Huichica Creek Bridge Replacement & Fish Passage Project

NAPA COUNTY, CALIFORNIA
DISTRICT 4 – NAP – 121 (PM 0.5/1.0)
4G2100/0412000310

Initial Study with Mitigated Negative Declaration/Environmental Assessment with Finding of No Significant Impact

Prepared by the
State of California Department of Transportation

The environmental review, consultation, and any other actions required by applicable Federal environmental laws for this project are being, or have been, carried out by Caltrans pursuant to 23 U.S.C. 327 and the Memorandum of Understanding dated December 23, 2016 and executed by FHWA and Caltrans.

Caltrans

March 2018
General Information about This Document

The California Department of Transportation (Department), as assigned by the Federal Highway Administration (FHWA), has prepared this Initial Study with Mitigated Negative Declaration/Environmental Assessment for the proposed project located in Napa County, California. The Department is the lead agency under the National Environmental Policy Act (NEPA). The Department is the lead agency under the California Environmental Quality Act (CEQA). The document tells you why the project is being proposed, what alternatives have been considered for the project, how the existing environment could be affected by the project, the potential impacts of each of the alternatives, and the proposed avoidance, minimization, and/or mitigation measures. The Initial Study/Draft Environmental Assessment circulated to the public for 30 days between September 20, 2017 and October 20, 2017. Comments received during this period are included in Chapter 3. Elsewhere throughout this document, a vertical line in the margin indicates a change made since the draft document circulation. Minor editorial changes and clarifications have not been so indicated. Additional copies of this document and the related technical studies are available for review at: California Department of Transportation, District 4, 111 Grand Avenue, Oakland, CA 94612, and Napa County Main Library, 580 Coombs Street, Napa, CA 94559. This document may be downloaded at the following website: http://www.dot.ca.gov/d4/envdocs.htm.

Alternative Formats:
For individuals with sensory disabilities, this document can be made available in Braille, in large print, on audiotape, or on computer disk. To obtain a copy in one of these alternate formats, please call or write to Department of Transportation, District 4, Attn: Wahida Rashid, PO Box 23660, MS 8B, Oakland, CA 94623. (510) 286-5935 (Voice), or use the California Relay Service 1 (800) 735-2929 (TTY), 1 (800) 735-2929 (Voice) or 711.
Widen and replace overcrossing on State Route 121 and incorporate fish passage improvements at Huichica Creek between Duhig Road and Napa Road in Napa County.

INITIAL STUDY with Mitigated Negative Declaration/Environmental Assessment

Submitted Pursuant to: (State) Division 13, California Public Resources Code (Federal) 42 USC 4332(2)(C)

THE STATE OF CALIFORNIA
Department of Transportation

Responsible Agencies: California Transportation Commission, Regional Water Quality Control Board, California Department of Fish and Wildlife, State Historic Preservation Office

4/4/18

Date

James E. Davis
Acting District Director
California Department of Transportation
CEQA/NEPA Lead Agency

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CALIFORNIA DEPARTMENT OF TRANSPORTATION
FINDING OF NO SIGNIFICANT IMPACT (FONSI)

FOR THE

Huichica Creek Bridge Replacement & Fish Passage Project

The California Department of Transportation (Caltrans) has determined that the Preferred Alternative will be the Build Alternative, and that this alternative will have no significant impact on the human environment. This FONSI is based on the attached Environmental Assessment (EA) which has been independently evaluated by Caltrans and determined to adequately and accurately discuss the need, environmental issues, and impacts of the proposed project and appropriate mitigation measures. It provides sufficient evidence and analysis for determining that an Environmental Impact Statement is not required. Caltrans takes full responsibility for the accuracy, scope, and content of the attached EA.

The environmental review, consultation, and any other actions required by applicable Federal environmental laws for this project are being, or have been, carried out by Caltrans pursuant to 23 USC 327 and the Memorandum of Understanding dated December 23, 2016 and executed by FHWA and Caltrans.

Date 4/4/18

James E. Davis
Acting District Director
California Department of Transportation
District 4
CEQA/NEPA Lead Agency
MITIGATED NEGATIVE DECLARATION

Pursuant to: Division 13, Public Resources Code

Project Description

The California Department of Transportation (Department) proposes to widen State Route 121 over Huichica Creek, remove the existing triple culvert, replace it with a free span bridge, and incorporate fish passage improvements along Huichica Creek.

Determination

This Mitigated Negative Declaration (MND) is included to give notice to interested agencies and the public that it is the Department's intent to adopt an MND for this project. This does not mean that the Department's decision regarding the project is final. This MND is subject to change based on comments received by interested agencies and the public.

The Department has prepared an Initial Study for this project, and following public review, has determined from this study that the proposed project would not have a significant effect on the environment for the following reasons:

The proposed project would have no effect on: land use, consistency with plans and programs, growth, community character/cohesion, environmental justice, farmlands/timberlands, parks and recreational facilities, coastal zone, wild and scenic rivers, air quality, noise, traffic, hazardous waste, relocations, utilities/emergency services, floodplain, paleontology and special-status plant species.

In addition, the proposed project would have less than significant effects to visual/aesthetics, geology, water quality, natural communities, wetlands/other waters, special-status animal species and invasive species.

With the following mitigation measures incorporated, the proposed project would have less than significant effects to cultural resources, and threatened and endangered species.

- Archaeological Treatment Plan for cultural resources (data recovery, archaeological monitoring, establishment of environmentally sensitive areas)

- The project is self-mitigating for threatened/endangered species through the removal of triple culverts and paved creek bottom, which will restore a more natural stream bottom and allow for natural stream processes to occur.

James E. Davis
District 4
California Department of Transportation

A/4/18
Date
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Chapter 1 – Proposed Project

Introduction

California participated in the “Surface Transportation Project Delivery Pilot Program” (Pilot Program) pursuant to 23 USC 327, for more than five years, beginning July 1, 2007, and ending September 30, 2012. MAP-21 (P.L. 112-141), signed by President Obama on July 6, 2012, amended 23 USC 327 to establish a permanent Surface Transportation Project Delivery Program. As a result, the Department entered into a Memorandum of Understanding pursuant to 23 USC 327 (NEPA Assignment MOU) with FHWA. The NEPA Assignment MOU became effective October 1, 2012, and was renewed on December 23, 2016 for a term of five years. In summary, the Department continues to assume FHWA responsibilities under NEPA and other federal environmental laws in the same manner as was assigned under the Pilot Program, with minor changes. With NEPA Assignment, FHWA assigned and the Department assumed all of the United States Department of Transportation (USDOT) Secretary’s responsibilities under NEPA. This assignment includes projects on the State Highway System and Local Assistance Projects off of the State Highway System within the State of California, except for certain categorical exclusions that FHWA assigned to the Department under the 23 USC 326 CE Assignment MOU, projects excluded by definition, and specific project exclusions.

The Department, as assigned by the FHWA, is the lead agency under the NEPA and the CEQA. The Department proposes to widen State Route (SR) 121 over Huichica Creek, remove the existing triple metal culvert (Bridge No. 21-0001), replace it with a free span bridge, and incorporate fish passage improvements and creek bed restoration along approximately 400 feet of Huichica Creek in unincorporated Napa County. This proposed widening will not increase the vehicular capacity of SR 121. The total length of the project is 0.5 miles. Figures 1 and 2 show the project vicinity and location; and Figure 3 shows the existing condition of the culverts at Huichica Creek. The project limits and footprint\(^1\) are delineated on the preliminary plans located in Appendix K.

This proposed project is a follow-up project to another Department safety project, known as the Duhig Roadway Rehabilitation and Curve Realignment project (Expenditure Authorization 04-44214), that was completed in 2011. That project provided full shoulder and curve corrections on SR 121 for approximately 1.7 miles from near the Sonoma County line to Duhig Road, from post mile (PM) 0.3 to PM 2.0. Thus, this follow-up project is located within the larger limits of the Duhig Roadway Rehabilitation and Curve Realignment project.

The improvements proposed at Huichica Creek under the Duhig Roadway Rehabilitation and Curve Realignment project were omitted because the originally proposed fish passage improvements under that project were not acceptable to the Regional Water Quality Control Board (RWQCB), California Department of Fish and Wildlife (CDFW), and the National Marine Fisheries Service (NMFS)/National Oceanic and Atmospheric Administration (NOAA). Changing the design for the fish passage would have significantly delayed the delivery of the Duhig Roadway Rehabilitation and Curve Realignment project. To keep that project on schedule, it was agreed that the improvements at the Huichica Creek Bridge would be done at a later time by this follow-up project. Construction is anticipated to begin in 2020 and take approximately two years to complete.

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\(^1\) Footprint is defined as where ground disturbance would occur from the construction of the proposed improvements (e.g., construction staging areas, demolition and earthmoving activities), and areas of right-of-way to be obtained for the project.
SR 121 is a 33.5-mile long conventional highway in Sonoma and Napa counties. SR 121 traverses a region that is commonly referred to as the Napa Valley Wine Country. This is a semirural area, but is also close to the more suburbanized areas of the city of Napa. Adjacent land uses in the project vicinity include small ranches and large agricultural fields with viticulture as a prominent use. SR 121 is part of a primary transportation corridor between Lake Berryessa in Napa County and SR 37 in Sonoma County.

Within the project limits, SR 121 is a two-lane undivided conventional highway also known as "Sonoma Highway" and "Carneros Highway," consisting of one 12-foot lane and 1-foot to 4-foot of shoulder in each direction, without a median, that passes through a rolling terrain. The current posted speed limit is 55 miles per hour, but there are speed limit signs of 40 miles per hour posted in each direction at two curve locations within the project vicinity. The Annual Average Daily Traffic (AADT) for the present year, 2017, is 32,000, and is forecasted to grow to 33,000 in 2020, 36,000 in 2027, and 39,000 in 2037, per Department traffic census counts and the Napa-Solano Counties Travel Demand Model.

Funding for this project will be from the 2016 State Highway Operations and Protection Program (SHOPP) Safety Improvement Program (Program Code 201.010). The proposed project is not included in the 2015 Federal Statewide Transportation Improvement Program (FSTIP). The project is included in the Metropolitan Transportation Commission's cost-constrained 2015 Transportation Improvement Program (TIP) SHOPP Collision Reduction Program (TIP ID-VAR110004).
Figure 1 – Project Vicinity Map
Figure 3 – Huichica Creek Existing Culverts, Downstream Side
Purpose and Need

The purposes of this project are to reduce the potential for cross-centerline and run-off-the-road accidents on SR 121; provide continuity to the widening of SR 121 constructed in a previous project east and west of the Huichica Creek bridge; and satisfy regulatory fish passage requirements.

The project is needed because the accident rate for cross-centerline accidents is higher than the statewide average for similar roadways. As previously mentioned, the scope of this project was originally part of the Duhig Roadway Rehabilitation and Curve Realignment project to widen this portion of SR 121. For that project, an accident history within the larger segment of SR 121 (from PM 0.25 to PM 2.0) showed that during the three-year period from January 1, 2001 to December 31, 2003, there were eleven cross-centerline and seventeen run-off road accidents resulting in eight fatalities. The fatal accident rate on this larger segment of SR 121 is higher than the average rate for similar facilities statewide.

The Department is required by Senate Bill 857, amending Article 3.5 of the Streets and Highways Code to assess potential barriers to all life stages of anadromous fish prior to starting any bridge work programmed with state or federal funds. The creek work and improvements at the bridge over the west branch of Huichica Creek were omitted at the time because the original plan for fish passage improvements was not acceptable to the RWQCB, the CDFW, and the NMFS/NOAA.

Independent Utility and Logical Termini

FHWA regulations (23 Code of Federal Regulations [CFR] 771.111 [f]) require that the action evaluated:

1. Connect logical termini and be of sufficient length to address environmental matters on a broad scope.

2. Have independent utility or independent significance (be usable and require a reasonable expenditure even if no additional transportation improvements in the area are made).

3. Not restrict consideration of alternatives for other reasonably foreseeable transportation improvements.

Logical termini for project development are defined as (1) rational end points for a transportation improvement, and (2) rational end points for a review of the environmental impacts. The environmental impact review frequently covers a broader geographic area than the strict limits of the transportation improvements.

The project has independent utility, which means the proposed improvements can be implemented within the project limits and completion of other projects would not be required in order to realize the operational benefits of the proposed improvements.

The project has logical starting and ending points or termini. The end points were selected to contain the length of the existing roadway and fish passage deficiencies including and adjacent to the Huichica Creek overcrossing. All of the proposed roadway improvement under the Build Alternative are included within the project limits.
Project Description

This section describes the proposed action and the project alternatives that were developed to meet the identified purpose and need of the project, while avoiding or minimizing environmental impacts. The alternatives are the "Build Alternative" and the "No-Build Alternative."

The purposes of this project are to reduce the potential for cross-centerline and run-off-the road accidents on SR 121; provide continuity to the widening of SR 121 constructed in a previous project east and west of the Huichica Creek bridge; and satisfy regulatory fish passage requirements.

This project proposes to widen SR 121 over Huichica Creek, remove the existing triple metal culverts (Bridge No. 21-0001), replace it with a free (single) span bridge, incorporate fish passage improvements, restore creek banks along approximately 400 feet of Huichica Creek, and perform other work described in the next section entitled, "Build Alternative." The total length of the project is 0.5 miles. Within the project limits, SR 121 is a two-lane undivided conventional highway consisting of one 12-foot lane and 1-foot to 4-foot of shoulder in each direction.

The bridge will be widened by at least 9 feet from the existing width of 35 feet, to a new width of 44 feet. This widening will not increase the vehicular capacity of SR 121. To allow for two-way traffic flow throughout construction and a daylight construction schedule the bridge will be overbuilt initially, and the additional width removed in the final phase of construction. The majority of the widening will occur on the southerly, or downstream side of the bridge in order to minimize construction effects to the property entrance of 5500 Sonoma Highway located at the northeast side of the bridge. These effects to the driveways of said property are further discussed in the next section.

Project Alternatives

Build Alternative

This proposed project, the "Build Alternative," will involve the following activities.

The SR 121 roadway will be shifted a maximum of 26 feet to the south for traffic handling during stage construction. After construction, this temporary pavement and the corresponding structure over Huichica Creek will be removed. See Appendix H for preliminary project plans and cross sections.

