as improvements to channel and fish passage.

Surface Water Quality

The water quality of the San Joaquin River is dominated by agricultural return flows during the dry season, and these return flows frequently transport pesticides and nutrients from agricultural areas into the south Delta area. In addition, many pesticides are applied during the dormant spray season, typically November to January, and can be transported to water bodies during rainfall events. Chlorpyrifos, diazinon, thiobencarb, dieldrin, DDT, and DDD have been detected in one or more water bodies in the watershed in concentrations that exceed water quality objectives. (Central Valley Regional Water Quality Control Board 2007; Kratzer et al. 2003, 2004; Zamora et al. 2003; U.S. Geological Survey 2005). Copper also has been detected at multiple locations in the San Joaquin River. Copper is a naturally occurring metal that is also used as a pesticide. Other metals such as cadmium, boron, and lead have been detected at elevated levels and are mobilized and suspended in agricultural return flows throughout the river (Central Valley Regional Water Quality Control Board 2007).

As previously described, the State's 2006 303(d) list indicates that the San Joaquin River from the Merced River to the Tuolumne River is impaired for Group A pesticides, DDT, mercury, unknown toxicants, electrical conductivity (EC [discussed below]), and boron, a metalloid (State Water Resources Control Board 2006). Various sloughs and agricultural drains are common in the vicinity of the project area. Water quality concerns have been identified for several drainages that flow directly into the San Joaquin River, including August Road Drain upstream of Crows Landing Bridge, and Harding Drain, which is north of August Road Drain.

Many of the rivers, creeks, and agricultural drainages in this watershed are affected by low dissolved oxygen (DO) concentrations, fluctuating pH, and elevated EC. In general, factors that affect DO concentrations include water volume and velocity, type and number of aquatic organisms present, dissolved or suspended solids, riparian

³ 2012 San Joaquin River Restoration Report, Annual Report.

vegetation, organic waste, groundwater inflow, and water temperature. Average monthly water temperatures for the San Joaquin River at Crows Landing Bridge and Patterson vary seasonally and range from 49 degrees Fahrenheit (°F) (December and January) to 78°F (July) and 47°F (January) to 79°F (July) . Nutrient loads from irrigated agriculture and animal confinement facilities have been correlated with low DO in the San Joaquin River Basin (Kratzer et al. 2004).

The EC of water correlates directly with the concentration of dissolved ionized solids present; the higher the EC, the higher the concentration of total dissolved solids (TDS). TDS and EC are general indicators of salinity and are regulated under the Basin Plan. Average monthly EC values for the San Joaquin River at Crows Landing Bridge and Patterson range from 651 microSiemens per centimeter (µS/cm) (May) to 1,183 µS/cm (December) and 663 µS/cm (May) to 1,282 µS/cm (March), respectively .

Groundwater

The California Department of Water Resources (DWR) delineates groundwater basins throughout California under the state's Groundwater Bulletin 118 (California Department of Water Resources 2003). The program area is located in the San Joaquin Valley Groundwater Basin, which is in the San Joaquin River Hydrologic Region. The San Joaquin Valley Groundwater Basin is divided into nine subbasins: Eastern San Joaquin, Modesto, Turlock, Merced, Chowchilla, Madera, Delta-Mendota, Tracy, and Cosumnes. The project site is located in Stanislaus County in the Delta-Mendota and Turlock subbasins, basin numbers 5-22.07 and 5-22.03, respectively.

Delta-Mendota Subbasin

Groundwater in the Delta-Mendota subbasin occurs in three water-bearing zones: the lower zone, the upper zone, and the shallow zone. The lower zone contains confined fresh water in the lower section of the Tulare Formation; the upper zone contains confined, semi-confined, and unconfined water in the upper section of the Tulare Formation and younger deposits; and the shallow zone contains unconfined water within about 25 feet of the land surface (California Department of Water Resources 2006a). Average annual precipitation in the subbasin is 9 to 11 inches, increasing northward. The approximate total storage capacity of the subbasin is 30.4 maf to a depth of 300 feet, and 81.8 maf to the base of fresh groundwater (California Department of Water Resources 2006a). Based on 1995 estimates by the DWR, approximately 26.6 maf of groundwater to a depth of 300 feet are stored in this subbasin. Based on the 1990 normalized year and data on land and water use, DWR estimated natural recharge of the subbasin to be 8,000 acre-feet (af). Applied water recharge was estimated to be 74,000 af; artificial recharge and subsurface inflow were not determined (California Department of Water Resources 2006a).

In the Delta-Mendota subbasin, groundwater is characterized by mixed sulfate to bicarbonate types in the northern and central portions of the subbasin with areas of sodium chloride and sodium sulfate types in the central and southern portions of the subbasin. TDS concentrations range from 400 to 1,600 milligrams per liter (mg/L) in the northern portion of the subbasin, and from 730 to 6,000 mg/L in the southern portion (California Department of Water Resources 2006a). A typical TDS range in wells is 700 to 1,000 mg/L. Shallow, saline groundwater occurs within approximately 10 feet of the ground surface over a large part of the Delta-Mendota subbasin, and there are localized areas of high boron, fluoride, iron, and nitrate (California Department of Water Resources 2006a).

Turlock Subbasin

There are three groundwater bodies in the Turlock subbasin: the unconfined water body, the semi-confined and confined water body in the consolidated rocks, and the confined water body beneath the E-clay in the western portion of the subbasin. Average annual precipitation in the subbasin is 11 to 13 inches, increasing eastward. The approximate total storage capacity of the subbasin is 15.8 maf to a depth of 300 feet, and 30 maf to the base of fresh groundwater (California Department of Water Resources 2006b). Based on DWR's 1995 estimates, approximately 12.8 maf of groundwater to a depth of 300 feet are stored in this subbasin (California Department of Water Resources 2006b). Based on the 1990 normalized year and data on land and water use, natural recharge of the subbasin is estimated to be 33,000 af. Applied water recharge was estimated to be 313,000 af; artificial recharge and subsurface inflow were not determined (California Department of Water Resources 2006b).

The groundwater is predominantly sodium-calcium bicarbonate type in the Turlock subbasin, with sodium bicarbonate and sodium chloride types at the western margin and a small area in the north-central portion of the subbasin. TDS

concentrations range from 100 to 8,300 mg/L, with a typical range of 200 to 500 mg/L (California Department of Water Resources 2006b). There are localized areas of hard groundwater, boron, chloride, nitrate, and dibromochloropropane (DBCP; a historical-use soil fumigant pesticide). Some high TDS sodium chloride-type water is found along the west side of the subbasin.

Discussion:

- a. The following discussion is applicable for a-f.

Construction and Demolition Impacts

Construction of the new Crows Landing Bridge and associated road improvements, as well as relocation of overhead utilities and demolition of the old bridge will require ground-disturbing work within and adjacent to the San Joaquin River. Construction and staging areas would be disturbed by vehicles and various construction-related activities (e.g., grading) that would make these areas susceptible to erosion by stormwater runoff. Sediment-laden stormwater runoff could increase turbidity in the San Joaquin River in the immediate project area, resulting in a temporary adverse effect on water quality; however, adverse effects to surface water are not anticipated because a site-specific SWPPP would be implemented in compliance with the Construction General Permit (see the Construction Activity Permitting section above), and the selection of appropriate construction site BMPs, in accordance with Caltrans' Construction Site Best Management Practices Manual (California Department of Transportation 2003) would ensure no water quality standards or WDRs would be violated.

The SWPPP will include, but not necessarily be limited to, the following measures to minimize the mobilization of sediment to the San Joaquin River:

- Conduct earthwork during low-flow periods (July 1-November 30);
- Stage construction equipment and materials on the landside of the levee. To the extent possible, stage equipment and materials in areas that have already been disturbed;
- Minimize ground and vegetation disturbance during project construction by establishing designated equipment staging areas, ingress and egress corridors, spoils disposal and soil stockpile areas, and equipment exclusion zones prior to the commencement of any grading operations;
- Stockpile soil and grading spoils on the landside of the levee, and install sediment barriers (e.g., silt fences, fiber rolls, and straw bales) around the base of stockpiles to intercept runoff and sediment during storm events. If necessary, cover stockpiles with geotextile fabric to provide further protection against wind and water erosion;
- Install sediment barriers on graded or otherwise disturbed slopes as needed to prevent sediment from leaving the project site and entering nearby surface waters; and
- Install plant materials to stabilize disturbed areas once construction is complete. Plant materials may include an erosion-control seed mixture or shrub and tree container stock. Temporary structural BMPs, such as sediment barriers, erosion-control blankets, mulch, and mulch tackifier, may be installed as needed to stabilize disturbed areas until vegetation becomes established.