One staging area and two access roads are proposed during construction. The staging area is on the northwest side of the bridge and the access roads are on the northeast and southwest of the bridge extending from the creek to the tops of the creek banks. The lengths of the access roads are proposed to be approximately 100 feet long and 12 feet wide. The maximum depth of excavation is 10 feet, which will primarily be along the banks of the creek. It is likely that the bioswale on the northwest of the bridge will be impacted temporarily to build the temporary access road but it will be restored to the pre-construction condition prior to project completion. Construction work is anticipated to take two construction seasons.

The following activities are anticipated during construction:
- place two-way traffic on the north side by using existing railing, two 11-foot lanes and temporary railing
- construct temporary pavement segment on the south side of the roadway
- remove approximately 12 feet wide of structural section above culverts of the roadway on the south side of the existing bridge
- install 28 feet wide section of the new precast/prestressed (PC/PS) concrete slab (approximately 2 feet thick with 3-inch hot mix asphalt on top) bridge on the south side
- switch two-way traffic to the newly constructed concrete slab bridge
- remove the rest of the existing structural section above culverts of the existing roadway
- replace 30 feet section of the PC/PS concrete slab bridge
- perform fish passage and creek bank restoration work in coordination with bridge and roadway work
- place concrete barrier Type 732, steel rail Type ST-10, ST-70 or MASH (Manual for Assessing Safety Hardware) rail in each direction
- remove existing culverts, sheet pile and temporary pavement section
- place the pavement delineation

1) Roadway widening

For the final configuration, the roadway will be widened about 8 feet maximum on both sides of the bridge with 3 feet of shoulder backing. The depth of the structural section will be 2 to 3 feet. The proposed centerline will be offset south from existing centerline by 2 feet maximum.

2) Removing existing triple metal culverts

The culverts and the concrete headwalls were built in 1968. According to the latest Bridge Inspection Report dated April 8, 2014, there is a scour hole, approximately 3 feet in depth, at the right side of the middle culvert. The inlets to two of the culverts are blocked with vegetation. One culvert has its metal end detached from the concrete headwall. Slight rust was found in all three culverts inverts. During the replacement of the bridge, which will occur during the first construction season, the existing pavement and embankment material on top of the culverts will be removed while leaving the culverts in place. During the second construction season, the culverts will be removed from underneath the new bridge.

3) Free (Single) span bridge

The existing roadway at Huichica Creek is 35 feet wide with two standard 12-foot lanes and shoulders that vary from 5 to 6 feet. The proposed bridge will be 45 feet long and 48 feet wide to accommodate standard 8-foot shoulders with bridge railings (Type 732), steel rail Type ST-10, ST-70 or MASH rail. The abutments will be built on a concrete pile foundation. The abutment will consist of a secant type pile wall with a precast pile cap. The depth of excavation for each abutment is anticipated to be 15 feet and its foundation is anticipated to be supported by 40-foot-long cast-in-drilled-hole piles.
4) Fish passage

Currently, a 175 foot section of channel immediately downstream of the triple 78-inch cross culvert is steep and consists of a 6- to 8-foot drop at one location. Fish cannot traverse this portion of the channel. This portion of Huichica Creek is classified as a fish passage barrier by the CDFW in its Fish Passage Database (PAD, ID#714975).

The fish passage design will include removing paved portions of the channel, grading approximately 480 feet of the channel to a longitudinal 2.5% slope and constructing a roughened channel by incorporating half ton rocks within a mix of natural creek bed material, thereby reducing future scour along the creek banks. Eight step-pools are proposed with a maximum of 0.5 feet of jump. The width of the channel bottom is 14 feet. A maximum of 2 feet of cut and 6 feet of fill is proposed.

Along the proposed channel bottom, the transverse slope will be 14:1 (14 feet wide), then 2:1 (3 feet wide) then 4:1 where it intercepts with the existing bank slopes. Low benches along the channel bank width at 4:1 slope will provide native riparian vegetation corridors on both sides of the channel. Rocks will be placed along the weirs of step-pools and keyed in along the toe of the channel side-slopes. Exposure of the rock surface will be minimized to suit the habitat restoration.

The fish passage elements will extend approximately 130 feet upstream and 300 feet downstream of the existing culvert. These limits are from slightly beyond the existing right of way line on the upstream end to the point in the creek where the slope stabilizes on the downstream end. The preliminary design assumes cut and fill within the existing channel profile to obtain the 2.5% continuous grade. Grading this 480 foot reach at an average 2.5% slope will allow migration of adult fish upstream and juvenile fish downstream. Woody debris (root wads and logs), intermittent large shadow rocks, and planting of willows and elder trees will be included throughout the channel to enhance fish and fresh water shrimp habitat. Intermittent grade control cutoffs using buried rock across the channel bottom will also be incorporated to stabilize the installation and prohibit any head cut from migrating upstream throughout the proposed improvements. The roughened channel design will extend slightly downstream of the existing private bridge located to the south of SR 121.

The Department’s Fish Passage Design Guidelines and CDFW’s Habitat Restoration Manual have been followed in the design of a roughened channel. After a discussion of the fish passage improvements with the NMFS and the CDFW, both parties agreed to a roughened channel design of approximately 480 feet long at 2.5% slope to best match the existing site conditions. A low flow channel will be provided through the rock, woody debris incorporated along the side banks, boulder outcrops (resting pools) will be placed along its length, and planting of vegetation on the slopes above ordinary high water to provide shading.

To offset direct impacts on California freshwater shrimp (Syncaris pacifica) habitat, the stream bank habitat will be enhanced or restored within the project vicinity. Areas of stream bank that are disturbed during project construction will be planted with vegetation in conjunction with the placement of vegetated rock slope protection.

The habitat structure will likely include a tunnel feature with a rock groin in the channel topped and framed with large wood and a complex of horizontal alder and willow
plantings. Supporting the large wood are a series of soil lifts in the channel bank which are incorporated in the vegetated rock slope protection.

The complexity of the structure is intended to provide velocity refuge and promote shoot and root development in the ‘ceiling’. Interstitial voids in the root mass and larger rocks are also expected to provide California freshwater shrimp habitat. The final design of any habitat feature will be determined through consultation with the United States Fish and Wildlife Service (USFWS) and the CDFW.

5) Creek bank restoration

Within the proposed roughened channel limits, creek bank restoration work is proposed. The existing creek banks are at 1:1 or steeper slopes and in some areas, the banks are near vertical. In order to stabilize these side slopes, the bank restoration will include reconstructing the banks and placing erosion control and riverine plants on the side slopes.

As mentioned above, along the proposed channel bottom, the transverse slope will be 14:1 (14 feet wide), then 2:1 (3 feet wide), and will finally catch the existing bank at 4:1. Half ton rocks will be placed along the channel bottom with vegetation planted at the banks at the 4:1 slope area. However, the final configuration will be determined through further studies from the Department’s Geotechnical Design and Erosion Control units.

6) Other miscellaneous work consists of the following:

i) Drainage improvement:

Drainage improvements are anticipated. The only culvert proposed to discharge directly to Huichica Creek will be located northwest of the westerly bridge abutment. This culvert will convey flow from an infiltration trench previously graded on the completed Duhig Roadway Rehabilitation and Curve Realignment project.

ii) Driveway impact:

There are two existing driveways at one property, 5500 Sonoma Highway, on the northeast side of the bridge. One driveway opening will be accessible at all times during construction while the other will be closed. However, there will be grading work to connect the driveways leading to the one opening. The depth of excavation is expected to be two feet. After completion of the project, there will be grading work to conform the two driveway openings to the new roadway.

iii) Tree removal and trimming:

Trees in clear recovery zone\(^2\) will be removed or trimmed, as necessary, to provide space for construction.

\(^2\) Clear recovery zone is defined as an area clear of fixed objects adjacent to the traveled way for vehicles that leave the traveled way.
iv) Creek diversion:

A temporary water diversion system will be installed to allow for work in the creek during the dry season. It will keep the work area dry by conveying any water into a diversion pipe with gravel-filled cofferdams or a similar system. The temporary water diversion system will consist of a diversion pipe with temporary cofferdams located at the upstream and downstream ends.

The cofferdams will be constructed across the existing creek channel with gravel-filled bags wrapped in impermeable plastic sheeting or a similar system. A cutoff wall will be provided at both upstream and downstream of the cofferdams to reduce seepage into the work area. The cofferdams will be assembled and removed as needed during construction.

v) Utility relocation:

Five Pacific Gas & Electric (PG&E) 12 kilovolt utility poles on the south side of SR 121 are proposed to be relocated. The relocations have not been determined, but it is anticipated they will be relocated along the same southerly side within State right-of-way, and not in Huichica Creek.

vi) Equipment:

To grade temporary roads for access, dozers will be used. Cranes will be used for multiple parts of the construction from delivery of material to setting precast slabs. Excavators will be used for excavation at the abutments. Concrete mixer trucks and pump trucks will be used to pump concrete for all cast-in-place structures. Other equipment may include backhoes, pile driving rigs, saw cutters, light-weight trucks, lifts, generators, paver, and jackhammers.

Transportation System Management and Transportation Demand Management Alternatives

Transportation System Management (TSM) strategies increase the efficiency of existing facilities; they are actions that increase the number of vehicle trips a facility can carry without increasing the number of through lanes. Examples of TSM strategies include: ramp metering, auxiliary lanes, turning lanes, reversible lanes and traffic signal coordination. TSM also encourages automobile, public and private transit, ridesharing programs, and bicycle and pedestrian improvements as elements of a unified urban transportation system. Modal alternatives integrate multiple forms of transportation modes, such as pedestrian, bicycle, automobile, rail, and mass transit.

Transportation Demand Management (TDM) focuses on regional means of reducing the number of vehicle trips and vehicle miles traveled as well as increasing vehicle occupancy. It facilitates higher vehicle occupancy or reduces traffic congestion by expanding the traveler's transportation options in terms of travel method, travel time, travel route, travel costs, and the quality and convenience of the travel experience. A typical activity would be providing funds to regional agencies that are actively promoting ridesharing, maintaining rideshare databases, and providing limited rideshare services to employers and individuals.

Following consideration of the setting as well as the purpose and need of this proposed project, the Department has identified no viable TSM and TDM alternatives.
Estimated Cost Information

This project is programmed in the 2016 SHOPP with $13,247,000 for construction and $1,852,000 for right-of-way for the 2017/18 fiscal year. The current total project cost is $22,489,000.

No Build (No Action) Alternative

The No Build Alternative compares project conditions if the proposed improvements are not constructed, and the current bridge left as it is. The shoulders would remain at the non-standard width of six feet, the triple-metal culvert would remain in place as a barrier to fish passage and the roadway would not conform to the recently widened SR 121 east and west of the bridge. Only maintenance work would be done on the bridge as necessary.

Identification of a Preferred Alternative

After the public circulation period discussed in Chapter 3, all comments were considered, and the Department has selected the Build Alternative as the preferred alternative, and has made the final determination of the project’s effect on the environment. Under the CEQA, no unmitigable significant adverse impacts are identified, and the Department has prepared a Mitigated ND located in the front matter of this document. Similarly, the Department has determined that the action does not significantly impact the environment. Therefore, the Department, as assigned by the FHWA, has issued a Finding of No Significant Impact (FONSI) located in the front matter of this document, in accordance with the NEPA.

Alternatives Considered but Eliminated from Further Discussion

The Build Alternative and the No Build Alternative are the only alternatives for this project and no other alternatives were considered.
## Permits and Approvals Needed

The following permits, reviews, and approvals will be required for project construction:

<table>
<thead>
<tr>
<th>Agency</th>
<th>Permit/Approval</th>
<th>Status</th>
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<tbody>
<tr>
<td>National Marine Fisheries (NMFS)/National Oceanic and Atmospheric Administration (NOAA)</td>
<td>Section 7 Consultation for Threatened and Endangered Species Biological Opinion (BO)</td>
<td>BO received from NOAA Fisheries. (Appendix I)</td>
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<td>United States Fish and Wildlife Service (USFWS)</td>
<td>Section 7 Consultation for Threatened and Endangered Species BO</td>
<td>BO received from USFWS. (Appendix H)</td>
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<td>United States Army Corps of Engineers (USACE)</td>
<td>Section 404 Permit for placement of fill in waters of the United States.</td>
<td>Application pending (Design phase)</td>
</tr>
<tr>
<td>California Department of Fish and Wildlife (CDFW)</td>
<td>Section 1602 Agreement for Lake and Streambed Alteration Agreement Incidental Take Permit (ITP)</td>
<td>Application pending (Design phase)</td>
</tr>
<tr>
<td>Regional Water Quality Control Board (RWQCB)</td>
<td>Section 401 Certification</td>
<td>Application pending (Design phase)</td>
</tr>
<tr>
<td>State Historic Preservation Officer (SHPO) and California Department of Transportation Cultural Studies Office</td>
<td>Memorandum of Agreement (MOA)</td>
<td>MOA executed. (Appendix G)</td>
</tr>
<tr>
<td>California Transportation Commission (CTC)</td>
<td>CTC vote to approve funds</td>
<td>Following the approval of the Final Environmental Document (FED), the CTC will be required to vote to approve funding for the project.</td>
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</table>
Chapter 2 – Affected Environment, Environmental Consequences, and Avoidance, Minimization, and/or Mitigation Measures

This chapter describes the environmental resources of the project areas and how the resources would be affected by the proposed project. Potential environmental impacts of the proposed project and recommended avoidance, minimization, and/or mitigation measures are discussed. Chapter 2 also addresses issues of concern pursuant to the CEQA and the NEPA. Please see Appendix A for the CEQA Checklist. Under the CEQA, the baseline for environmental impact analysis consists of the existing conditions at the time the environmental studies began. Under the NEPA, the no-build alternative is the baseline for comparing environmental impacts.

As part of the scoping and environmental analysis carried out for the project, the following environmental issues were considered but no adverse impacts were identified. As a result, there is no further discussion about these issues in this document.

**Existing and Future Land Use** – The project will not affect existing or future land uses. No acquisition of residential or commercial structures is anticipated; the required right-of-way is confined to drainage easements in Huichica Creek, and temporary construction easements adjacent to SR 121 and on the banks of Huichica Creek; and the project will not alter community interaction patterns.

**Consistency with Federal, State, Regional and Local Plans and Programs** – The proposed project, under its purpose and need, is consistent with state, regional and local plans and programs, as well as transportation plans and programs including the Metropolitan Transportation Commission’s 2013 Plan Bay Area, the Circulation Element of the 2013 Napa County General Plan, and both the Napa County Transportation & Planning Agency’s 2012 Countywide Bicycle Plan and the Department’s statewide bicycle and pedestrian plan, Toward an Active California (discussed below under Traffic and Transportation/Pedestrian and Bicycle Facilities). The proposed project is not included in the 2015 FSTIP. The project is included in the Metropolitan Transportation Commission’s cost-constrained 2015 TIP SHOPP Collision Reduction Program (TIP ID-VAR110004).

**Growth** – The proposed project will not affect growth within Napa County. The project is located in a semirural area in unincorporated Napa County. The Napa County General Plan has the goal of focusing growth areas in existing incorporated cities and their spheres of influence. The project is located outside of the nearest city’s (city of Napa) sphere of influence and urban growth boundary, formally referred to as the “Rural-Urban Limit” line. Therefore, the project area is not anticipated to experience significant growth in the future.

Because the proposed project will not change accessibility, will have no influence on growth, and will not result in changes to land uses already planned and considered under the Napa County General Plan, the project will not result in project-related growth. Therefore, no resources of concern will be indirectly affected as a result of the project’s influence on growth.

**Community Character and Cohesion** – The proposed project will replace an existing overcrossing in a semirural area and provide fish passage improvements along Huichica Creek. The project will continue to serve the region in the same manner as the existing bridge; therefore, no impact to community character and cohesion will occur.
Environmental Justice – No minority or low-income populations that would be adversely affected by the proposed project have been identified as determined above. Therefore, this project is not subject to the provisions of Executive Order 12898.

Farmlands/Timberlands – The proposed project will not convert vineyards in the project area to a non-agriculture use, or otherwise affect farmland, timberland or lands under Williamson Act Contracts. The required right-of-way will be confined to the acquisition of drainage easements that are needed for the scope of work proposed for within Huichica Creek, as well as temporary construction easements located along SR 121 and the banks of Huichica Creek. Therefore, it is not anticipated that this project will have any impact to farmlands or timberlands.

Coastal Zone – The project site is located in western Napa County, and outside of the Coastal Zone.

Parks and Recreation Facilities – No parks, recreational facilities, wildlife or waterfowl refuges are located within approximately 0.5 mile of the project vicinity. Consequently, there are no Section 4(f) resources of these types within the project vicinity, and the provisions of Section 4(f) are not triggered. Therefore, the proposed project will not directly or indirectly affect any parks or recreation facilities.

Wild and Scenic Rivers – The project is located in an area that has no designated Wild and Scenic River.

Air Quality – The proposed project is exempt from the requirement of an air quality conformity determination. Thus, an air quality study is not required.

This project is not a capacity-increasing transportation project and will have no impact on traffic volumes. The project will have no effect on the implementation of an air quality plan, will not result in a cumulatively considerable net increase in any criteria pollutant, will not expose sensitive receptors to substantial pollutant concentrations, and will not create objectionable odors.

Short term air quality effects during the proposed project’s construction period will be addressed by the Department Special Provision and Standard Specification 14-9.02. Trucks and construction equipment emit hydrocarbons, oxides of nitrogen, carbon monoxide and particulates. Most project-related pollution during construction will consist of wind-blown dust generated by excavation, grading, hauling and various other activities. The effects from these activities will vary from day to day as construction progresses. The Special Provisions and Standard Specifications will include requirements to minimize or eliminate dust during construction through the application of water or dust palliatives.

Noise – The proposed work does not qualify as Type 1 under the Code of Federal Regulations 23 CFR 772 and the Department’s Traffic Noise Analysis Protocol. It does not create a traffic noise impact. Thus, a traffic noise study is not required.

Construction noise will be temporary and will be within acceptable levels for construction activity. The Department’s standard specifications regulate construction noise, which state that

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3 A “Section 4(f) resource” refers to the Department of Transportation Act of 1966, which prohibits the Federal Highway Administration from approving the use of land from a publicly owned park, recreation area, wildlife refuge, waterfront, or any significant historic site, unless there are no feasible or prudent alternatives.
noise levels generated during construction shall comply with applicable local, state and federal regulations, and that all equipment shall be fitted with adequate mufflers according to the manufacturer’s specifications.

**Traffic and Transportation/Pedestrian and Bicycle Facilities** -- The proposed project will not increase highway capacity. The project will not require traffic detours since a traffic lane in each direction will be maintained throughout construction. A Traffic Management Plan will be implemented to address vehicular, pedestrian and bicycle access on SR 121 during the construction phase. There are two existing driveways at one property, 5500 Sonoma Highway, on the northeast side of the bridge. One driveway opening will be accessible at all times during construction while the other will be closed. However, there will be grading work to connect the driveways leading to the one opening. After completion of the project, there will be grading work to conform the two driveway openings to the new roadway.

There are no existing dedicated pedestrian or non-motorized facilities within the project corridor. The 2012 Napa County Transportation & Planning Agency’s Countywide Bicycle Plan states that Class II bike lanes, or lanes formally designated for the exclusive use of bicyclists, are planned on SR 121 that would connect Sonoma County to Napa County. This project accommodates this effort by increasing the roadway shoulder width to standard size through the project limits, and does not inhibit or otherwise prevent this segment of SR 121 from incorporating a Class II bike lane, thus also conforming to the the Department’s statewide bicycle and pedestrian plan, *Toward an Active California*.

**Hazardous Waste** -- Since the proposed project is within the limits of the completed Duhig Roadway Rehabilitation and Curve Realignment project, the site investigation data collected for that project is entirely applicable to this project. Therefore, a new soil investigation is not necessary.

An asbestos and lead-containing paint survey will be needed prior to the demolition of the Huichica Creek bridge. This survey will be conducted during the design phase of the project. The results will determine if any hazardous-material minimization measures will be necessary before bridge demolition work begins and which contract specification will be drafted for directing the work.
Human Environment

RELOCATIONS AND REAL PROPERTY ACQUISITION

Regulatory Setting

The Department's Relocation Assistance Program (RAP) is based on the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (Uniform Act), and Title 49 Code of Federal Regulations (CFR) Part 24. The purpose of the RAP is to ensure that persons displaced as a result of a transportation project are treated fairly, consistently, and equitably so that such persons will not suffer disproportionate injuries as a result of projects designed for the benefit of the public as a whole.

All relocation services and benefits are administered without regard to race, color, national origin, persons with disabilities, religion, age, or sex. Please see Appendix B for a copy of the Department's Title VI Policy Statement.

Affected Environment

The project vicinity consists primarily of agricultural land, with a small number of farm-associated residences and outbuildings (barns, sheds, equipment storage, etc.). Under the Build Alternative, the required right-of-way is confined to drainage easements in Huichica Creek to the north and south sides of SR 121 for bridge construction activities and fish passage improvements, and temporary construction easements adjacent to SR 121 and on the banks of Huichica Creek to provide for construction staging, driveway work, and two access roads to the creek on both sides of SR 121.

Environmental Consequences

The proposed right-of-way requirements for this project are delineated on the preliminary project plans located in Appendix H and are summarized in Table 1 below:
Table 1 – Proposed Right-of-Way Requirements

<table>
<thead>
<tr>
<th>Napa County Assessor Parcel #</th>
<th>Street Address (per Napa County Assessor)</th>
<th>Primary use (per Napa County Assessor)</th>
<th>Right-of-Way Requirement(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>047-070-019</td>
<td>5500 Sonoma Highway, Napa</td>
<td>Single-Family Residential</td>
<td>Temporary Construction Easement</td>
</tr>
<tr>
<td>047-070-021</td>
<td>None</td>
<td>Agriculture (Vineyard)</td>
<td>Temporary Construction Easement</td>
</tr>
<tr>
<td>047-070-022</td>
<td>None</td>
<td>Agriculture (Vineyard)</td>
<td>Permanent Drainage Easement, Temporary Construction Easement</td>
</tr>
<tr>
<td>047-380-009</td>
<td>None</td>
<td>Agriculture (Vineyard)</td>
<td>Permanent Drainage Easement, Temporary Construction Easement</td>
</tr>
</tbody>
</table>

The build alternative will not require full acquisition of any parcels, nor will it result in the need to relocate residences or businesses. Therefore, RAP services or payments will not be required.

Avoidance, Minimization, and/or Mitigation Measures

No avoidance, minimization, and/or mitigation measures are proposed.

UTILITIES/EMERGENCY SERVICES

Affected Environment

There are five Pacific Gas & Electric (PG&E) 12 kilovolt utility poles on the south side of SR 121 that are proposed to be relocated.

Environmental Consequences

The relocations have not been determined but it is anticipated they will be relocated along the same southerly side within State right-of-way, and not in Huichica Creek. All of the affected utilities are anticipated to be relocated prior to the beginning of bridge construction. Two-way traffic flow will be maintained throughout construction, so emergency services will not be affected by the project.

Avoidance, Minimization, and/or Mitigation Measures

No avoidance, minimization and/or mitigation measures are proposed.
VISUAL/AESTHETICS

Regulatory Setting

The National Environmental Policy Act of 1969 as amended (NEPA) establishes that the federal government use all practicable means to ensure all Americans safe, healthful, productive, and aesthetically (emphasis added) and culturally pleasing surroundings (42 United States Code [USC] 4331[b][2]). To further emphasize this point, the Federal Highway Administration (FHWA) in its implementation of NEPA (23 USC 109[h]) directs that final decisions on projects are to be made in the best overall public interest taking into account adverse environmental impacts, including among others, the destruction or disruption of aesthetic values.

The California Environmental Quality Act (CEQA) establishes that it is the policy of the state to take all action necessary to provide the people of the state "with...enjoyment of aesthetic, natural, scenic and historic environmental qualities" (CA Public Resources Code [PRC] Section 21001[b]).

Affected Environment

A Visual Impact Assessment was completed for this project in July 2017.

The project location and setting provide the context for analyzing potential changes to the existing visual environment. The project corridor is defined as the area of land that is visible from, adjacent to, and outside the highway right-of-way, and is determined by topography, vegetation, and viewing distance.

Rolling hills interspersed with native oak woodland, riparian corridors, and agricultural vineyards characterize the surrounding landscape within the project vicinity. Due to the hilly and varied surface topography, numerous streams occur throughout the area including Huichica Creek and several of its tributaries. There is a high degree of continuity between types of land cover, and they create a mostly uninterrupted pattern that enhances the experience of visiting the area for tourists. Preserving the value of this experience is critically important as tourism is essential to the economy in the region. This portion of SR 121 is eligible for designation as a State Scenic Highway, and is designated as scenic by Napa County.

Environmental Consequences

Visual Resources and Resource Change

Visual resources in the project corridor are identified by visual character and visual quality. Resource change is determined by evaluating differences in visual character and visual quality between pre-project and post-project conditions. This is accomplished by envisioning conditions with the project in place before construction actually occurs.

By examining the vividness, intactness, and unity of the landscape, as these characteristics relate to the highway corridor and the specific project site, the visual quality of the landscape and the visual impact of the project can be better understood.

Overall, the SR 121 corridor through Napa County has a high degree of vividness, meaning that the landscape is memorable, possessing a strong visual character. It is typical within the project
area primarily due to the continuity of the following regional landforms and land-cover: agricultural vineyard, oak woodland, riparian corridor, and commercial winery.

The level of intactness, or the integrity of the visual order of the landscape, and the extent to which the landscape through the Napa Valley vineyards is free of non-harmonious visual intrusions is high. Visual resources along SR 121 are mostly intact with many charming views of the surrounding and immediate areas. There is some variety in types of railings, retaining walls and commercial development. Consistency in the built environment is critical in maintaining a high level of visual intactness. Replacing the triple box culvert with a bridge at the project site, including bridge rails and guardrails, will do little to reduce the current level of intactness, provided the rail is consistent with others already existing in the region.

The degree of unity, or the aesthetic integration and visual coherence of the natural and developed environment, within the project area is high. With a few exceptions, constructed elements, including the existing highway facility and the commercial vineyard development, blend well with their surroundings and appear to contribute to the visual appeal of the setting. The proposed project will be consistent with existing highway features seen at various places along SR 121 to the west of the city of Napa.

As with the existing nearby creek bridges, the bridge rails and metal beam guardrail will be the most apparent components seen by highway users as they pass by. Proposed avoidance and minimization measures discussed below will reduce the magnitude of perceptible changes related to these project features.

Although the degree of visual resource change resulting from implementation of the proposed project, will be low, tree removal will be necessary to provide access for construction equipment and crews to remove the existing culvert, excavate the embankment under the new bridge, and contour grade the creek banks at bridge-abutments. Construction will impact several large trees and will eliminate the existing canopy over the roadway permanently because the proposed additional shoulder width on the bridge will increase the amount of roadway surface. Planting replacement native riparian trees like walnut, bay laurel, and oak will minimize this change over time. The area below the highway where the bridge abutments will be constructed is vegetated and has a natural appearance that will be unchanged by the project in the long term once the area of disturbance recovers. Tree removal will be kept at a minimum; trees replanted to restore the visual effect of the riparian corridor, and trees and shrubs trimmed, rather than removed, wherever possible to create a clear path for construction equipment and for contour grading operations at the bridge. A detailed discussion of trees and their removal and replacement is located in the Natural Communities section of this chapter.

**Viewers and Viewer Response**

Although most motorists will not notice the proposed bridge other than the brief inconvenience of traffic disturbance created by construction, neighbors directly northeast of the project site (5500 Sonoma Highway, APN# 047-070-019) will have a high level of exposure, will be heavily impacted by construction, and are likely to be highly sensitive to any visual change. Other people with views to the road and the proposed project site, are absent, as there are no off-highway use areas in the immediate vicinity. Highway users, people with views from the road, are motorists and cyclists on SR 121. The proposed project will minimally effect both groups. This can be better understood by exploring the concepts of viewer exposure and viewer sensitivity.
Viewers of the project include persons travelling for pleasure on SR 121, including tourists and persons visiting wineries in Napa Valley, as well as those commuting and transporting goods between local towns. Tourists have a high level of sensitivity to visual impacts along the corridor because they visit the area expecting high quality scenery. The property owners directly adjacent to the project site are expected to possess a high level of sensitivity due to the proximity to their place of residence, with particular impacts to the property entrance located at 5500 Sonoma Highway directly to the northeast of the bridge. The average highway user’s response to project-related changes is expected to be low because their exposure to the project site is brief and they are primarily concerned with reaching their destination safely and quickly. Additionally, local values and attitudes toward landscape aesthetics include the retention of high visual quality.