The project would include the use of fuels and lubricants to operate construction equipment, and other machinery, as well as solvents, paints, or other hazardous material. Construction-related equipment would be used on land, on the new or existing bridge, as well as on a barge in the San Joaquin River. Accidental spills or leaks of construction materials, fuels, solvents, paints, or other hazardous materials, and concrete wash water could discharge into the river, resulting in adverse water quality impacts. Stormwater runoff could also transport spilled or leaked materials to the river, which could result in a temporary adverse effect on water quality. To avoid any significant water quality effects due to accidental spills of hazardous materials, Caltrans would implement waste management and material pollution control BMPs. In accordance with Caltrans' Construction Site Best Management Practices Manual (California Department of Transportation 2003), these BMPs would include, but not be limited to measures to address spill prevention and control; hazardous waste management and disposal; material delivery and storage; concrete waste management; and contaminated soil management.

Construction activities within the San Joaquin River, including installation of a cofferdam or another type of

water diversion structure; pile driving for abutment installation; shaft drilling for pier installation; and in-channel concrete pumping, could result in a temporary increase in turbidity both in the immediate area as well as downstream. In addition, demolition of the existing Crows Landing Bridge has the potential to increase river turbidity, primarily through temporary disturbance of the channel bottom by bridge debris and barge spuds. During demolition of the existing bridge, there is the potential for debris, including concrete, sloughed paint, etc. to fall from the bridge into the San Joaquin River, which could result in temporary adverse water quality effects through the introduction of hazardous materials (e.g. paint) to the river, as well as increased turbidity. However, as part of the proposed project, Caltrans will install a working platform below the existing bridge to prevent demolition debris from falling into the San Joaquin River, thereby minimizing the potential for adverse water quality impacts due to falling debris. In addition, other construction site BMPs, as applicable, will be implemented to further prevent debris or other materials from falling into the river. These may include, but not be limited to the following:

- Capture and treat the water from in-channel, subsurface (below water surface) concrete installation;
- Limit demolition and construction located over the river channel during precipitation events;
- Employ non-shattering methods for demolition activities (e.g., wrecking balls would not be acceptable);
- Secure all materials on the bridge structures to prevent discharges into the river channel via wind;
- Stockpile accumulated debris and waste generated from demolition away from the river channel;
- Use drip pans during equipment operation, maintenance, cleaning, fueling, and storage or spill prevention. Place drip pans under all vehicles and equipment placed on the bridge structures when expected to be idle for more than 1 hour;
- Ensure that equipment is leak-free; Direct water from concrete curing and finishing operations away from surface water to temporary collection facilities so that concrete waste is disposed of properly; and
- Discharges to waterways shall be reported to the Resident Engineer immediately upon discovery. A written discharge notification must follow within 7 days.

To summarize, with adherence to Caltrans' Statewide NPDES permit requirements and the requirements of the associated Construction General Permit (which include implementation of applicable construction site BMPs, a SWPPP, and a SWMP) water quality impacts would be considered less-than-significant during construction of the new Crows Landing Bridge, relocation of overhead utilities, and demolition of the existing bridge.

Operation Impacts

Once the proposed project is complete, there is potential for adverse long-term impacts on water quality from maintenance activities, operational use of the bridge, and changes in stormwater drainage due to an increase in impervious surfaces. Implementation of the proposed project would add approximately 2 additional acres of impervious surface to the area. Out of the potential long-term impacts listed above, the increase in impervious surface would be the greatest contributor to long-term impacts on water quality when compared with existing conditions.

Caltrans' SWMP will address runoff impacts on water quality. The SWMP will also be used to characterize runoff from Caltrans facilities and from storm drain systems owned or operated by Caltrans and to aid Caltrans in determining appropriate and adequate BMPs for the proposed project. Furthermore, the project design will incorporate permanent erosion control elements to ensure that stormwater runoff does not cause soil erosion. Implementations of long-term, project-specific design BMPs, and, as necessary, treatment BMPs, would ensure that operational impacts of the proposed project on water quality would be less than significant (Less Than Significant).

- b. The proposed project would not use or affect groundwater supplies. Additionally, none of the project features would interfere with groundwater recharge. As such, there would be no impact (No Impact).
- c. The proposed project would not substantially alter the course of the San Joaquin River; however, there would be a temporary alteration of flow during installation and "operation" of the cofferdam(s) (e.g., water bladder dam) or other type of water diversion structure used for installation of the bridge abutments and piers and removal of piles of the existing bridge during demolition. These water diversion structures would be in place

over a short-term period. Therefore, they are not anticipated to alter the existing drainage pattern of the site in a way that would result in substantial erosion or siltation on- or offsite. As such, this is less than significant.

Ground-disturbing activities that would occur during project construction would result in temporary alterations to local drainage patterns in the project area and may temporarily alter erosion and siltation rates. As described above, a SWPPP would be implemented as part of the project and would include BMPs which would ensure that there are no significant impacts involving increased erosion or siltation (Less Than Significant).

- d. The proposed project would potentially result in temporary minor alterations to local drainage patterns, as previously described, but with implementation of SWPPP and SWMP BMPs the potential for significant impacts due to on- or offsite flooding would be minimized (Less Than Significant).
- e. As previously described, the completed project would result in an increase in the amount of impervious surfaces in the project area, which would increase the amount of stormwater runoff relative to existing conditions. However, it is not anticipated that this increase would exceed the capacity of existing or planned stormwater drainage systems. Caltrans' SWMP will address and mitigate any potential stormwater runoff and stormwater drainage impacts. The BMPs implemented as part of the SWMP are designed to reduce or eliminate stormwater pollutants before being discharged into a water of the United States. The proposed project would be subject to compliance with these measures to ensure that the stormwater runoff does not have an impact on the San Joaquin River. As such, this impact is less than significant (Less Than Significant).
- f. Refer to a.
- g. The project area is within the FEMA 100-year flood zone. However, the primary elements of the proposed project (i.e., roadway approaches and a new bridge) would not redirect flood flows. The new bridge would accommodate flood flows in the San Joaquin River, and the new bridge piers and abutments would not be substantially larger in volume relative to the existing bridge or the water channel to cause an increased risk of flooding or reduction in channel capacity. Similarly, the roadway approaches and other roadway improvements related to construction of the new bridge would not impede or redirect, or cause flood flows. This impact is considered less than significant (Less Than Significant).
- h. Refer to g.
- i. Refer to g.
- j. The proposed project would not increase the potential for seiche, tsunami, or mudflow to occur and would not increase populations located within an area subject to seiche, tsunami, or mudflow. As previously discussed, in **Section I. Aesthetics**, site-specific landscaping erosion control will be implemented as part of the proposed project and would minimize the potential for mudflow as a result of project implementation. (No Impact)

Mitigation:

None. Refer to **Section I. Aesthetics** and **IV. Biological Resources** for more information on mitigation related to erosion control.

References:

The above section is based on information from the February 2011 Water Quality Assessment prepared by ICF International.

X. LAND USE AND PLANNING – Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Included	Less Than Significant Impact	No Impact
a) Physically divide an established community?				<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 the general plan, specific plan, local coastal program,				<input checked="" type="checkbox"/>

or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?				
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?				<input checked="" type="checkbox"/>

Setting:

The project is located within unincorporated Stanislaus County, approximately 4 miles northeast of the City of Crows Landing, along Crows Landing Road. The existing Crows Landing Bridge is located along Crows Landing Road at the intersection of Carpenter Road. Reconnaissance surveys were conducted on November 3, 2010 to determine land use characteristics within and surrounding the project area. Land use within the immediate and surrounding area is primarily agricultural with interspersed residential units.. Six residences are located within a 0.5 radius of the project, and two places of residence are approximately 1.13 miles from the project. Development adjacent to the project site includes the Hilmar Cheese Company dairy (which is served by a private water intake just north and adjacent to the existing bridge), the Egg Store (located north of Carpenter Road), the Turlock Sportsman's Club (south of Carpenter Road approximately 0.10 miles from the North East bridge entrance), and Catfish Camp RV Park (east of Crows Landing Road). Recreational use of the river for fishing is available via a dirt path located southeast of the existing bridge. Motorists park their cars along the south side of Crows Landing Road to access the river. The nearest bridges over the San Joaquin River are located approximately 5.6 miles northeast and approximately 6 miles southwest from the Crows Landing Bridge. Approximately 5.58 miles away is the Chatom Elementary School.

The Stanislaus County General Plan (1987) dictates the land use patterns and development in the County. In Stanislaus County, nearly 80 percent of land is devoted to agricultural production (Stanislaus County 1987). According to Stanislaus County's November 2010 zoning district map, the project site is in zoning district A-2-40. This is an agricultural zoning designation, which is intended by the Stanislaus County General Plan for areas presently or potentially valuable for agricultural use and to prevent incompatible urban development within agricultural areas. Specifically, the A-2-40 zoning district allows for residential building intensity ranging from zero to two dwellings per 40 acres of land and for agricultural buildings and related uses.

The Land Use, Safety, Agricultural, and Circulation Elements of the Stanislaus County General Plan include goals and policies applicable to the proposed project.