The duration of viewer exposure to the proposed project site is short, as the project site is less than 100 feet in length, visible only briefly to highway users as they approach and pass over it. Traveling in either direction, the bridge site will be in view at close range for a matter of seconds. However, the property owner on to the northeast of the project site (5500 Sonoma Highway) will be exposed frequently, at close range, and for longer durations of time.

Figure 4 – Existing Condition of Metal Beam Guard Rail

The existing Metal Beam Guard Rail over Huichica Creek is the most common rail-type along the corridor.
Figure 5 – View of 5500 Sonoma Highway Entrance

Residential property entrance on the north side of the bridge.

Figure 6 – Existing Condition of State Route (SR) 121 Looking East

View looking east from SR 121 showing existing site conditions.
Visual Impact

Visual impacts are determined by identifying changes to visual resources and predicting viewer response to those changes. The preceding simulation in Figure 7 depicts the expected visual change as a result of the project.

Temporary impacts during construction will be related to the presence of construction workers, materials, and equipment. These involve one-way traffic control and temporary traffic barriers, phased construction of the new bridge, excavation of the embankment beneath the new bridge, and final grading operations. Most visual impacts, other than the elimination of the tree canopy over the road, will last only as long as construction is ongoing. Visual impacts related to disturbance created by heavy equipment accessing the creek channel will equal the time it will take for restoration of these areas to occur.

Following construction and site restoration, remaining visual impacts will be related to the new bridge structure. These impacts will be minimal considering that the proposed bridge will not change the existing grade of the roadway, and the railing will match others along the roadway. Trees and other vegetation removed to provide access to the creek channel by workers and equipment will be re-vegetated in time, and disturbed ground surfaces re-graded as needed. The only long-term visual effects derive from the wider shoulders on the bridge deck that create an increase in the total width of the roadway. The proposed see-through safety barriers on the bridge will be new features, but will be seen by most viewers briefly while approaching and passing over the bridge, and will be compatible with the visual characteristics of the setting.
The level of visual impact attributable to the project will be moderate even though the project will ultimately cause a low degree of resource change, due to the high sensitivity of visiting tourists visiting the area, and the proximity of the residential property. The visual character of the proposed bridge project will be compatible with the existing character of the corridor, and thus visual quality will not be diminished.

The proposed project will not affect views or scenic vistas in any way. The design of the proposed project will be consistent with the visual quality and character of the highway corridor. The project will not significantly impact any scenic resources as defined by the CEQA.

Avoidance, Minimization, and/or Mitigation Measures

Avoidance or minimization measures can diminish visual impacts of the project. Below are avoidance and/or minimization measures that will address specific visual issues, to be implemented with input from the District Landscape Architect:

- Hydroseed all disturbed areas with a mix of locally native vegetation to blend with the surrounding natural environment.

- Replant trees removed due to construction activities to restore riparian zone. (Trees and their removal and replacement are discussed in detail in the Natural Communities section of this chapter beginning on page 40, and shown in Tables 4 and 5 within that section.)

- Safety barriers for vehicles and cyclists will be constructed on the sides of the bridge deck. A see-through barrier such as the ST-70 barrier will likely be selected for aesthetic characteristics that are compatible with the visual characteristics of the setting, and consistent in appearance with other barriers in the vicinity. Final specifications will be determined during final project design with input from the Department Landscape Architect.

CULTURAL RESOURCES

Regulatory Setting

The term “cultural resources,” as used in this document, refers to the “built environment” (e.g., structures, bridges, railroads, water conveyance systems, etc.), places of traditional or cultural importance, and archaeological sites (both prehistoric and historic), regardless of significance. Under federal and state laws, cultural resources that meet certain criteria of significance are referred to by various terms including “historic properties,” “historic sites,” “historical resources,” and “tribal cultural resources.” Laws and regulations dealing with cultural resources include:

The National Historic Preservation Act (NHPA) of 1966, as amended, sets forth national policy and procedures for historic properties, defined as districts, sites, buildings, structures, and objects included in or eligible for listing in the National Register of Historic Places (NRHP). Section 106 of the NHPA requires federal agencies to take into account the effects of their undertakings on historic properties and to allow the Advisory Council on Historic Preservation (ACHP) the opportunity to comment on those undertakings, following regulations issued by the ACHP (36 Code of Federal Regulations [CFR] 800). On January 1, 2014, the First Amended Section 106 Programmatic Agreement (PA) among the Federal Highway Administration
(FHWA), the ACHP, the California State Historic Preservation Officer (SHPO), and the Department went into effect for Department projects, both state and local, with FHWA involvement. The PA implements the ACHP’s regulations, 36 CFR 800, streamlining the Section 106 process and delegating certain responsibilities to the Department. The FHWA’s responsibilities under the PA have been assigned to the Department as part of the Surface Transportation Project Delivery Program (23 United States Code [USC] 327).

The California Environmental Quality Act (CEQA) requires the consideration of cultural resources that are historical resources and tribal cultural resources, as well as “unique” archaeological resources. California Public Resources Code (PRC) Section 5024.1 established the California Register of Historical Resources (CRHR) and outlined the necessary criteria for a cultural resource to be considered eligible for listing in the CRHR and, therefore, a historical resource. Historical resources are defined in PRC Section 5020.1(j). In 2014, Assembly Bill 52 (AB 52) added the term “tribal cultural resources” to CEQA, and AB 52 is commonly referenced instead of CEQA when discussing the process to identify tribal cultural resources (as well as identifying measures to avoid, preserve, or mitigate effects to them). Defined in PRC Section 21074(a), a tribal cultural resource is a CRHR or local register eligible site, feature, place, cultural landscape, or object which has a cultural value to a California Native American tribe. Tribal cultural resources must also meet the definition of a historical resource. Unique archaeological resources are referenced in PRC Section 21083.2.

PRC Section 5024 requires state agencies to identify and protect state-owned historical resources that meet the NRHP listing criteria. It further requires the Department to inventory state-owned structures in its rights-of-way. Procedures for compliance with PRC Section 5024 are outlined in a Memorandum of Understanding (MOU)4 between the Department and SHPO, effective January 1, 2015. For most Federal-aid projects on the State Highway System, compliance with the Section 106 PA will satisfy the requirements of PRC Section 5024.

Affected Environment

Initial studies to identify cultural resources within the Area of Potential Effects were conducted throughout 2015 and 2016. The first Historic Survey Property Report (HPSR) was prepared in July 2016 and documented initial identification efforts as well as evaluation of built resources.

The Department contacted the Native American Heritage Commission on February 13, 2015 to request a search of their sacred lands files and a list of interested Native American individuals and parties and their contact information. The Department sent letters on June 1, 2015, requesting input from these parties and with project information and location maps. The Yocha Dehe Wintun Nation responded on June 26, 2015 with a letter stating their interest in continuing consultation about the project. The Department met with Yocha Dehe representatives to provide more maps and information. Multiple follow-up calls have not been returned. The Cortina Band of Indians requested an electronic version of project information. A follow-up call made on July 6, 2015 was not returned. The Mishewal Wappo Tribe of Alexander valley expressed interest in monitoring excavation and construction activities. The Department is in regular communication with the Mishewal Wappo as the project progresses.

The Area of Potential Effects (APE) consists of all locations where ground-disturbing activities, including road demolition and widening, bridge construction, guardrail installation, shoulder

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4 The MOU is located on the SER at [http://www.dot.ca.gov/ser/vol2/5024mou_15.pdf](http://www.dot.ca.gov/ser/vol2/5024mou_15.pdf)
backing, fish passage work, and grading for access roads, as well as equipment staging, will
take place. The archaeological APE includes previously recorded archaeological resources
occurring within the proposed project footprint. The archaeological APE is an irregular polygon
approximately 1,175 feet long east-west and 2,000 feet at the widest point north-south,
enscaping approximately 25 acres.

The APE for architectural history includes all proposed project-related activities as well as
portions of the adjacent private parcels containing structures evaluated as a result of this project
and encompasses approximately 85 acres. The APE extends to the north of the bridge to
include two full parcels, Assessor’s Parcel (APN) 047-070-019, upon which are nine built
resources, and APN 047-070-022, which is cultivated with grapevines. Approximately 500
square feet of a third parcel (APN 047-070-021) to the northeast of the bridge is included in the
APE as well as approximately 15 acres of a fourth parcel (APN 047-380-009) to the south of the
bridge. Per Attachment 3 of the PA, the parcels to the northeast and the south have not been
included in their entirety because they are large agricultural parcels with no built resources on
them. The vertical APE is from the ground surface to a depth of 55 feet, the maximum depth for
bridge abutment foundations and supporting cast-in-drilled-hole (CIDH) piles.

A records search was performed at the Northwest Information Center (NWIC) on April 7, 2015
(NWIC File No. 14-230). Three archaeological resources were identified within the
archaeological APE: CA-NAP-189/H (P-28-00175) and the reburial site associated with CA-
NAP-189/H (included under the same identifier), both previously determined eligible for the
National Register of Historic Places (National Register) under Criterion D on March 30, 2005;
and CA-NAP-190 (P-28-00176), which has never been formally evaluated for the National
Register. Intensive pedestrian survey of the APE was conducted on June 2, 2015 and May 25,
2016. The previously identified sites were relocated, and additional cultural materials were
observed within the APE along the banks of Huichica Creek on private property. The result of
archival research, Native American consultation, and surface survey were presented in an

The July 2016 HPSR also included a Historic Resources Evaluation Report (HRER), dated June
2016, which documented the evaluation of one built resource for National Register eligibility. An
intensive field survey was conducted to account for all of the buildings in the architectural history
APE on June 2 and November 9, 2015. One built resource, a farm complex consisting of 10
buildings located at 5500 Sonoma Highway, was identified. Requests for information were sent
on November 17, 2015; no response was received from either the Napa County Historical
Society or Napa County Landmarks. The HRER determined that the resource is not eligible for
inclusion in the National Register.

Also documented in the July 2016 HPSR is the fact that the subsurface testing required to
clarify boundaries of known archaeological sites and identify previously unrecorded resources
associated with materials observed on the surface was not possible due to access issues. The
Department was denied entry onto the private property to conduct subsurface testing.

Environmental Consequences

Due to the private property access issues that precluded the identification of archaeological
resources within the APE, it was determined that the Undertaking as a whole will have an
adverse effect upon CA-NAP-189/H, and will result in a substantial adverse change to the
resource under the CEQA. This determination was documented in a Supplemental HPSR with
an attached Finding of Adverse Effect, both dated December 2016, and concurred by the SHPO on January 13, 2017. This correspondence is located in Appendix F.

The Department received concurrence from the SHPO that the previously described built resource located at 5500 Sonoma Highway is not eligible for inclusion in the National Register on August 25, 2016. This correspondence is also located in Appendix F. Additionally, the property is not considered to be a historical resource for the purposes of compliance with the CEQA.

The July 2016 HPSR documented that the Department will continue to consult with the SHPO on assessment of effects to CA-NAP-189/H, the associated reburial site, and CA-NAP-190.

There are no Section 4(f) historic resource types within the project vicinity, and therefore the provisions of Section 4(f) are not triggered.

If cultural materials are discovered during construction, all earth-moving activity within and around the immediate discovery area will be diverted until a qualified archaeologist can assess the nature and significance of the find.

If human remains are discovered, State Health and Safety Code Section 7050.5 states that further disturbances and activities shall stop in any area or nearby area suspected to overlie remains, and the County Coroner contacted. Pursuant to CA Public Resources Code (PRC) Section 5097.98, if the remains are thought to be Native American, the coroner will notify the Native American Heritage Commission (NAHC), which will then notify the Most Likely Descendent (MLD). At this time, the person who discovered the remains will contact Brett Rushing, District Office Chief, Office of Cultural Resource Studies, Department of Transportation – District 4, so that they may work with the MLD on the respectful treatment and disposition of the remains. Further provisions of PRC 5097.98 are to be followed as applicable.

**Avoidance, Minimization, and/or Mitigation Measures**

An executed Memorandum of Agreement (MOA) with the SHPO and the Department’s Cultural Studies Office that stipulates mitigation measures is located in Appendix G. Mitigation measures will be implemented through methods specified in an Archaeological Treatment Plan (ATP), appended to the MOA. The ATP includes provisions for avoidance and mitigation to the historic resources in the project area such as data recovery, archaeological monitoring, establishment of environmentally sensitive areas (ESAs), and continued consultation with Native American tribes.

Under the CEQA, the mitigation measures required to bring project impacts to a level of Less than Significant with Mitigation include the previously described ATP and data recovery.

The other archaeological resources within the APE, CA-NAP-190 and the reburial site associated with CA-NAP-189/H are outside of the project footprint and will be protected in their entirety from inadvertent project impacts through establishment of ESAs.
Physical Environment

HYDROLOGY AND FLOODPLAIN

Regulatory Setting

Executive Order (EO) 11988 (Floodplain Management) directs all federal agencies to refrain from conducting, supporting, or allowing actions in floodplains unless it is the only practicable alternative. The Federal Highway Administration requirements for compliance are outlined in 23 Code of Federal Regulations (CFR) 650 Subpart A.

To comply, the following must be analyzed:

- The practicability of alternatives to any longitudinal encroachments.
- Risks of the action.
- Impacts on natural and beneficial floodplain values.
- Support of incompatible floodplain development.
- Measures to minimize floodplain impacts and to preserve/restore any beneficial floodplain values affected by the project.

The base floodplain is defined as "the area subject to flooding by the flood or tide having a one percent chance of being exceeded in any given year." An encroachment is defined as "an action within the limits of the base floodplain."

Affected Environment


The project is located in an "Area of Undetermined Flood Hazard" identified by the Flood Insurance Rate Map (FIRM) for Napa County, California, Map Number 06055C515E, effective September 26, 2008. This FIRM is shown in Appendix J.

Environmental Consequences

The waterway opening of the proposed bridge is significantly larger than the existing culverts, so the water surface during a 100-year storm will be lowered. This will have no impact on the floodplain at the bridge location.

There is no significant floodplain encroachment. The Floodplain Evaluation Report Summary shows the following findings for this project:

- The proposed action is not a longitudinal encroachment of the base floodplain.
• The risks associated with the implementation of the proposed action are not significant.

• The proposed action will not support probable incompatible floodplain development.

• There are no significant impacts on natural and beneficial floodplain values.

• There are no special mitigation measures necessary to minimize impacts on the floodplain, or to restore and preserve natural and beneficial floodplain values.

• The proposed action does not constitute a significant floodplain encroachment as defined in 23 CFR, Section 650.105(q).

• Location Hydraulic Studies that document these answers are on file.

Avoidance, Minimization, and/or Mitigation Measures

No avoidance, minimization and/or mitigation measures are proposed.

WATER QUALITY AND STORM WATER RUNOFF

Regulatory Setting

Federal Requirements: Clean Water Act

In 1972, Congress amended the Federal Water Pollution Control Act, making the addition of pollutants to the waters of the United States (U.S.) from any point source⁵ unlawful unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. This act and its amendments are known today as the Clean Water Act (CWA). Congress has amended the act several times. In the 1987 amendments, Congress directed dischargers of storm water from municipal and industrial/construction point sources to comply with the NPDES permit scheme. The following are important CWA sections:

• Sections 303 and 304 require states to issue water quality standards, criteria, and guidelines.

• Section 401 requires an applicant for a federal license or permit to conduct any activity that may result in a discharge to waters of the U.S. to obtain certification from the state that the discharge will comply with other provisions of the act. This is most frequently required in tandem with a Section 404 permit request (see below).

• Section 402 establishes the NPDES, a permitting system for the discharges (except for dredge or fill material) of any pollutant into waters of the U.S. Regional Water Quality Control Boards (RWQCB) administer this permitting program in California. Section 402(p) requires permits for discharges of storm water from industrial/construction and municipal separate storm sewer systems (MS4s).

⁵ A point source is any discrete conveyance such as a pipe or a man-made ditch.
- Section 404 establishes a permit program for the discharge of dredge or fill material into waters of the United States. This permit program is administered by the U.S. Army Corps of Engineers (USACE).

The goal of the CWA is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters."

The USACE issues two types of 404 permits: General and Individual. There are two types of General permits: Regional and Nationwide. Regional permits are issued for a general category of activities when they are similar in nature and cause minimal environmental effect. Nationwide permits are issued to allow a variety of minor project activities with no more than minimal effects.

Ordinarily, projects that do not meet the criteria for a Regional or Nationwide Permit may be permitted under one of the USACE's Individual permits. There are two types of Individual permits: Standard permits and Letters of Permission. For Individual permits, the USACE decision to approve is based on compliance with U.S. Environmental Protection Agency’s (U.S. EPA) Section 404(b)(1) Guidelines (40 Code of Federal Regulations [CFR] Part 230), and whether the permit approval is in the public interest. The Section 404(b)(1) Guidelines (Guidelines) were developed by the U.S. EPA in conjunction with the USACE, and allow the discharge of dredged or fill material into the aquatic system (waters of the U.S.) only if there is no practicable alternative which would have less adverse effects. The Guidelines state that the USACE may not issue a permit if there is a least environmentally damaging practicable alternative (LEDPA) to the proposed discharge that would have lesser effects on waters of the U.S. and not have any other significant adverse environmental consequences. According to the Guidelines, documentation is needed that a sequence of avoidance, minimization, and compensation measures has been followed, in that order. The Guidelines also restrict permitting activities that violate water quality or toxic effluent standards, jeopardize the continued existence of listed species, violate marine sanctuary protections, or cause "significant degradation" to waters of the U.S. In addition, every permit from the USACE, even if not subject to the Section 404(b)(1) Guidelines, must meet general requirements. See 33 CFR 320.4. A discussion of the LEDPA determination, if any, for the document is included in the Wetlands and Other Waters section.

State Requirements: Porter-Cologne Water Quality Control Act

California's Porter-Cologne Act, enacted in 1969, provides the legal basis for water quality regulation within California. This act requires a "Report of Waste Discharge" for any discharge of waste (liquid, solid, or gaseous) to land or surface waters that may impair beneficial uses for surface and/or groundwater of the state. It predates the CWA and regulates discharges to waters of the state. Waters of the state include more than just waters of the U.S., like groundwater and surface waters not considered waters of the U.S. Additionally, it prohibits discharges of "waste" as defined, and this definition is broader than the CWA definition of "pollutant." Discharges under the Porter-Cologne Act are permitted by Waste Discharge Requirements (WDRs) and may be required even when the discharge is already permitted or exempt under the CWA.

6 The U.S. EPA defines "effluent" as "wastewater, treated or untreated, that flows out of a treatment plant, sewer, or industrial outfall."
The State Water Resources Control Board (SWRCB) and RWQCBs are responsible for establishing the water quality standards (objectives and beneficial uses) required by the CWA and regulating discharges to ensure compliance with the water quality standards. Details about water quality standards in a project area are included in the applicable RWQCB Basin Plan. In California, Regional Boards designate beneficial uses for all water body segments in their jurisdictions and then set criteria necessary to protect these uses. As a result, the water quality standards developed for particular water segments are based on the designated use and vary depending on that use. In addition, the SWRCB identifies waters failing to meet standards for specific pollutants. These waters are then state-listed in accordance with CWA Section 303(d). If a state determines that waters are impaired for one or more constituents and the standards cannot be met through point source or non-point source controls (NPDES permits or WDRs), the CWA requires the establishment of Total Maximum Daily Loads (TMDLs). TMDLs specify allowable pollutant loads from all sources (point, non-point, and natural) for a given watershed.

State Water Resources Control Board and Regional Water Quality Control Boards

The SWRCB administers water rights, sets water pollution control policy, and issues water board orders on matters of statewide application, and oversees water quality functions throughout the state by approving Basin Plans, TMDLs, and NPDES permits. RWQCBs are responsible for protecting beneficial uses of water resources within their regional jurisdiction using planning, permitting, and enforcement authorities to meet this responsibility.

- National Pollutant Discharge Elimination System (NPDES) Program

Municipal Separate Storm Sewer Systems (MS4)

Section 402(p) of the CWA requires the issuance of NPDES permits for five categories of storm water discharges, including Municipal Separate Storm Sewer Systems (MS4s). An MS4 is defined as “any conveyance or system of conveyances (roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, human-made channels, and storm drains) owned or operated by a state, city, town, county, or other public body having jurisdiction over storm water, that is designed or used for collecting or conveying storm water.” The SWRCB has identified the Department as an owner/operator of an MS4 under federal regulations. The Department’s MS4 permit covers all Department rights-of-way, properties, facilities, and activities in the state. The SWRCB or the RWQCB issues NPDES permits for five years, and permit requirements remain active until a new permit has been adopted.

The Department’s MS4 Permit, Order No. 2012-0011-DWQ (adopted on September 19, 2012 and effective on July 1, 2013), as amended by Order No. 2014-0077-DWQ (effective July 1, 2014) and Order No. 2015-0036-EXEC (effective April 7, 2015) has three basic requirements:

1. The Department must comply with the requirements of the Construction General Permit (see below);

2. The Department must implement a year-round program in all parts of the State to effectively control storm water and non-storm water discharges; and
3. The Department storm water discharges must meet water quality standards through implementation of permanent and temporary (construction) Best Management Practices (BMPs), to the Maximum Extent Practicable, and other measures as the SWRCB determines to be necessary to meet the water quality standards.

To comply with the permit, the Department developed the Statewide Storm Water Management Plan (SWMP) to address storm water pollution controls related to highway planning, design, construction, and maintenance activities throughout California. The SWMP assigns responsibilities within the Department for implementing storm water management procedures and practices as well as training, public education and participation, monitoring and research, program evaluation, and reporting activities. The SWMP describes the minimum procedures and practices the Department uses to reduce pollutants in storm water and non-storm water discharges. It outlines procedures and responsibilities for protecting water quality, including the selection and implementation of Best Management Practices (BMPs). The proposed project will be programmed to follow the guidelines and procedures outlined in the latest SWMP to address storm water runoff.

Construction General Permit

Construction General Permit, Order No. 2009-2009-DWQ (adopted on September 2, 2009 and effective on July 1, 2010), as amended by Order No. 2010-0014-DWQ (effective February 14, 2011) and Order No. 2012-0006-DWQ (effective on July 17, 2012). The permit regulates storm water discharges from construction sites that result in a Disturbed Soil Area (DSA) of one acre or greater, and/or are smaller sites that are part of a larger common plan of development. By law, all storm water discharges associated with construction activity where clearing, grading, and excavation result in soil disturbance of at least one acre must comply with the provisions of the General Construction Permit. Construction activity that results in soil disturbances of less than one acre is subject to this Construction General Permit if there is potential for significant water quality impairment resulting from the activity as determined by the RWQCB. Operators of regulated construction sites are required to develop storm water pollution prevention plans; to implement sediment, erosion, and pollution prevention control measures; and to obtain coverage under the Construction General Permit.

The 2009 Construction General Permit separates projects into Risk Levels 1, 2, or 3. Risk levels are determined during the planning and design phases, and are based on potential erosion and transport to receiving waters. Requirements apply according to the Risk Level determined. For example, a Risk Level 3 (highest risk) project would require compulsory storm water runoff pH and turbidity monitoring, and before construction and after construction aquatic biological assessments during specified seasonal windows. For all projects subject to the permit, applicants are required to develop and implement an effective Storm Water Pollution Prevention Plan (SWPPP). In accordance with the Department’s Standard Specifications, a Water Pollution Control Program (WPCP) is necessary for projects with DSA less than one acre.

Section 401 Permitting

Under Section 401 of the CWA, any project requiring a federal license or permit that may result in a discharge to a water of the United States must obtain a 401 Certification, which certifies that the project will be in compliance with state water quality standards. The most common federal permits triggering 401 Certification are CWA Section 404 permits issued by
the USACE. The 401 permit certifications are obtained from the appropriate RWQCB, dependent on the project location, and are required before the USACE issues a 404 permit.

In some cases, the RWQCB may have specific concerns with discharges associated with a project. As a result, the RWQCB may issue a set of requirements known as Waste Discharge Requirements (WDRs) under the State Water Code (Porter-Cologne Act) that define activities, such as the inclusion of specific features, effluent limitations, monitoring, and plan submittals that are to be implemented for protecting or benefiting water quality. WDRs can be issued to address both permanent and temporary discharges of a project.

Affected Environment

A Water Quality Study was completed for this project in August 2017.

The project site is within Hydrologic Sub-Area (HSA) 206.50, specifically within the Carneros Creek-Frontal San Pablo Bay Estuaries sub-watershed (Hydrologic Unit Code: 180500020501). Runoff from the site directly discharges to Huichica Creek. According to the Department Storm Drain System Inventory, a discharge point is located at PM 0.748 along the south side of SR 121. From the project location, flow proceeds in a south-southeasterly direction for approximately 28,100 feet to the confluence with the Napa Slough. From Napa Slough, flow continues easterly for approximately 13,200 feet, to the Napa River. From Napa River, flow continues for approximately 51,500 feet, until it discharges to San Pablo Bay at Carquinez Strait. The total flowpath is approximately 92,800 feet, or 17.6 miles. Huichica Creek is not Clean Water Act (CWA) Section 303(d) listed as a water body with limited water quality segments. The project is located within the San Francisco Bay Regional Water Quality Control RWQCB Region 2, and the Napa County Municipal Separate Storm Sewer System (MS4).

The RWQCB Region 2 Basin Plan establishes beneficial uses for waterways and water bodies within the region. Beneficial uses include: Agricultural Supply (AGR), Areas of Special Biological Significance (ASBS), Municipal and Domestic Supply (MUN), Freshwater Replenishment (FRSH), Groundwater Recharge (GWR), Industrial Service Supply (IND), Industrial Process Supply (PRO), Commercial and Sport Fishing (COMM), Shellfish Harvesting (SHELL), Cold Freshwater Habitat (COLD), Estuarine Habitat (EST), Marine Habitat (MAR), Fish Migration (MIGR), Preservation of Rare and Endangered Species (RARE), Fish Spawning (SPWN), Warm Freshwater Habitat (WARM), Wildlife Habitat (WILD), Contact/Non-Contact Water Recreation (REC1/REC2), and Navigation (NAV). Beneficial uses are listed for Huichica Creek and include: COLD, MIGR, RARE, SPWN, WARM, WILD, REC-1, and REC-2.

Concerning groundwater resources, the project site is included as part of the Department of Water Resources (DWR) Bulletin 118, as the “Napa-Sonoma Lowlands” sub-basin (number 2-002.03). Per the Basin Plan, beneficial uses for this sub-basin include: MUN, PRO, IND, and AGR. Further, from the DWR Groundwater Information Center Interactive Map Application, the location has been assigned a California Statewide Groundwater Elevation Monitoring (CASGEM) prioritization of “Very Low” and a potential subsidence rating described as “Insufficient Data”. Though there is “insufficient data” for subsidence, the sub-basins to the east and west are “Low to Medium” and “Medium to High”, respectively.

Environmental Consequences

As proposed construction operations will occur within Huichica Creek, a Clean Water Act (CWA) Section 404 permit will be required. The 404 permit will be issued by the United States Army
Corps of Engineers (USACE), with the tandem 401 certification required from RWQCB Region 2.

There will be an increase of pollutant-generating impervious surface, due to the new bridge and roadway widening. This net new impervious surface quantity is anticipated to be approximately 0.096 acre. As the bridge will replace the existing roadway at this location, the footprint of the bridge that corresponds to the alignment of the roadway is considered as reworked impervious surface; this quantity is anticipated to be approximately 0.036 acre. The summation of these results is approximately 0.13 acre of new impervious surface. The quantity of DSA is contingent upon the footprint of the proposed widening and fish passage, as well as any temporary staging, stockpiling, and access roads. Considering these, the total DSA is anticipated to be approximately 0.40 acre. These quantities will be refined during the subsequent design phase of the project.

Potential temporary impacts to existing water quality will result from staging and active construction areas, which could result in the release of fluids, concrete material, construction debris, sediment, and litter beyond the perimeter of the site. Impacts may include a change in localized pH (potential of hydrogen) and turbidity of Huichica Creek. This can occur by a variety of means, including, but not exclusive to unstabilized land surface, uncovered stock piles, poor equipment maintenance, careless material handling, and lack of perimeter control.

Potential long-term impacts to existing water quality are the same for the existing facility, including the deposition and transport of sediment and vehicular-related pollutants, as well as potential for flooding. Permanent impacts are also manifest by any grading of the creek banks and bed.

Avoidance, Minimization, and/or Mitigation Measures

Temporary Impacts

As stated above, the primary concern is unintended discharge beyond the perimeter of the construction site. Temporary Construction Site Best Management BMPs, such as silt fence, fiber roll, drainage inlet protection, concrete wash-out, street sweeping, and construction entrance will be deployed for sediment control and material management. These BMPs are representative of those which may be recommended during the subsequent design phase of the project. Additionally, a creek diversion will be implemented, in order to provide for a dry working environment within the creek channel. This can take different forms, though gravel bag cofferdams are anticipated. An option requiring a smaller footprint would be the installation of sheet-pile cofferdams.