- Land Use Element, Goal 1: The County's goal is to "Provide for diverse land use needs by designating patterns which are responsive to the physical characteristics of the land as well as to environmental, economic and social concerns of the residents of Stanislaus County."
 - Goal 1, Policy 2: The policy states that "Land designated Agriculture shall be restricted to uses that are compatible with agricultural practices, including natural resources management, open space, outdoor recreation and enjoyment of scenic beauty."

Consistency Analysis: As stated previously, the proposed project would replace the existing Crows Landing Road Bridge. The bridge connects agricultural uses on the northeast and southwest sides of the river. Therefore, the proposed bridge is compatible with existing agricultural practices.

- Land Use Element. Goal 2: The County's goal is to "Ensure compatibility between land uses."

Consistency Analysis: The proposed bridge would replace the existing Crows Landing Road Bridge that connects agricultural uses on the northeast and southwest sides of the river. Thus, the land use is compatible.

- Safety Element, Goal 1: The County's goal is to "Prevent loss of life and reduce property damage as a result of natural disasters." This goal also includes a comment that states: "Although there are no major faults in the valley portion of Stanislaus County, some faults do exist in the foothills on the eastern and western edges of the County. Earthquakes could occur that would cause severe damage in portions of the County."

Consistency Analysis: The purpose of the proposed project is to replace the existing functionally-obsolete bridge structure on Crows Landing Road over the San Joaquin River. The existing bridge is listed in the September 10, 2009, Caltrans Bridge Inspection Report as being Functionally Obsolete (FO). The existing bridge is also scour critical and is vulnerable to liquefaction at key pier foundations during a seismic event. In addition, in order to accommodate the flows from 50 and 100 year storm events through the San Joaquin River, the vertical roadway profile of the replacement bridge would be on a slightly higher (less than 2 feet higher) vertical profile than the existing bridge. Therefore, the proposed bridge would help to prevent loss of life and reduce property damage as a result of natural disasters.

- Goal 1, Policy 5: This policy states that “Stanislaus County shall support efforts to identify and rehabilitate structures that are not earthquake resistant.”

Consistency Analysis: As mentioned above, the existing bridge is vulnerable to liquefaction at key pier foundations during a seismic event. The County is working with Caltrans to access funds through the Local Seismic Retrofit Project, in order to replace the functionally obsolete bridge. The new bridge would be built to be earthquake resistant.

- Circulation Element, Goal 1: The County’s goal is to: “Provide a system of roads and roads throughout the County that meets land use needs.”
 - Goal 1, Policy 2: This County policy states that “Circulation systems shall be designed and maintained to promote safety and minimize traffic congestion.”

Consistency Analysis: As stated throughout the analysis above, the proposed project would replace the existing functionally obsolete bridge that is prone to failure due to liquefaction during a seismic event. The vertical profile of the replacement bridge would also be slightly higher (less than 2 feet) than the existing bridge’s vertical profile, in order to accommodate 50 and 100 year storm events. In addition, part of the proposed project is to construct one 12-foot two-way left turn lane for safe access to existing levee maintenance roads on each side of the bridge. The existing bridge does not include dedicated left-turn lanes, only one through lane in each direction. Therefore, existing levels of service and delay are expected to improve slightly with project implementation. Thus, the proposed project would improve safety and is also anticipated to minimize traffic congestion, consistent with this goal.

- Agricultural Element, Goal 2: The County’s goal is to “Conserve our agricultural lands for agricultural uses.”
 - Goal 2, Policy 2.3: “The County shall ensure all lands enrolled in the Williamson Act are devoted to agricultural and compatible uses supportive of the long-term conservation of agricultural land.”

Consistency Analysis: As discussed in the Agricultural and Forestry Resources section, less than 4.0 acres of land contracted under Williamson Act (from parcels 49-003-011, 49-003-010, 57-001-011, and 057-026-001) would be removed from contracts. This would be well below the State threshold of 100 acres of Williamson Act contract cancellations and would not result in substantial adverse effects on land subject to Williamson Act contract. In addition, as discussed in the Agricultural and Forestry Resources section, Form AD-1006 was completed for the project with assistance from the Natural Resources Conservation Service (NRCS) and the rating assigned by the NRCS indicated the project should be given a minimal level of consideration for protection, no alternative sites have been evaluated for conversion, and no substantial impact related to farmland conversion would result from the project. In addition, as mentioned previously, the proposed bridge would replace the existing Crows Landing Road Bridge that connects agricultural uses on the northeast and southwest sides of the river. Therefore, the proposed bridge is consistent with agricultural uses.

Discussion:

- a. As described in the Project Description, the new bridge would be constructed slightly north of the existing

bridge, and the bridge would still connect to Crows Landing Road at both ends. Therefore, there would be no change in access across the river with project implementation, and no change in access to the surrounding residences and businesses would occur. For these reasons, the proposed project would not physically divide an established community, and there would be no impact. No mitigation is required (No Impact).

- b. As described in the environmental setting section, the proposed project would replace the existing Crows Landing Road Bridge and would be consistent with all applicable Stanislaus County General Plan goals and policies. Therefore, there is no impact, and no mitigation is required (No Impact).
- c. As discussed in the Biological Resources section, there are no applicable HCPs in the project area. Therefore, there would be no impact from the project related to the provisions of an adopted HCP, natural community conservation plan (NCCP), or other approved local, regional or state habitat conservation plan and no mitigation is required (No Impact).

Mitigation:

None.

References:

The above section is based on information from the May 2011 Community Impact Assessment (CIA) Memorandum prepared by ICF International.

XI. MINERAL RESOURCES – Would the project:

Potentially
Significant
Impact

Less Than
Significant
With
Mitigation
Included

Less Than
Significant
Impact

No Impact

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?

☒

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?

☒

Setting:

According to the Stanislaus County General Plan (1987), which relies upon the State Division of Mines and Geology report, Mineral Land Classification of Stanislaus County, California (Special Report 173), minerals found within the County include: bermentite, braunite, chromite, cinnabar, garnet, gypsum, hausmannite, hydromagnesite, inesite, magnesite, psilomelane, pyrobrsite, and rhodochrosite. Small deposits of gold, clay, and lead are also known to exist within the County. However, commercial extraction of these minerals is difficult or impossible. Sand and gravel deposits currently constitute the only commercially significant extractive mineral resource in the region, with the majority of sand and gravel deposits resulting from stream deposition or dredge tailings. The most significant deposits are found in old stream beds and along rivers and streams such as the San Joaquin River and Orestimba Creek, but none of these significant deposits occur at or near the proposed project site. According to the General Plan and associated State Division of Mines and Geology report mapping, no mineral resources of value to the region or the residents of the state have been identified at the project site, nor has the project site been identified as a locally important mineral recovery site. (Stanislaus County 1987)

Discussion:

- a. The project would have no impact on any known mineral resource or result in the loss of availability of any locally important resource recovery site. Therefore, there would be no impact related to mineral resources (No Impact).
- b. Refer to a.

Mitigation:

None.

References:

The above section is based on information from the 2011 geotechnical report prepared by GeoLogic Associates.

XII. NOISE – Would the project result in:Potentially
Significant
ImpactLess Than
Significant
With
Mitigation
IncludedLess Than
Significant
Impact

No Impact

a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

☒

b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

☒

c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

☒

d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

☒

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

☒

f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?

☒**Setting:**

Existing noise level in the project area are governed primarily by traffic on Crows Landing Road. Existing traffic noise levels have been modeled using the FHWA Traffic Noise Model (TNM) Version 2.5 and traffic data provided by the project traffic consultant. **Table M** summarizes existing traffic noise levels in the project area

Table M. Existing Traffic Noise Levels

Receiver	Distance from Roadway Centerline	Existing Traffic Noise Level dBA-Leq[h]
Sportman's Club	442 feet	50 dBA
Residence 1	70 feet	67 dBA
Residence 2	74 feet	67 dBA

Discussion:**Construction Noise**

- a. Implementation of any of the project alternatives will involve both demolition and construction activities. **Table N** summarizes noise levels produced by typical construction equipment (FHA 2006b).

Table N. Typical Construction Equipment Noise Levels

Equipment	Typical L _{max} Noise Level at 50 Feet from Source, dBA
Air Compressors	78
Dozer	82
Excavator	81
Generator	81
Loader	79
Dump Trucks	76
Backhoes	78
Flat Bed Truck	74
Grader	85
Paver	77
Roller	80
Welder	74
Crane	81
Pump	81
Mixer	80
Jackhammer	89
Hydraulic breaking ram	90

Source: Federal Highway Administration 2006b.

The three loudest pieces of equipment that are likely to operate at the same time include a jackhammer, a hydraulic ram, and grader. The combined maximum noise level for this equipment is 93 dBA at 50 feet. Using utilization factors identified in FHWA 2006a, the combined Leq for this equipment is 86 dBA at 50 feet. Noise from a point source such as construction equipment typically attenuates at a rate of 6 dB per doubling of distance over hard surfaces.

Residences near the west end of the project area could be as close as about 70 feet from construction activities. Maximum and Leq construction noise level could therefore be as high as 93 dBA and 86 dBA respectively. This indicates that construction activity that occurs outside the hours that exempt by the San Joaquin County development code (6:00 am. to 9:00 p.m.) could exceed the applicable daytime noise standards of 50 dBA-Leq and 70 dBA-Lmax between 9:00 p.m. and 10:00 p.m. and the applicable nighttime noise standards 45 dBA-Leq and 65 dBA-Lmax between the hours of 10:00 p.m. and 6:00 a.m.

Implementation of **Mitigation Measures NOI-1** and **NOI-2** would reduce construction noise impacts to a less-than-significant level (Less than Significant With Mitigation).

Operational Noise

Table O summarizes predicted traffic noise levels in future conditions (build and no build) and compares future build traffic noise levels to noise levels.

Table O. Traffic Noise Impact Analysis Summary

Receiver	Land Use	Future	Traffic Noise Level – dBA-Leq(h)
----------	----------	--------	----------------------------------

		Distance to Roadway Centerline (feet)	Existing	Future No Project	Future with Project	Change Relative to Existing Conditions	Impact Type
Sportsman's Club	Recreational Use	390	50	51	52	+2 dB	None
R1	Residence	122	67	68	64	-3 dB	None
R2	Residence	118	67	68	64	-3 dB	None

The results in Table L indicate that, relative to existing conditions, the future traffic noise levels would decrease by 3 dB at the two nearest residences. At the Sportsman's Club, traffic noise levels would increase by 2 dB. However, because the project-related increase in noise is predicted to be small (3 dB or less) and unnoticeable, this impact is considered to be less than significant (Less Than Significant).

- b. Construction activities associated with the operation of heavy equipment may generate localized groundborne vibration. Vibration from non-impact construction activity is typically below the threshold of perception when the activity is more than about 50 feet from the receptor. Additionally, vibration from these activities will be of limited duration and will end when construction is completed. Because construction activity is not anticipated to involve high-impact activities (e.g., piling) and because the nearest residences to construction activities will be at well over 50 feet from onsite construction activity, the vibration impact of construction activity is considered less than significant (Less Than Significant).

c. **Construction Noise**

The discussion of construction noise under the *Impacts* heading above indicates that construction activity will result in a temporary increase in noise during the construction period. However, implementation of Mitigation Measures NOI-1 and NOI-2 would reduce this impact to less than significant.

Operational Noise

The discussion of operational noise under the *Impacts* heading above indicates that future traffic noise levels would increase by 2 dB at the Sportsman's Club. However, because the project-related increase in noise is predicted to be small (3 dB or less) and unnoticeable, this impact is considered less than significant (Less Than Significant).

- d. The discussion of construction noise under the *Impacts* heading above under indicates that construction activity will result in a temporary increase in noise during the construction period. However, with implementation of Mitigation Measures NOI-1 and NOI-2, this impact is considered less than significant (Less Than Significant With Mitigation).
- e. The closest airport, public or private, is nine (9) miles away. No impacts related to exposure of people residing or working in the project area would be exposed to excessive noise levels associated with a public or private airport (No Impact).
- f. Refer to e.

Mitigation:**Mitigation Measure NOI-1: Limit Construction Hours.**

Construction will be prevented from occurring between the hours of 10:00 p.m. and 6:00 a.m.

Mitigation Measure NOI-2: Employ Noise-Reducing Construction Practices.

Where feasible, the County's construction contractor will implement noise-reducing construction practices such that noise that occurs during construction hours is limited in the project area. Measures that can be used to reduce construction noise include but are not limited to:

- locating equipment as far a practical 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;
- prohibiting gasoline or diesel engines from having unmuffled exhaust;
- when practicable, using noise-reducing enclosures around stationary noise-generating equipment; and
- when practicable, constructing barriers between noise sources and noise-sensitive land uses or taking advantage of existing barrier features (terrain, structures) or material stock piles to block sound transmission.

References:

The above section is based on information from the July 2011 Noise Study Report (NSR) prepared by ICF International.

XIII. POPULATION AND HOUSING – Would the project:Potentially
Significant
ImpactLess Than
Significant
With
Mitigation
IncludedLess Than
Significant
Impact

No Impact

a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

☒

b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?

☒

c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?

☒**Discussion:**

- a. The project does not include construction of any new homes or businesses, and would not indirectly induce substantial growth as the new bridge is a replacement structure and would not result in an increase in capacity. Furthermore, the project would not result in creation of new access to undeveloped areas. Therefore, there would be no impact (No Impact).
- b. The project would not displace any existing housing during construction or operation. Therefore, there would be no impact (No Impact).
- c. The project would not displace people or induce the need to construct replacement housing elsewhere. There are no residences within the footprint of the project. Therefore, there would be no impact (No Impact).

Mitigation:

None.

References:

None.

XIV. PUBLIC SERVICES	Potentially Significant Impact	Less Than Significant With Mitigation Included	Less Than Significant Impact	No Impact
a) Would the project result in the substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
Fire protection?			<input checked="" type="checkbox"/>	
Police protection?			<input checked="" type="checkbox"/>	
Schools?				<input checked="" type="checkbox"/>
Parks?				<input checked="" type="checkbox"/>
Other public facilities?				<input checked="" type="checkbox"/>

Setting:**Fire Protection**

Fire services in the project area are provided by two districts: Westport Fire District and West Stanislaus Fire District. The San Joaquin River serves as the dividing line determining which station responds to fire service calls (Sullivan pers. comm.). The Westport Fire District serves the project area on the northeast side of the bridge, and the West Stanislaus Fire District serves the project area on the southwest side of the bridge (West Stanislaus County Fire Protection District 2011a). The Westport Fire District is located at 5160 South Carpenter Road in Modesto, California, which is approximately 9 miles from the project site. The West Stanislaus Fire District consists of seven fire stations. The closest station to the project site is the Crows Landing Fire Department, which is located at 22012 G Street in Crows Landing, California. (West Stanislaus County Fire Protection District 2011b.) The Crows Landing Fire Department is approximately four miles from the project site.

Police Protection

Police services for the project area are provided by the Stanislaus County Sheriff's Department, which provides police services to all of unincorporated Stanislaus County. The Department is located at 250 East Hackett in Modesto, California (Davis pers. comm.), which is approximately 11 miles from the project site.

Schools

Residents surrounding the project site reside in the 2, 4, and 5 census block groups (U.S. Census Bureau 2000). According to the U.S. Census, "block groups are a collection of census blocks within a census tract, sharing the same first digit of their four-digit identifying numbers" (U.S. Census 2001). The Ceres Unified School District serves only even address numbers of the 1500 to 4000 blocks and both odd and even address numbers from the 4000 to 7500 blocks (Chandler pers. comm. [A]). The Modesto City Schools District serves residents residing in homes with odd address numbers in blocks 1501 to 3999 (Chandler pers. comm. [B]). The project site is approximately 10 miles from the city limits of Ceres and approximately 12 miles from the city limits of Modesto.

Parks

Recreational opportunities in Stanislaus County are managed by the Stanislaus County Department of Parks and Recreation. The County is home to two off-road parks and eighteen community parks. The closest park to the project

site is the Bonita Park and Pool located on Fourth and I Street in Crows Landing, California. (Stanislaus County 2011.) The Bonita Park and Pool is approximately five miles from the project site. The Turlock Sportsman's Club is located approximately 0.10 miles from the northeast bridge entrance, but this is a privately-owned establishment. Therefore, it's covered in the recreation section of this IS.

Discussion:

- a. The following discussion is applicable to all public services providers.

Construction

The construction phase of the project would be temporary and is unlikely to increase emergency needs for fire or police services. Existing fire and police services are expected to be sufficient to ensure safety during construction at the project site. In addition, project plans would be subject to review by Stanislaus County, Stanislaus County Office of the Fire Warden, and Stanislaus County Sheriff's Department prior to issuance of any building permits. Therefore, impacts on fire and police protection would be less-than-significant, and no mitigation is required (Less Than Significant).

Operation

The proposed project would not result in an increased need for police or fire protection. Therefore, there are no operation-period fire and police protection impacts, and no mitigation is required (No Impact).

Parks, Schools, and Other Public Facilities

Construction

No parks, schools, or other public facilities would be affected by construction of the proposed project. Therefore, there would be no impacts on school, park, or other public facilities, and no mitigation is required (No Impact).

Operation

The proposed project would not result in an increased need for additional schools, parks, or other public facilities. Therefore, there are no operation-period school, park, or other public facility impacts, and no mitigation is required (No Impact).

Mitigation:

None.

References:

None.