Permanent Impacts

As a 401 certification will be required, implementation of permanent stormwater treatment measures will be included as a condition, equivalent to the new impervious surface of 0.13 acre. The preferred Treatment BMP type is bioretention, which may be designed as either a basin or swale configuration. As the soils within the project limits may provide adequate infiltration, site soils may remain for any Treatment BMP. A swale exists north of the SR 121 alignment, west of the bridge. If feasible, this swale may be modified to serve as a Treatment BMP.
Water Pollution Control Program

As stated above, as the DSA is anticipated to be at least 0.40 acre, a WPCP will be required. Prior to commencement of construction activities, a WPCP must be prepared by the contractor and approved by the Department, pursuant to Department 2015 Standard Specification 13-2. The WPCP addresses potential temporary impacts via implementation of appropriate BMPs, such as those mentioned above, to the maximum extent practicable. Further, sampling and monitoring of construction site discharge point(s) may be recommended as part of the WPCP during the subsequent design phase of the project.

GEOLOGY/SOILS/SEISMIC/TOPOGRAPHY

Regulatory Setting

For geologic and topographic features, the key federal law is the Historic Sites Act of 1935, which establishes a national registry of natural landmarks and protects "outstanding examples of major geological features." Topographic and geologic features are also protected under the California Environmental Quality Act (CEQA).

This section also discusses geology, soils, and seismic concerns as they relate to public safety and project design. Earthquakes are prime considerations in the design and retrofit of structures. The Department's Office of Earthquake Engineering is responsible for assessing the seismic hazard for Department projects. Structures are designed using the Department's Seismic Design Criteria (SDC). The SDC provides the minimum seismic requirements for highway bridges designed in California. A bridge's category and classification will determine its seismic performance level and which methods are used for estimating the seismic demands and structural capabilities. For more information, please see the Department's Division of Engineering Services, Office of Earthquake Engineering, Seismic Design Criteria.

Affected Environment

A Structures Preliminary Geotechnical Report for Huichica Bridge Replacement Project was prepared in July 2012; and a Preliminary Seismic Design Recommendations memorandum was prepared in January 2017 for the project.

Geology and Subsurface Conditions

Huichica Creek is located in southern Napa County, near the city of Napa. The site lies at approximately 120 feet in elevation above sea level. The area topography is gently rolling small hills of up to 200 feet in elevation. The project site lies on the Quaternary Huichica and Glen Ellen formations. These are fluvial deposits of gravel, sand, silt and clay.

The As-built Log-of-Test Borings (LOTB) from 1961 include one 2.5-inch wet rotary boring (B-1), drilled on the east side of the creek, as well as one 2.25-inch Cone Penetrometer Test hole (B-2) drilled on the west side of the creek. Based on boring B-1 drilled to a depth of 41 feet, the geology at the site consists of dense to very dense clayey sandy silt and stiff to hard sandy silty clay down to the maximum drilling depth.
Groundwater and Liquefaction Potential

Groundwater was not measured at the time of drilling. However, the LOTBs show the creek at an elevation of 108.6 feet, corresponding to about 11 feet below ground. Due to the nature of materials at the site which consist of mostly dense to very dense clayey sandy silt and stiff to hard sandy silty clay, the potential for liquefaction during a seismic event does not exist.

Seismicity

According to the latest California Seismic Hazard Map (Version 2.3.08), which is based on the United States Geological Survey (USGS) and California Geological Survey (CGS) maps, the principal active faults are the West Napa Fault Zone (Browns valley section Strike-slip) with Maximum Magnitude, $M_{max}=6.6$, located about 3 miles east of the site, Rodgers Creek (Strike-slip) with Maximum Magnitude, $M_{max}=7.3$, located about 7.2 miles west/northwest of the site, and the West Napa Fault Zone (Napa County Airport section Strike-slip) with Maximum Magnitude, $M_{max}=6.6$, located about 4.8 miles southeast of the site.

Fault Rupture Potential

This area is not mapped as active as part of the Alquist Priolo Special Studies Zone Act, and not zoned for fault rupture by the CGS. Therefore, the potential for rupture does not exist.

Environmental Consequences

There are no hazardous geotechnical conditions at the project site. The potential impacts from ground-shaking are minimal.

Avoidance, Minimization, and/or Mitigation Measures

No avoidance, minimization, and/or mitigation measures are proposed.

PALEONTOLOGY

Regulatory Setting

Paleontology is a natural science focused on the study of ancient animal and plant life as it is preserved in the geologic record as fossils.

A number of federal statutes specifically address paleontological resources, their treatment, and funding for mitigation as a part of federally authorized projects.

16 United States Code (USC) 431-433 (the "Antiquities Act") prohibits appropriating, excavating, injuring, or destroying any object of antiquity situated on federal land without the permission of the Secretary of the Department of Government having jurisdiction over the land. Fossils are considered "objects of antiquity" by the Bureau of Land Management, the National Park Service, the Forest Service, and other federal agencies.

16 United States Code (USC) 461-467 (the National Registry of Natural Landmarks) establishes the National Natural Landmarks (NNL) program. Under this program property owners agree to protect biological and geological resources such as paleontological features. Federal agencies
and their agents must consider the existence and location of designated NNLs, and of areas found to meet the criteria for national significance, in assessing the effects of their activities on the environment under NEPA.

16 United States Code (USC) 470aaa (the Paleontological Resources Preservation Act) prohibits the excavation, removal, or damage of any paleontological resources located on federal land under the jurisdiction of the Secretaries of the Interior or Agriculture without first obtaining an appropriate permit. The statute establishes criminal and civil penalties for fossil theft and vandalism on federal lands.

23 United States Code (USC) 1.9(a) requires that the use of federal-aid funds must be in conformity with federal and state law.

23 United States Code (USC) 305 authorizes the appropriation and use of federal highway funds for paleontological salvage as necessary by the highway department of any state, in compliance with 16 USC 431-433 above and state law.

Under California law, paleontological resources are protected by the California Environmental Quality Act (CEQA).

**Affected Environment**

A Paleontological Identification Report was completed for this project in February 2017.

**Site Geology**

The project area is located in southern Napa County, Huichica area, which is bordered by the Carneros Valley to the east and the southern extensions of Arrowhead Mountain to the west. The project lies in the northern Coast Range Province.

The project site is underlain by recent stream bed sediments which overlie surficial alluvium of Holocene and late Pleistocene age. Immediately north of SR 121 lies the Quaternary Huichica and Glen Ellen Formations. At the bridge location, these units are indistinguishable. Alluvium is sand, silt, and gravel deposited in fan, valley fill, terrace, or basin environments. The Huichica and Glen Ellen Formations are composed of massive, yellow siltstone, well-sorted quartz-lithic sandstone, and poorly consolidated gravel. Detritus includes varicolored chert, quartz-lithic sandstone, biotite wacke, rhyolite, metachert, and tuff reflecting derivation from Franciscan Complex, Great Valley Complex, and older Tertiary rocks.

**Paleontological Sensitivity of Geologic Units**

The paleontological sensitivity, per Department guidelines, of each geologic unit that underlies or surrounds the project area is described as follows:

For the recent stream bed sediments and the alluvium deposits of Holocene and late Pleistocene age, no fossils have been found in these unconsolidated deposits, per University of California Paleontology Museum Database. Additionally, these recent deposits are generally too young geologically speaking to contain significant fossils. Therefore, these deposits have a "low potential" to contain significant paleontological resources.
Based on a California Public Utilities Commission 2013 Pacific Gas & Electric (PG&E) substation Draft CEQA Initial Study, the sedimentary rocks of the Huichica and Glen Ellen Formation have not been identified as important paleontological resource formations. Therefore, these formations have a "low potential" to contain significant paleontological resources.

Environmental Consequences

Based on the low paleontological sensitivity of associated geologic units, and the project's excavation parameters, the proposed project will not disturb any paleontologically sensitive resources.

Avoidance, Minimization, and/or Mitigation Measures

No avoidance, minimization, and/or mitigation measures are proposed.
Biological Environment

NATURAL COMMUNITIES

This section of the document discusses natural communities of concern. The focus of this section is on biological communities, not individual plant or animal species. This section also includes information on wildlife corridors and habitat fragmentation. Wildlife corridors are areas of habitat used by wildlife for seasonal or daily migration. Habitat fragmentation involves the potential for dividing sensitive habitat and thereby lessening its biological value.

Habitat areas that have been designated as critical habitat under the Federal Endangered Species Act are discussed below in the Threatened and Endangered Species section. Wetlands and other waters are also discussed below.

Affected Environment

A Natural Environment Study (NES) was completed for this project in August 2017.

A plant and habitat biological study area (BSA) was defined that consists of the footprint of the project as well as all areas that may be affected directly or indirectly by the construction activity or action. Wildlife with the potential to occur within the BSA includes species associated with rural development, agriculture, riparian, creek, and ruderal grassland habitats. Species most likely to use the work areas include fish species such as western mosquitofish (Gambusia affinis) and California roach (Hesperoleucus symmetricus); bird species such as American crow (Corvus brachyrhynchos), American cliff swallow (Petrochelidon pyrrhonota), black phoebe (Sayornis nigricans); reptile and amphibian species such as Pacific tree frog (Pseudacris regilla), fence lizard (Sceloporus occidentalis), and various snake species; and larger mammalian species such as striped skunks (Mephitis mephitis), Virginia opossum (Didelphis virginiana), raccoon (Procyon lotor), and mule deer (Odocoileus hemionus).

Creek and riparian habitat covers approximately 17.6% of the plant and habitat BSA. The dominant vegetation type within the BSA is ruderal (44.4%, See Table 2 below). The remaining habitat types include trees (0.9%), and vineyard (1.3%). Un-vegetated areas consisting of pavement, dirt roads, and barren ground cover 35.8% of the BSA.

<table>
<thead>
<tr>
<th>Habitat type</th>
<th>Acres</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>pavement/barren</td>
<td>2.83</td>
<td>35.8</td>
</tr>
<tr>
<td>riparian</td>
<td>1.11</td>
<td>14.1</td>
</tr>
<tr>
<td>ruderal</td>
<td>3.51</td>
<td>44.4</td>
</tr>
<tr>
<td>trees</td>
<td>0.07</td>
<td>0.9</td>
</tr>
<tr>
<td>vineyard</td>
<td>0.10</td>
<td>1.3</td>
</tr>
<tr>
<td>Waters of the US</td>
<td>0.28</td>
<td>3.5</td>
</tr>
</tbody>
</table>

Tree Survey

Department biologists and surveyors conducted a tree survey within the plant and habitat BSA in December 2016 and January 2017. During the wetland delineation, Department-contracted biologists delineated the riparian area along the outer edge of tree vegetation that at least
shaded the top of the Huichica Creek outer banks. A portion of both the riparian and creek area will be impacted during the removal and replacement of the bridge and the majority of impacts will occur during fish passage construction.

Fourteen tree species totaling 181 individuals were mapped and measured within the plant and habitat BSA (see Table 3 below) within the mapped riparian area.

Table 3 – Tree Species Mapped within the Riparian Area

<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Average stems</th>
<th>Number of trees by Diameter at Breast Height (DBH) class (inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acer macrophyllum</td>
<td>Big leaf maple</td>
<td>1.7</td>
<td>0                2                0                0                1                0</td>
</tr>
<tr>
<td>Aesculus californica</td>
<td>CA Buckeye</td>
<td>3.0</td>
<td>2                4                1                1                0                0</td>
</tr>
<tr>
<td>Allanthus altissima</td>
<td>Tree of heaven</td>
<td>2.9</td>
<td>5                7                1                2                1                0</td>
</tr>
<tr>
<td>Alnus rhombifolia</td>
<td>White alder</td>
<td>9.9</td>
<td>4                5                7                0                0                0</td>
</tr>
<tr>
<td>Eucalyptus sp.</td>
<td>Eucalyptus</td>
<td>8.5</td>
<td>1                0                1                0                0                1</td>
</tr>
<tr>
<td>Fraxinus latifolia</td>
<td>Oregon ash</td>
<td>2.0</td>
<td>4                7                0                0                0                0</td>
</tr>
<tr>
<td>Juglans hindsi</td>
<td>Black walnut</td>
<td>2.1</td>
<td>4                12               4                3                1                2</td>
</tr>
<tr>
<td>Platanus racemosa</td>
<td>CA Sycamore</td>
<td>6.0</td>
<td>0                0                0                1                0                0</td>
</tr>
<tr>
<td>Prunus sp.</td>
<td>Cherry</td>
<td>7.0</td>
<td>0                2                1                0                0                0</td>
</tr>
<tr>
<td>Quercus agrifolia</td>
<td>Coast live oak</td>
<td>2.2</td>
<td>17               19               10               2                2                4</td>
</tr>
<tr>
<td>Quercus lobata</td>
<td>Valley oak</td>
<td>1.0</td>
<td>0                0                0                1                0                2</td>
</tr>
<tr>
<td>Salix laevigata</td>
<td>Red willow</td>
<td>8.6</td>
<td>3                11               8                0                1                0</td>
</tr>
<tr>
<td>Sambucus nigra</td>
<td>Black elderberry</td>
<td>8.0</td>
<td>1                0                0                0                0                0</td>
</tr>
<tr>
<td>Uvullicaria californica</td>
<td>Bay laurel</td>
<td>3.0</td>
<td>5                4                3                0                0                1</td>
</tr>
</tbody>
</table>

Of these fourteen tree species, eleven are native. The three non-native species are eucalyptus (Eucalyptus sp.), tree of heaven (Allanthus altissima), and cultivated cherry (Prunus sp.). Common understory layer species included mugwort (Artemisia douglasiana), California blackberry (Rubus ursinus), Himalayan blackberry (Rubus amoenicus), and stinging nettle (Urtica dioica).