XV. RECREATION --

Potentially Significant Impact	Less Than Significant With Mitigation Included	Less Than Significant Impact	No Impact
--------------------------------	--	------------------------------	-----------

a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

☒

b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

☒

Setting:

The County is home to two reservoirs, nine designated fishing access points, two off-road parks and eighteen community parks. The closest park to the project site is the Bonita Park and Pool located on Fourth and I Street in

Crows Landing, California. (Stanislaus County 2011.) The Bonita Park and Pool is approximately five miles from the project site. In addition to County recreation facilities, the Turlock Sportsman's Club is a privately-owned establishment and is located approximately 0.10 miles from the northeast entrance of the existing Crows Landing Road Bridge. In addition, recreationists park along Crows Landing Bridge and access the river along the west and east side for fishing and hiking.

Discussion:

- a. The project would replace an existing roadway bridge and would not result in increased use of existing neighborhood, regional parks, or other recreational facilities and there would be no impact to parks or recreational facilities (No Impact).
- b. The project does not include recreational facilities or require the construction or expansion of recreational facilities and there would be no impact to new recreational facilities (No Impact).

Mitigation:

None.

References:

None.

XVI. TRANSPORTATION/TRAFFIC – Would the project:

Potentially
Significant
Impact

Less Than
Significant
With
Mitigation
Included

Less Than
Significant
Impact

No Impact

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?

☒

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?

☒

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?

☒

d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

☒

e) Result in inadequate emergency access?

☒

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?

☒

Discussion:

a.

Construction

Construction activities would temporarily increase traffic in the project area and along local and regional roadways. Sources of vehicular traffic during the construction phase of the project would include construction worker commute trips, project equipment deliveries, and hauling of materials such as concrete, gravel, or asphalt, and construction waste. Because these trips would be temporary in nature and would be dispersed throughout the day, it is not anticipated that project construction traffic would substantially degrade the level of service on area roadways or intersections such that it would exceed County standards. Furthermore, construction would have no effect on mass transit or non-motorized travel. Therefore, construction impacts would be less than significant, and no mitigation is required (Less Than Significant).

Operation

The proposed project would replace the existing functionally obsolete bridge structure, and it would not change capacity compared to the existing bridge. The project would include dedicated left-turn lanes to existing levee maintenance roads at each end of the bridge, which is anticipated to alleviate existing traffic disruptions associated with occasional levee access and is considered a beneficial effect. Therefore, there would be no impact, and no mitigation is required (No Impact).

b.

Construction

Construction of the Crows Landing Road Bridge replacement structure and associated roadway approaches and features would be completed just north of the existing roadway and bridge, while the existing facilities are being used to maintain public traffic through the project site. This would minimize construction-related traffic impacts. Construction activities would temporarily increase traffic in the project area and along local and regional roadways. Sources of vehicular traffic during the construction phase of the project would include construction worker commute trips, project equipment deliveries, and hauling of materials such as concrete, gravel, or asphalt, and construction waste. Because these trips would be temporary in nature and would be dispersed throughout the day, it is not anticipated that project construction traffic would substantially degrade the level of service on area roadways or intersections such that it would exceed congestion management program standards. Therefore, construction impacts would be less than significant, and no mitigation is required (Less Than Significant).

Operation

The proposed project would replace the existing functionally obsolete bridge structure, and it would not increase or decrease capacity compared to the existing bridge. Although the new bridge would not increase capacity, dedicated left-turn lanes to existing levee maintenance roads at each end of the bridge would be added, which is anticipated to alleviate any traffic disruptions associated with occasional levee access. Therefore, there would be no impact, and no mitigation is required (No Impact).

- c. Neither construction nor operation of the proposed project would affect any airports. There is no impact, and no mitigation is required (No Impact).
- d. The project would have a slightly different curvature, height, and location than the existing bridge on Crows Landing Road. However, the design is in conformance with Caltrans standards, and therefore, the project would not substantially increase hazards due to a design feature. The use would be the same as currently exists. There is no impact related to the bridge design or use (No Impact).
- e. Construction of the Crows Landing Road Bridge replacement structure and associated roadway approaches and features would be completed just north of the existing roadway and bridge, while the existing facilities are being used to maintain public traffic through the project site. Slow-moving construction vehicles are not anticipated to result in emergency access issues because they would only occur on the project site. Construction-related traffic would not obstruct the movement of emergency vehicles. This impact is

considered less than significant and no mitigation is required (Less Than Significant).

- f. As described above in the environmental setting section, there are no transit routes that pass over the Crows Landing Road Bridge, and there are no bicycle and pedestrian facilities in the project area. Although there are no transit routes or established bicycle or pedestrian facilities across the bridge, it's possible that bicyclists and pedestrians occasionally use the bridge to cross the San Joaquin River. As described in the project description, public traffic through the project site during construction would be accommodated because the new roadway approach will be constructed slightly north of the existing bridge, which will remain open to public traffic. Therefore, the proposed project would have no impact to public transit or bicycle and pedestrian facilities. No mitigation is required (No Impact).

Mitigation: None.

References: None.

XVII. UTILITIES AND SERVICE SYSTEMS – Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Included	Less Than Significant Impact	No Impact
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?			<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 checked="" type="checkbox"/>
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?			<input checked="" type="checkbox"/>	
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?				<input checked="" type="checkbox"/>
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?				<input checked="" type="checkbox"/>
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?			<input checked="" type="checkbox"/>	
g) Comply with federal, state, and local statutes and regulations related to solid waste?			<input checked="" type="checkbox"/>	

Setting:

As described in the project description, electricity and gas are provided at the project site and include lines that cross over the existing bridge.

It is anticipated that utilities affected by the project (electric, gas, and an irrigation pump) would be relocated to the new bridge or within the project site, in coordination with the utility company or utility owner.

Discussion:

- a. The proposed project would replace the existing Crows Landing Road Bridge and would not produce additional waste water compared to the existing bridge and, the project would not generate wastewater that would be treated by public wastewater treatment facilities. In addition, as discussed in Section IX, *Hydrology*

and Water Quality, the proposed project would adhere to the guidelines and procedures outlined in the 2003 SWMP (or any subsequently approved SWMP) to address stormwater runoff. The proposed project would also comply with the requirements of the Construction General Permit and the Municipal Separate Storm Sewer System Program (see Section IX, *Hydrology and Water Quality*). Therefore, this is a less than significant impact, and no mitigation is required (Less Than Significant).

- b. As explained above, the proposed project would replace the existing Crows Landing Road Bridge and would not produce additional waste water compared to the existing bridge. In addition, the project would not generate wastewater that would be treated by public wastewater treatment facilities. There is no impact, and no mitigation is required (No Impact).
- c. Currently, the existing bridge has deck drains that drain directly into the river from the bridge deck. For the replacement bridge, storm water would be conveyed along the curb of the bridge to drain inlets located at each corner of the bridge. These drain inlets would drain into either a grassy swale or small retention pond before ultimately draining into the river. As discussed in Section IX, *Hydrology and Water Quality*, the proposed project would adhere to the guidelines and procedures outlined in the 2003 SWMP (or any subsequently approved SWMP) to address stormwater runoff. In addition, the proposed project would comply with requirements of the Construction General Permit and the Municipal Separate Storm Sewer System Program (see Section IX, *Hydrology and Water Quality*). Therefore, this would be a less than significant impact and no mitigation is required (Less Than Significant).
- d. Since the proposed project would replace the existing functionally obsolete bridge and would not create a land use that would require water entitlements, there is no impact, and no mitigation is required (No Impact).
- e. As described for impact discussion “a,” the project would not generate wastewater that would be treated by public wastewater treatment facilities. Therefore, no determination of sufficient capacity from any wastewater treatment provider is required. There is no impact, and no mitigation is required (No Impact).
- f. The proposed project would be primarily an import project. Exports from the project site would consist of vegetation from clearing and grubbing and parts of the existing bridge structure. The County will salvage the steel girders from the existing bridge, so the only waste from the bridge will be the concrete deck, pier walls, and abutment walls. In addition, some of the concrete will be used as part of the river bank rock slope protection (RSP) (Pugh pers. comm.)

Non-hazardous construction waste generated by the proposed project would be handled by the Stanislaus County-owned Fink Road Landfill (Stanislaus County 2011a). According to the landfill manager, the landfill has 9 million cubic yards (yd³) of remaining capacity and is expected to remain open for 18 more years (Garcia pers. comm. [A]). Although construction waste recycling services are not provided at the landfill, concrete and asphalt are recycled onsite for use on landfill roads (Garcia pers. comm. [B]), which would reduce the impact of the proposed project on the remaining capacity of the landfill. In addition, as discussed previously, the County will salvage the steel girders from the existing bridge.

Hazardous waste (e.g., automotive products, batteries, etc.) generated by construction of the proposed project would be dropped off at the Household Hazardous Waste Collection Facility located at 1716 Morgan Road in Modesto, California, which accepts hazardous waste for free.

Once operational, the proposed project would not generate solid waste, except for when bridge repair and maintenance is necessary. In addition, the landfill remaining capacity estimates account for all planned development in the County; there is substantial remaining capacity at the Fink Road Landfill; at least some of the concrete from demolition can be recycled on site at the Fink Road Landfill; and the County will salvage the steel girders. Therefore, this is a less-than-significant impact, and no mitigation is required (Less Than Significant).

- g. Solid waste generated by the proposed project would be limited to the construction phase. The proposed project would be required to comply with local, state, and federal solid waste regulations. The Stanislaus

County Environmental Resources Department provides administration and permitting services for the four refuse collection agreements for the unincorporated areas of Stanislaus County (Stanislaus County 2011b). The proposed project will be served by Bertolotti Disposal and Transfer station at 231 Flamingo Drive in Ceres, California (800-221-1257) (Lopez pers. comm.). Bertolotti provides drop off and pick up services for various construction debris containers, including separate containers for recyclable materials (e.g., metal) (Rash pers. comm.). As described above for impact discussion "f," non-hazardous construction waste that is not recyclable would be handled by the Fink Road Landfill, and hazardous waste will be handled by the Household Hazardous Waste Collection Facility located at 1716 Morgan Road in Modesto, California. Steel girders from the old bridge would be salvaged by the County. This impact is considered less-than-significant and no mitigation is required (Less than Significant).

Mitigation:

None.

References:

None.

XVIII. MANDATORY FINDINGS OF SIGNIFICANCE

--

Potentially
Significant
ImpactLess Than
Significant
With
Mitigation
IncludedLess 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, 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?

☒

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.)

☒

c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

☒**Discussion:**

- a. As discussed in this Initial Study above, the project could result in impacts. However, under each environmental topic area, implementation of mitigation measures are discussed that would reduce impacts to these resource areas to a less-than-significant level (Less Than Significant).
- b. Before mitigation, the project would have potentially significant impacts. However, all construction and operation related impacts would be reduced to a less-than-significant level with the mitigation identified above. The project would have no effects (and therefore no cumulatively considerable impacts) on the following bullet list. No further discussion of these topics is included.
 - Land Use and Planning
 - Mineral Resources
 - Population and Housing
 - Recreation

A brief discussion of potential cumulative impacts is as follows.

Aesthetics. The project is similar in nature to the existing land uses and would not substantially alter the character of the site. Implementation of MM would screen views. Other cumulative projects in the area would be required to address their own individual contributions to change in character. The project would not make a considerable contribution to significant cumulative impacts.

Agricultural and Forestry Resources. Parcels in the vicinity of the project are used for agricultural purposes. However, these parcels were previously surrounding an existing bridge use and would continue to be located in the vicinity of a bridge/transportation use. The project would have a very limited effect on conversion of land from agriculture to a transportation use (and the resulting acquisition of agricultural lands would be a small percentage of existing agricultural lands within Stanislaus County) and no further conversion of agricultural parcels in the immediate area is anticipated. Therefore, the project would not make a considerable contribution to significant agricultural resources cumulative impacts.

Air Quality/Climate Change/GHG Emissions. The project would not increase capacity of the existing bridge, and is not anticipated to increase traffic in the area. Furthermore, the project would not substantially contribute to GHGs. Therefore the project is not expected to make a considerable contribution to significant air quality or GHG cumulative impacts.

Biological Resources. The project, along with other general development projects in Stanislaus County (particularly those along the San Joaquin River and other riparian corridors within the region) would contribute to cumulative impacts on Swainson's hawk, white-tailed kite, northern harrier, loggerhead shrike, western burrowing owl, and other migratory birds. Construction of the proposed project would result in an incremental contribution to the loss of suitable foraging and nesting habitat for these species. Implementation of individual project-level mitigation measures will offset the project's contribution to cumulative effects on these species.

Non-federal actions that may affect the project area include increased urbanization and agricultural activities that may affect riparian, wetland, and upland habitats in the watershed, and lead to increased erosion, sedimentation, and discharge of pollutants into waterways supporting listed fish species. Municipal stormwater and irrigation discharges contain numerous pollutants that may adversely affect the survival and reproductive success of salmonids and other fishes.

Although cumulative development could result in significant biological impacts, based on the location of the project, and implementation of mitigation, the project is not expected to make a considerable contribution to significant cumulative impacts related to biological resources.

Cultural Resources. Cumulative impacts related to cultural resources could occur during excavation or construction activities. This includes activities that could result in uncovering buried historical, archeological, or paleontological resources. As discussed in Section XI, implementation of MM would reduce potential impacts related to accidental discovery during construction of archeological/paleontological resources or human remains. Therefore, the project is not expected to make a considerable contribution to significant cultural resources cumulative impacts.

Geology/Soils. Cumulative impacts related to geology and soils could occur where development places structures and people in areas susceptible to geologic hazards. Adherence to mandatory building code regulations and measures identified by the geotechnical report, would prevent a significant cumulative impact associated with placing new structures or people on land susceptible to geologic hazards. Therefore, because the project would comply with the requirements of the site-specific geotechnical study and UBC, the project is not expected to make a considerable contribution to significant geology and soils cumulative impacts.

Hazards and Hazardous Materials. Cumulative impacts related to hazards and hazardous materials could occur where future development would place structures and people in proximity to significant sources of safety hazards or hazardous materials. Hazardous materials treatment, transport, and storage are regulated

by the County, state, and federal regulations. There is also a potential for exposure to hazards/hazardous materials during construction activity. However, treatment of hazards/hazardous accidental spills and releases are highly regulated, and procedures and protocols exist to mitigate potential impacts to a less-than-significant level.

Hydrology and Water Quality. No other projects are planned in the immediate vicinity of the bridge. Project-level hydrology and water quality impacts would be addressed by mitigation measures discussed in Section IX. The project is not anticipated to make a considerable contribution to significant hydrology and water quality cumulative impacts.

Noise. Potential project-related construction noise would be addressed by mitigation measures discussed in Section XII. The project is not anticipated to generate operational noise levels above existing conditions. Therefore, because construction noise impacts would be mitigated at a project level and little to no change in operational noise would occur, the proposed project is not anticipated to make a considerable contribution to significant cumulative impacts related to noise.

Public Services. The project would not include residential or commercial development and demand for public services by the project would be similar to existing conditions. Existing fire and police services are expected to be sufficient to ensure safety during construction. Therefore, the project is not anticipated to make a considerable contribution to significant cumulative impacts related to public services.

Transportation and Traffic. No other projects are planned in the immediate vicinity of the bridge. The project is also not anticipated to increase traffic to the area. Thus, the project is not anticipated to make a considerable contribution to significant cumulative impacts related to transportation and traffic.

Utilities and Service Systems. The project itself would not result in an increase demand for utilities or service systems. Utilities at the site would continue to tie into existing service providers, similar to existing conditions. Therefore, the project would not make a considerable contribution to significant cumulative impacts related to utilities and service systems.

Therefore, based on the above discussions, and assuming the implementation of mitigation in Sections I through XVII, the project's contribution to cumulative impact are considered to be less than significant (Less Than Significant With Mitigation).

- c. If proposed mitigation measures are followed, the project would not result in any environmental effects that would cause substantial adverse effects on human beings either directly or indirectly. Therefore, the project would have a less-than-significant impact on human beings (Less Than Significant With Mitigation).