Environmental Consequences

The Department proposes to conduct most of the fish passage work within the existing outer banks of Huichica Creek. This work is best approximated by the mapped Waters of the state area (discussed in the next section of this chapter) which covers the hinge point of the outer bank top. Trees within this zone may be impacted by fish passage restoration activities. In addition, any trees within 50 feet of the bridge are assumed to be potentially impact due to space required for bridge construction and associated fish passage activities (see Table 4 below). Taken together, 102 trees occur within these two areas.
Table 4 - Tree Species that may be Potentially Impacted by the Project\(^a\)

<table>
<thead>
<tr>
<th>Tree Species</th>
<th>Common Name</th>
<th>Average # of stems</th>
<th>Number of trees by Diameter at Breast Height (DBH) class (inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acer macrophyllum</td>
<td>Big leaf maple</td>
<td>1.7</td>
<td>0</td>
</tr>
<tr>
<td>Aesculus californica</td>
<td>CA Buckeye</td>
<td>6.0</td>
<td>0</td>
</tr>
<tr>
<td>Ailanthus altissima</td>
<td>Tree of heaven</td>
<td>10.9</td>
<td>0</td>
</tr>
<tr>
<td>Alnus rhombifolia</td>
<td>White alder</td>
<td>15.3</td>
<td>1</td>
</tr>
<tr>
<td>Eucalyptus sp</td>
<td>Eucalyptus</td>
<td>22.0</td>
<td>0</td>
</tr>
<tr>
<td>Fraxinus latifolia</td>
<td>Oregon ash</td>
<td>2.3</td>
<td>3</td>
</tr>
<tr>
<td>Juglans hindsii</td>
<td>Black walnut</td>
<td>1.9</td>
<td>2</td>
</tr>
<tr>
<td>Platanus racemosa</td>
<td>CA Sycamore</td>
<td>6.0</td>
<td>0</td>
</tr>
<tr>
<td>Prunus sp</td>
<td>Cherry</td>
<td>7.0</td>
<td>0</td>
</tr>
<tr>
<td>Quercus agrifolia</td>
<td>Coast live oak</td>
<td>1.8</td>
<td>3</td>
</tr>
<tr>
<td>Quercus lobata</td>
<td>Valley oak</td>
<td>1.0</td>
<td>0</td>
</tr>
<tr>
<td>Salix laevigata</td>
<td>Red willow</td>
<td>7.8</td>
<td>2</td>
</tr>
<tr>
<td>Sambucus nigra</td>
<td>Black elderberry</td>
<td>8.0</td>
<td>1</td>
</tr>
<tr>
<td>Umbellularia californica</td>
<td>Bay laurel</td>
<td>3.4</td>
<td>2</td>
</tr>
</tbody>
</table>

\(^a\) All impacts are based on preliminary design and may change. Impacts will be updated if needed during the permitting process.

The number of trees impacted will likely be less than in Table 4 and The Department will make every effort to limit tree removals where possible. The amount of removal will not exceed 102 trees and every effort will be made to avoid or prune trees instead of removing them.

For the CDFW riparian zone, temporary impacts include access and construction impact to the creek bed by heavy machinery below the ordinary high water mark (OHWM)\(^7\), and two temporary access roads into the creek bed within the riparian area.

Permanent impacts include the construction of the new bridge deck and associated wing walls. The new bridge will be wider than the existing bridge. However, the new structure will be an improvement over the existing condition of the triple barrel culvert structure.

The new bridge structure, despite being wider to conform to Department standards, will allow for more light penetration over the existing condition. The new bridge will free span the creek and also will contain a natural creek bottom. The increased lighting and natural creek bottom will allow for more natural physical and biotic conditions and processes to persist into the future.

Finally, in addition to the existing fish passage barrier downstream of the bridge, the triple barrel culverts are likely a movement barrier to other terrestrial and aquatic wildlife species. Table 5 below shows impacts to the riparian area, resulting in a net permanent impact of 0.04 acre.

\(^7\) Federal regulations (33 CFR 328.3(e)) define the "ordinary high water mark" (OHWM) as "that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas."

41
Table 5 – Impacts to the Riparian Area

<table>
<thead>
<tr>
<th>Habitat</th>
<th>potential temporary impacts (acres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Riparian Area and Waters of the U.S.</td>
<td>0.72</td>
</tr>
</tbody>
</table>

|ächt | potential permanent impacts (acres) | Notes |
|-------------------------------------|-------------------------------------|
|                                    | 0.04                                |

Fish passage work is considered temporary and beneficial long-term; permanent impacts are due to removal of the triple culverts (36 feet) and concrete apron (75 feet) over 111 feet and 0.05 acre of Waters of the U.S.

a All impacts are based on preliminary design and may change. Impacts will be updated if needed during the permitting process.
b Temporary impacts will be restored onsite.

Avoidance, Minimization, and/or Mitigation Measures

Where applicable the Department has incorporated a number of general avoidance and minimization measures into the proposed project that apply to natural communities. (These general avoidance and minimization measures also apply to wetlands and other waters, and threatened and endangered species, which are discussed in other sections of this chapter.)

- **Permits.** The Department will include a copy of all relevant regulatory permits within the construction bid package of the proposed project. The Resident Engineer or their designee will be responsible for implementing the Terms and Conditions of those regulatory permits.

- **Biological Monitor Approval.** The USFWS and CDFW will review and approve the qualifications of the biological monitor(s) prior to initiating construction activities for the proposed project.

- **Biological Monitoring.** The approved biologist(s) will be on-site during initial ground-disturbing activities, and thereafter as needed to fulfill the role of the approved biologist as specified in the avoidance and minimization measures, and/or project permits. The biologist(s) will keep copies of applicable permits in their possession when on-site. Through the Resident Engineer or their designee, the approved biologist(s) shall be given the authority to communicate either verbally, by telephone, email or hardcopy with all project personnel to ensure that the risk of take to listed species is minimized, and that any permit requirements are fully implemented. Through the Resident Engineer or their designee, the approved biologist(s) shall have the authority to stop project activities to minimize take of listed species if he/she determines that any permit requirements are not fully implemented.

- **Worker Environmental Awareness Training.** Prior to working on the project, all construction personnel will attend a mandatory environmental education program delivered by an approved biologist. At a minimum the training will include a description of Central California coastal steelhead (CCCS), California red-legged frog (CRLF), and California freshwater shrimp (CFS), and other listed species, migratory
birds and their habitats. The training will also discuss the potential occurrence of these species within the action area; an explanation of the status of these species and protection under the Endangered Species Act and other laws; the measures to be implemented to conserve listed species and their habitats as they relate to the work site; and boundaries within which construction may occur.

- **Pre-construction Surveys.** Prior to any ground disturbance, pre-construction surveys for listed species will be conducted by an approved biologist. These surveys will consist of walking surveys of the project limits and, if possible, accessible adjacent areas within at least 50 feet of the project limits. The biologist(s) will investigate all potential cover sites. This includes thorough investigation of mammal burrows, rocky outcrops, appropriately sized soil cracks, tree cavities, and debris. Native vertebrates found in the cover sites within the project limits will be documented and relocated to an adequate cover site in the vicinity.

- **Wildlife Exclusion Fencing.** High visibility wildlife exclusion fencing (WEF) at least 4 feet in height will be installed around suitable habitat for listed species within the outer footprint of the project to prevent wildlife from accessing work areas. The fencing will be removed only when all construction equipment is removed from the site. No project activities will occur outside the delineated project area. The WEF will be monitored periodically and all areas will be checked following rain events.

- **Listed Species On Site.** The Resident Engineer will immediately contact the agency-approved project biologist(s) in the event that a listed species is observed within the construction zone. The Resident Engineer will suspend construction activities within a 50-foot radius of the animal until the animal leaves the site voluntarily or an agency-approved protocol for removal has been established.

- **Prevention of Wildlife Entrapment.** To prevent inadvertent entrapment of wildlife species during construction, excavated holes or trenches more than one foot deep with walls steeper than 30 degrees will be covered at the close of each working day by plywood or similar materials. Alternatively, an additional four-foot high vertical barrier, independent of exclusionary fences, will be used to further prevent the inadvertent entrapment of wildlife species. If it is not feasible to cover an excavation or provide an additional four-foot high vertical barrier, independent of exclusionary fences, one or more escape ramps constructed of earth fill or wooden planks will be installed. Before such holes or trenches are filled, they will be thoroughly inspected for trapped animals. If at any time a trapped listed animal is discovered, the on-site biologist will immediately place escape ramps or other appropriate structures to allow the animal to escape. If the animal is a listed species, the CDFW or USFWS will be contacted by telephone for guidance.

- **Work Window for Nesting Birds.** To the extent practicable, clearing and grubbing activities and any tree removal will be conducted during the non-nesting season, from September 1 to February 14.

- **Pre-construction Surveys for Nesting Birds.** Pre-construction surveys for nesting birds will be conducted by a qualified biologist no more than 72 hours prior to the start of construction for activities occurring during the breeding season (February 1 to September 30).
• **Non-Disturbance Buffer for Nesting Birds.** If work is to occur within 300 feet of active raptor nests or 50 feet of active non-raptor nests, a non-disturbance buffer will be established at a distance sufficient to minimize disturbance based on the nest location, topography, cover, the species’ sensitivity to disturbance, and the intensity/type of potential work activities.

• **Water Quality Inspection.** Water quality inspector(s) will inspect the site after a rain event to ensure that the stormwater BMPs are adequate.

• **Vehicle Use.** Project employees will be required to comply with guidance governing vehicle use, speed limits on unpaved roads, fire prevention, and other hazards.

• **Night Work.** To the extent practicable, nighttime construction will be minimized.

• **Night Lighting.** Artificial lighting of the project site during nighttime hours will be minimized and directed away from non-paved surfaces to the maximum extent practicable.

• **Trash Control.** All food-related trash items such as wrappers, cans, bottles, and food scraps will be disposed of in closed containers and removed at least once a day from the work area.

• **Firearms.** No firearms will be allowed in the project area except for those carried by authorized security personnel, or local, State, or federal law enforcement officials.

• **Pets.** To prevent harassment, injury or mortality of sensitive species, no pets will be permitted on the project site.

• **Department Standard BMPs.** The potential for adverse impacts to water quality will be avoided by implementing temporary and permanent BMPs outlined in Section 7-1.01G of the Department’s Standard Specifications. Department erosion control BMPs will be used to minimize any wind or water-related erosion. The State SWRCB has issued a NPDES Statewide Storm Water Permit to the Department to regulate storm water and non-storm water discharges from Department facilities. A SWPPP will be developed for the project, as one is required for all projects that have at least 1.0 acre of soil disturbance. The SWPPP complies with the Department SWMP. The SWMP includes guidance for Design staff to include provisions in construction contracts to include measures to protect sensitive areas and to prevent and minimize storm water and non-storm water discharges.

The SWPPP will reference the Department Construction Site BMPs Manual. This manual is comprehensive and includes many other protective measures and guidance to prevent and minimize pollutant discharges and can be found at the following website:


Protective measures will be included in the contract, including, at a minimum:

a. No discharge of pollutants from vehicle and equipment cleaning are allowed into the storm drain or water courses.
b. Vehicle and equipment fueling and maintenance operations must be at least 50 feet away from water courses.

c. Concrete wastes are collected in washouts and water from curing operations is collected and disposed of and not allowed into water courses.

d. Dust control will be implemented, including use of water trucks and tackifiers to control dust in excavation and fill areas, rocking temporary access road entrances and exits, and covering temporary stockpiles when weather conditions require.

e. Coir rolls will be installed along or at the base of slopes during construction to capture sediment and temporary organic hydro-mulching will be applied to all unfinished disturbed and graded areas.

f. Work areas where temporary disturbance has removed the pre-existing vegetation will be re-seeded with a native seed mix.

g. Graded areas will be protected from erosion using a combination of silt fences, fiber rolls along toe of slopes or along edges of designated staging areas, and erosion-control netting (such as jute or coir) as appropriate.

h. A Revegetation Plan will be prepared for restoration of temporary work areas. Pavement and base will be removed, topography blended with the surrounding area; and topsoil will be salvaged from the new alignment area to be placed over the restored area, which will then be revegetated with native grassland species.

- **Monofilament Erosion Control.** Plastic mono-filament netting (erosion control matting) or similar material will not be used for the project because wildlife may become entangled or trapped in it. Acceptable substitutes include coconut coir matting or tackified hydroseeding compounds.

- **Concrete Waste and Stockpiles.** All grindings and asphaltic-concrete waste will be stored within previously disturbed areas absent of habitat and at a minimum of 50 feet from any aquatic habitat, culvert, or drainage feature.

- **Revegetation Following Construction.** All areas that are temporarily affected during construction will be revegetated with an assemblage of native grass and shrubs as appropriate. Invasive, exotic plants will be controlled within the project site to the maximum extent practicable, pursuant to Executive Order 13112.

Avoidance and minimization measures specific to riparian habitat and trees include:

- Working in the Huichica Creek riparian and creek area during low-flow periods between June 1 and October 15 to avoid impacts to habitat during the wet season. However, to minimize and avoid take of migratory birds, their nests and young, the Department proposes to conduct vegetation and tree removal within the riparian area between September 30 and January 30. This work will be limited to vegetation and trees that are within the project footprint. No grubbing or other ground disturbing actions will occur. Upon completion of this work, the Department will install storm water and erosion control BMPs. In addition, the Department proposes that
revegetation work using hand tools be allowed to occur outside of the dry season work window to ensure successful revegetation outcomes.

- Storing all equipment outside of the Huichica Creek riparian and creek area.

- Installing temporary high visibility fencing that will outline and protect non-impacted creek and riparian areas prior to the start of construction. The ESA fencing will be delineated on the final plans, and the fence will remain on-site until project completion.

- Installing silt fences on the slopes adjacent to the work area to prevent silt from entering the watershed. Erosion controls will be maintained during the construction period.

- Replanting on-site of any removed native riparian tree species at a ratio of at least 1:1. Replanted trees will be monitored for at least five years for plant establishment. An onsite restoration plan will be developed for agency review and approval.

- Specific avoidance and minimization measures from all regulatory permits to be obtained will be incorporated into the project plans and specifications and enforced during construction.

Compensatory Mitigation

The Department finds that the project as a whole is self-mitigating due to the improvement over existing conditions and the restoration of natural creek processes. The removal of the fish passage barrier, triple barrel culverts, and creek apron over 111 feet of creek will have beneficial impacts both onsite and both up and downstream of the project footprint.

The Department proposes the following onsite improvements to the creek and riparian area:

- Removal of triple barrel culverts and replacement with a free span bridge (fish passage barrier #714975).

- Removal of concrete apron on the creek bed with replacement of natural stream bottom.

- The original proposed fish passage design was 2.9% grade, which met CDFW and NOAA Fisheries fish passage guidelines. The Department has worked with the CDFW and has redesigned the grade to 2.5% in order to allow for more potential stability through time. This change requires 80 more feet of creek restoration.