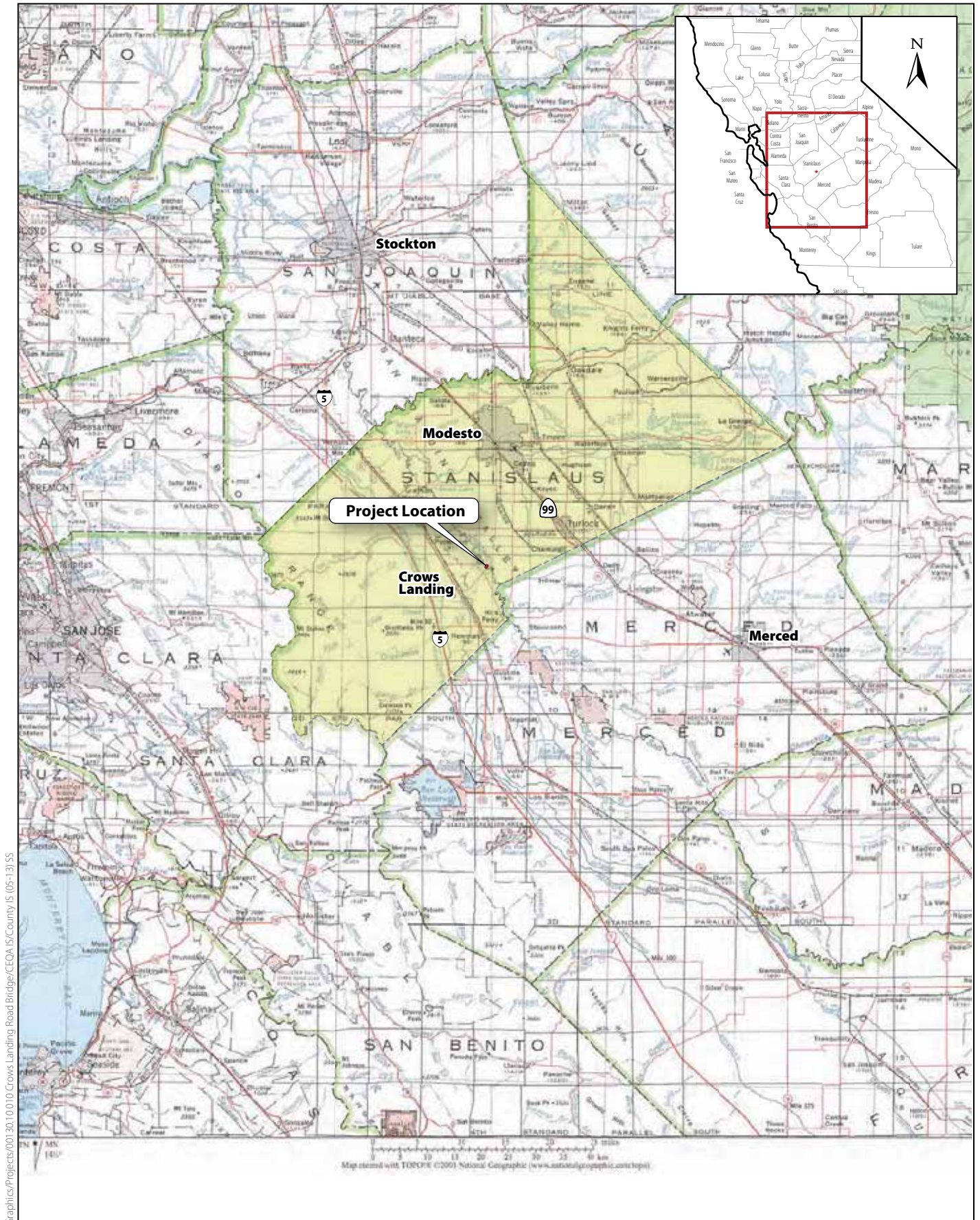


Figure 1
Project Vicinity

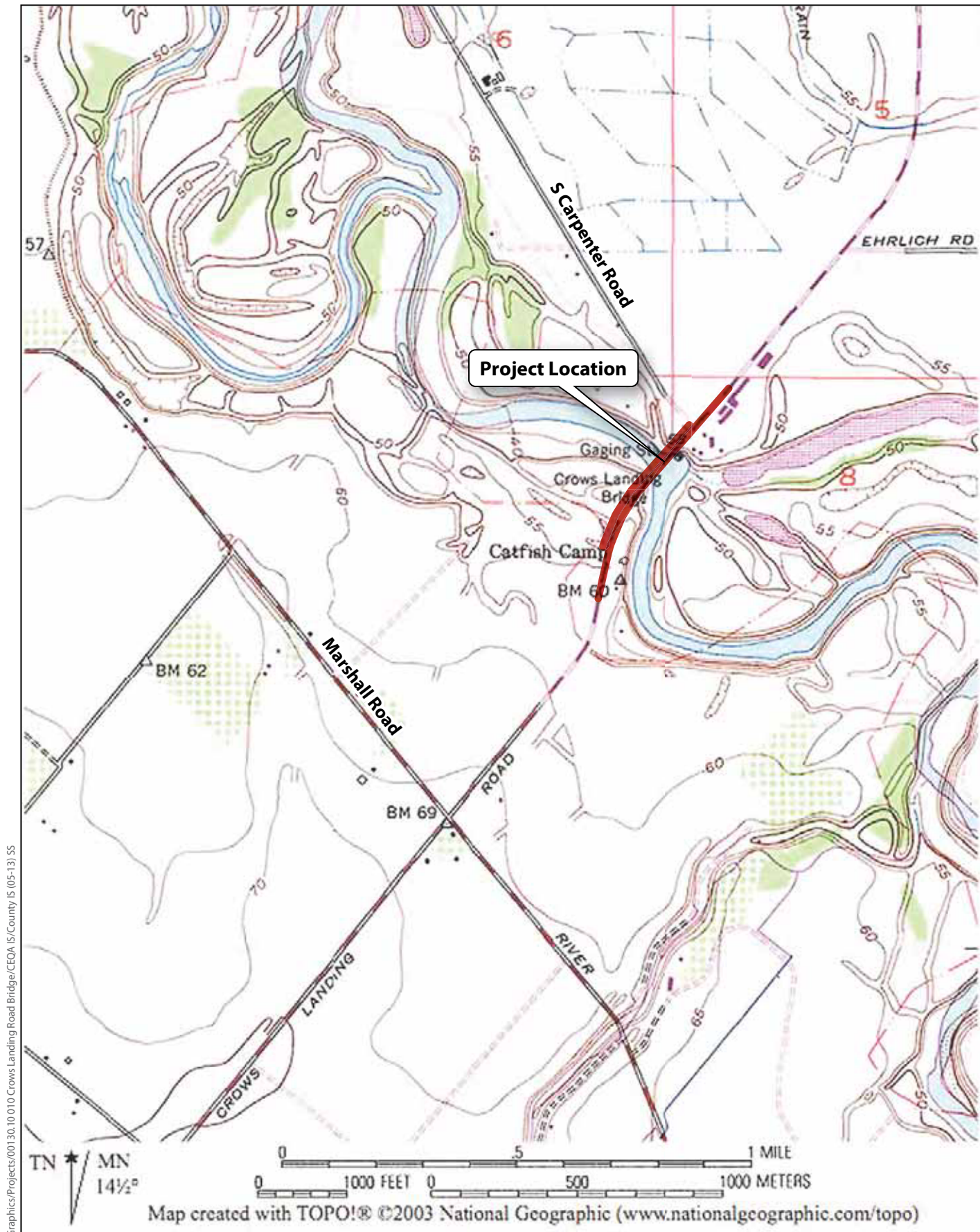


Figure 2
Project Location

Source: Nolle Engineering

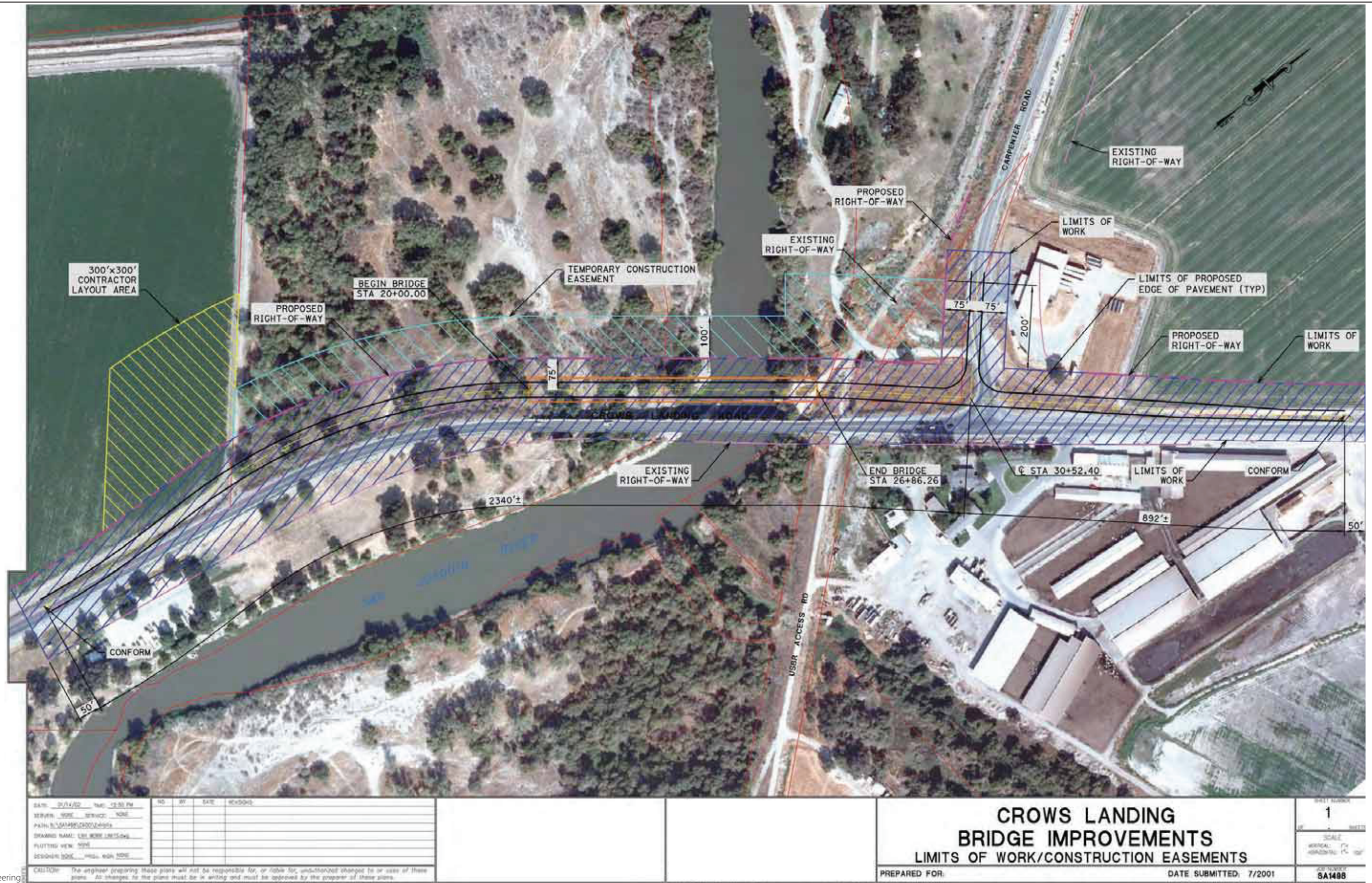


Figure 3
Limits of Work and Construction Easements



Photo 1. View of Crows Landing Bridge from northeastern bank of San Joaquin River, with riparian vegetation visible on opposite bank (facing southeast).



Photo 2. View of Crows Landing Bridge from Turlock Sportsman's Club boating dock (facing southeast).

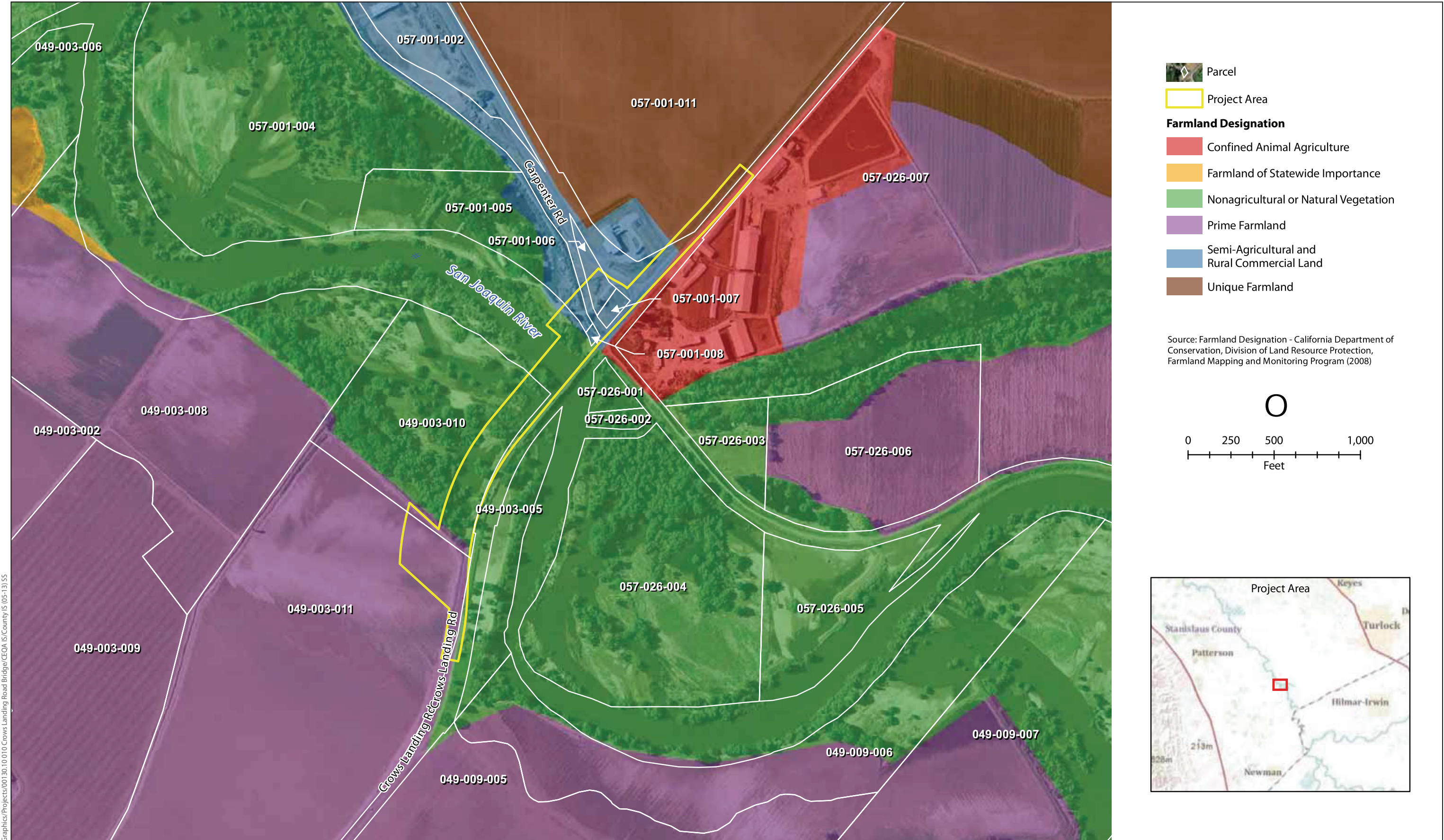


Figure 5
Farmland in the Vicinity of the
Crows Landing Bridge Replacement Project

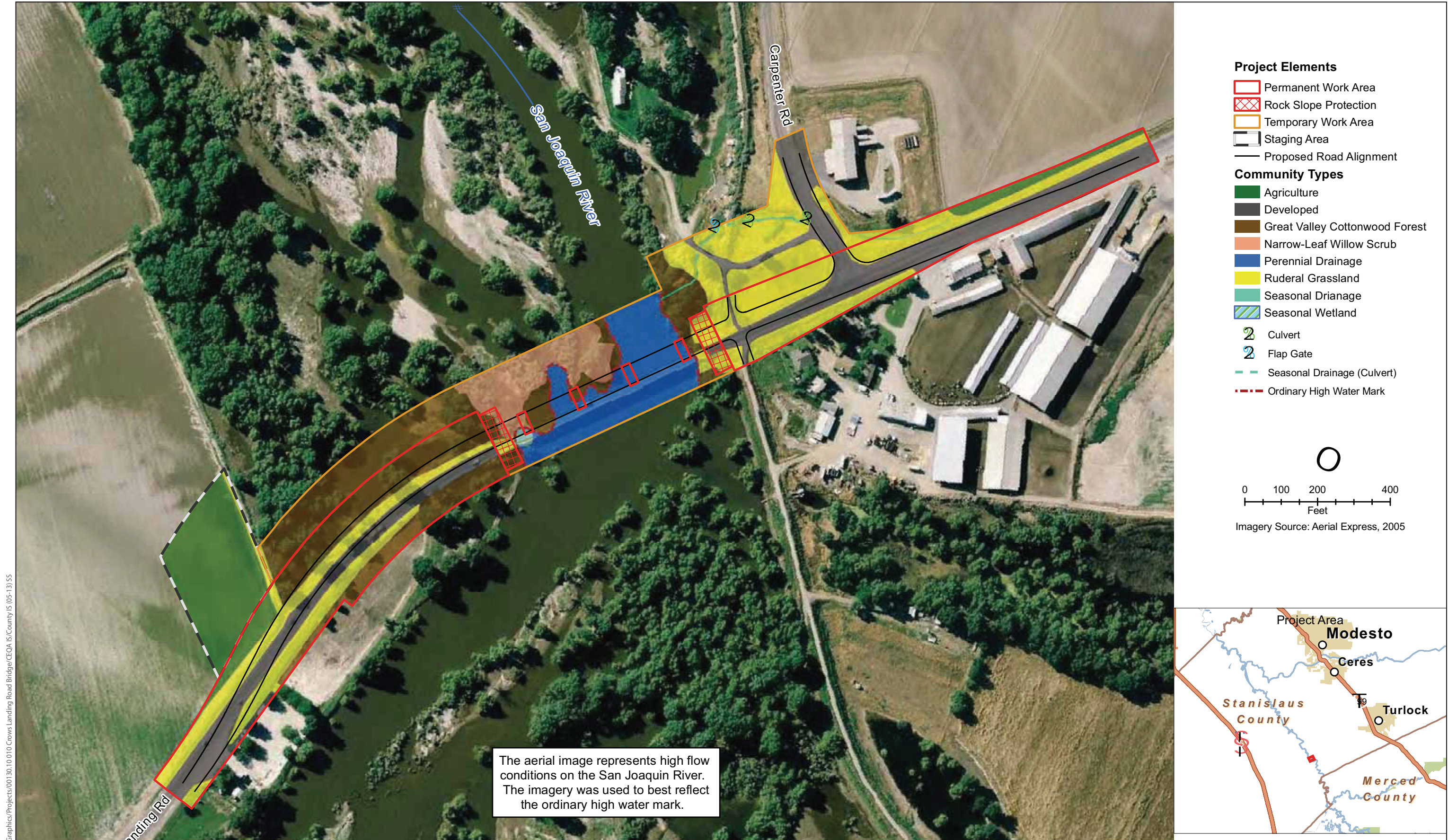


Figure 6
Impacts on Biological Resources
in the Crows Landing Bridge Project Area