- The addition of habitat features that may enhance the creek for special-status species. Habitat features will be determined in coordination with regulatory agencies, but may include downed woody debris, logs, root wads, and habitat structures that may enhance the site for California freshwater shrimp.
Replanting on-site of any removed native riparian tree species at a ratio of at least 1:1. Replanted trees will be monitored for at least 5 years for plant establishment. An onsite restoration plan will be developed for agency review and approval.

A qualified biological monitor will eradicate American bullfrogs, green sunfish, and other invasive aquatic species if encountered during construction.

WETLANDS AND OTHER WATERS

Regulatory Setting

Wetlands and other waters are protected under a number of laws and regulations. At the federal level, the Federal Water Pollution Control Act, more commonly referred to as the Clean Water Act (CWA) (33 United States Code [USC] 1344), is the primary law regulating wetlands and surface waters. One purpose of the CWA is to regulate the discharge of dredged or fill material into waters of the U.S., including wetlands. Waters of the U.S. include navigable waters, interstate waters, territorial seas, and other waters that may be used in interstate or foreign commerce. The lateral limits of jurisdiction over non-tidal water bodies extend to the ordinary high water mark (OHWM), in the absence of adjacent wetlands. When adjacent wetlands are present, CWA jurisdiction extends beyond the OHWM to the limits of the adjacent wetlands. To classify wetlands for the purposes of the CWA, a three-parameter approach is used that includes the presence of hydrophytic (water-loving) vegetation, wetland hydrology, and hydric soils (soils formed during saturation/inundation). All three parameters must be present, under normal circumstances, for an area to be designated as a jurisdictional wetland under the CWA.

Section 404 of the CWA establishes a regulatory program that provides that discharge of dredged or fill material cannot be permitted if a practicable alternative exists that is less damaging to the aquatic environment or if the nation’s waters would be significantly degraded. The Section 404 permit program is run by the U.S. Army Corps of Engineers (USACE) with oversight by the U.S. Environmental Protection Agency (U.S. EPA).

The USACE issues two types of 404 permits: General and Individual. There are two types of General permits: Regional and Nationwide. Regional permits are issued for a general category of activities when they are similar in nature and cause minimal environmental effect. Nationwide permits are issued to allow a variety of minor project activities with no more than minimal effects.

Ordinarily, projects that do not meet the criteria for a Regional or Nationwide Permit may be permitted under one of USACE’s Individual permits. There are two types of Individual permits: Standard permits and Letters of Permission. For Individual permits, the USACE decision to approve is based on compliance with U.S. EPA’s Section 404(b)(1) Guidelines (40 Code of Federal Regulations [CFR] 230), and whether permit approval is in the public interest. The Section 404 (b)(1) Guidelines (Guidelines) were developed by the U.S. EPA in conjunction with the USACE, and allow the discharge of dredged or fill material into the aquatic system (waters of the U.S.) only if there is no practicable alternative which would have less adverse effects. The Guidelines state that the USACE may not issue a permit if there is a "least environmentally damaging practicable alternative" (LEDPA) to the proposed discharge that would have lesser effects on waters of the U.S., and not have any other significant adverse environmental consequences.
The Executive Order for the Protection of Wetlands (EO 11990) also regulates the activities of federal agencies with regard to wetlands. Essentially, EO 11990 states that a federal agency, such as FHWA and/or the Department, as assigned, cannot undertake or provide assistance for new construction located in wetlands unless the head of the agency finds: (1) that there is no practicable alternative to the construction and (2) the proposed project includes all practicable measures to minimize harm. A Wetlands Only Practicable Finding must be made.

At the state level, wetlands and waters are regulated primarily by the State Water Resources Control Board (SWRCB), the Regional Water Quality Control Boards (RWQCBs) and the California Department of Fish and Wildlife (CDFW). In certain circumstances, the Coastal Commission (or Bay Conservation and Development Commission or the Tahoe Regional Planning Agency) may also be involved. Sections 1600-1607 of the California Fish and Game Code require any agency that proposes a project that will substantially divert or obstruct the natural flow of or substantially change the bed or bank of a river, stream, or lake to notify CDFW before beginning construction. If CDFW determines that the project may substantially and adversely affect fish or wildlife resources, a Lake or Streambed Alteration Agreement will be required. CDFW jurisdictional limits are usually defined by the tops of the stream or lake banks, or the outer edge of riparian vegetation, whichever is wider. Wetlands under jurisdiction of the USACE may or may not be included in the area covered by a Streambed Alteration Agreement obtained from the CDFW.

The RWQCBs were established under the Porter-Cologne Water Quality Control Act to oversee water quality. Discharges under the Porter-Cologne Act are permitted by Waste Discharge Requirements (WDRs) and may be required even when the discharge is already permitted or exempt under the CWA. In compliance with Section 401 of the CWA, the RWQCBs also issue water quality certifications for activities which may result in a discharge to waters of the U.S. This is most frequently required in tandem with a Section 404 permit request. Please see the Water Quality section for more details.

**Affected Environment**

The Department completed an NES for the project in August 2017.

Department-contracted consultant biologists conducted a USACE wetland delineation within the plant and habitat BSA, and was completed in August 2016. Only waters of the U.S. were detected within the BSA. It was determined that Huichica Creek met the requirements as waters of the U.S. under USACE guidelines (USACE 2008). USACE jurisdiction consists of all area below the OHWM. Within the project plant and habitat BSA, waters of the U.S. cover 0.326 acre and 788 linear feet along Huichica Creek. A portion of this area will be impacted during the removal and replacement of the bridge and the fish passage remediation along 480 linear feet of channel.

Waters of the state also occur within the project footprint, and are administered by the RWQCB under authority from Section 401 of the CWA. For the purposes of this study, waters of the state are assumed to include all area under the OHWM and all riparian habitat. During the delineation, both the outer top of banks, and outer dripline of riparian trees were delineated. These two areas together cover 1.39 acres within the plant and habitat BSA. A portion of this area will be impacted by construction.
Environmental Consequences

Table 6 and Figure 8 below display the potential impacts from the project to waters of the U.S. Temporary impacts include access to the creek bed by heavy machinery below the OHWM and creek bed contouring.

Permanent impacts occur from the bridge widening from 35 feet in width to 44 feet in width within the creek channel and the addition of an abutment wingwall. These impacts cover approximately 0.01 acre of waters of the U.S. However, the direct removal the triple barrel culverts and concrete apron downstream over 111 feet (as measured in the 2016 California Freshwater Shrimp Habitat Report), will remove permanent concrete and metal structures from over approximately 0.05 acre of waters of the U.S. This results in a net permanent 0.04 acre.

Table 6 – Impacts to Wetlands and Waters*  

<table>
<thead>
<tr>
<th>Habitat</th>
<th>potential temporary impacts (acres)</th>
<th>potential permanent impacts (acres)</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waters of U.S.</td>
<td>0.28</td>
<td>0.04</td>
<td>Fish passage work is considered temporary and beneficial long-term; permanent impacts are due to removal of the triple culverts (36 feet) and concrete apron (75 feet) over 111 feet and 0.05 acre of Waters of the U.S.</td>
</tr>
<tr>
<td>Wetlands</td>
<td>0.00</td>
<td>0</td>
<td>No wetlands were delineated</td>
</tr>
</tbody>
</table>

* All impacts are based on preliminary design and may change. Impacts will be updated if needed during the permitting process.

Temporary impacts will be restored onsite.

Because the fish passage project will be restoring function and values to the creek, the actual creek bed work is considered a temporary impact. Creek restoration will occur over approximately 480 feet of Waters of the U.S., covering 0.28 acre.
Avoidance, Minimization, and/or Mitigation Measures

The Department has incorporated general avoidance and minimization measures for this project that apply to waters, which are found in the Natural Communities section of this chapter.

Avoidance and minimization measures specific to waters include the following:

- Working in the Huichica Creek riparian area during low-flow periods between June 1 and October 15 to avoid impacts to wetlands and waters. However, to minimize and avoid take of migratory birds, their nests and young, the Department proposes to conduct vegetation and tree removal within the riparian area between September 30 and January 30. This work will be limited to vegetation and trees that are within the project footprint. No grubbing or other ground disturbing actions will occur. Upon completion of this work, the Department will install storm water and erosion control BMPs. In addition, the Department proposes that revegetation work using hand tools
be allowed to occur outside of the dry season work window to ensure successful revegetation outcomes.

- Storing all equipment outside of the Huichica Creek riparian area.

- Installing temporary high visibility fencing that will outline and protect non-impacted waters areas prior to the start of construction. The ESA fencing will be delineated on the final plans, and the fence will remain on-site until job completion.

- Installing silt fences on the slopes adjacent to the work area to prevent silt from entering the watershed. Erosion controls will be maintained during the construction period.

- The Department will prepare water diversion and dewatering plan and avoid any work within wetted creek channel.

- Specific avoidance and minimization measures from all permits will be incorporated into the project plans and specifications and enforced during construction.

Compensatory Mitigation

The Department finds that the project as a whole is self-mitigating due to the improvement over baseline and restoration of natural creek processes. The removal of the fish passage barrier, triple barrel culverts, and creek apron over 111 feet of creek will have beneficial impacts both onsite and both up and downstream of the project footprint.

The Department proposes the following onsite improvements to the creek and riparian area:

- Removal of triple barrel culverts and replacement with a free span bridge (fish passage barrier #714975).

- Removal of concrete apron on the creek bed with replacement of natural stream bottom.

- The original proposed fish passage design was 2.9% grade, which met CDFW and NOAA Fisheries fish passage guidelines. The Department has worked with the CDFW and has redesigned the grade to 2.5% in order to allow for more potential stability through time. This change requires 80 more feet of creek restoration.

- The addition of habitat features that may enhance the creek for special status species. Habitat features will be determined in coordination with regulatory agencies, but may include downed woody debris, logs, root wads, and habitat structures that may enhance the site for California freshwater shrimp.

- Replanting on-site of any removed native riparian tree species at a ratio of at least 1:1. Replanted trees will be monitored for at least 5 years for plant establishment. An onsite restoration plan will be developed for agency review and approval.

- A qualified biological monitor will eradicate American bullfrogs, green sunfish, and other invasive aquatic species if encountered during construction.
PLANT SPECIES

Regulatory Setting

The U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW) have regulatory responsibility for the protection of special-status plant species. "Special-status" species are selected for protection because they are rare and/or subject to population and habitat declines. Special status is a general term for species that are provided varying levels of regulatory protection. The highest level of protection is given to threatened and endangered species; these are species that are formally listed or proposed for listing as endangered or threatened under the Federal Endangered Species Act (FESA) and/or the California Endangered Species Act (CESA). Please see the Threatened and Endangered Species section in this document for detailed information about these species.

This section of the document discusses all the other special-status plant species, including CDFW species of special concern, USFWS candidate species, and California Native Plant Society (CNPS) rare and endangered plants.

The regulatory requirements for FESA can be found at United States Code 16 (USC), Section 1531, et seq. See also 50 Code of Federal Regulations (CFR) Part 402. The regulatory requirements for CESA can be found at California Fish and Game Code, Section 2050, et seq. Department projects are also subject to the Native Plant Protection Act, found at California Fish and Game Code, Section 1900-1913, and the California Environmental Quality Act (CEQA), CA Public Resources Code, Sections 2100-21177.

Affected Environment

An NES was completed for this project in August 2017.

Appendix E lists state and federally listed and special-status plant species with a potential to occur within the project area and surrounding landscape, called the plant and habitat BSA. A species list was generated for federal and state-listed species using the USFWS Information for Planning and Consultation (IPaC) threatened and endangered species database, the CDFW California Natural Diversity Database (CNDDDB 2017), and the CNPS Inventory of Rare and Endangered Plants (CNPS 2017) for the Napa and eight surrounding United States Geological Survey (USGS) quadrangles.

The Department has determined that no special-status plants have the potential to occur within the project footprint based on the plants observed in the plant and habitat BSA, the habitat types present, and the special-status plant species-specific habitat requirements.

Environmental Consequences

The project is not expected to have any impacts to special-status plant species because they are highly unlikely to be present within the plant and habitat BSA.

Avoidance, Minimization, and/or Mitigation Measures

No avoidance, minimization, and/or mitigation measures are proposed.
ANIMAL SPECIES

Regulatory Setting

Many state and federal laws regulate impacts to wildlife. The U.S. Fish and Wildlife Service (USFWS), the National Oceanic and Atmospheric Administration’s National Marine Fisheries Service (NOAA Fisheries Service) and the California Department of Fish and Wildlife (CDFW) are responsible for implementing these laws. This section discusses potential impacts and permit requirements associated with animals not listed or proposed for listing under the federal or state Endangered Species Act. Species listed or proposed for listing as threatened or endangered are discussed in the Threatened and Endangered Species section below. All other special-status animal species are discussed here, including CDFW fully protected species and species of special concern, and USFWS or NOAA Fisheries Service candidate species.

Federal laws and regulations relevant to wildlife include the following:

- National Environmental Policy Act
- Migratory Bird Treaty Act
- Fish and Wildlife Coordination Act

State laws and regulations relevant to wildlife include the following:

- California Environmental Quality Act
- Sections 1600 – 1603 of the California Fish and Game Code
- Sections 4150 and 4152 of the California Fish and Game Code

Foothill Yellow-legged Frog

Affected Environment

An NES was completed for this project in August 2017.

The foothill yellow-legged frog (FYL) is a California species of special concern and candidate threatened, and is currently under review for federal listing as threatened or endangered by the USFWS. The FYL occurs from the Coast Ranges in Oregon south to the Transverse Mountains in southern California, in most of northern California west of the Cascade crest, and along the western flank of the Sierra. The FYLF occurs from sea level to over 6,000 feet in elevation within California.

Habitat consists of rocky streams that can occur in a variety of forest, shrub, and wet meadow habitats. The FYLF is typically found in small to moderate sized streams with shallow flowing water and at least some cobble substrate. The FYLF is absent or occurs in low densities where introduced aquatic predators such as fish and bullfrogs are present. Egg-laying is typically timed to follow high stream flows associated with winter rainfall and spring snowmelt, and typically occurs between late March and early June. Metamorphosis takes a minimum of 15 weeks and can occur between July and September.
The nearest CNDDB occurrence by linear distance is approximately 5 miles to the north in Redwood Creek. This observation is not hydrologically connected to Huichica Creek, but occurs near the northern boundary of the Huichica Creek watershed. There are no hydrologically connected FYLF CNDDB occurrences to Huichica Creek.

Although there are no recorded occurrences within the Huichica Creek watershed, the Department has determined that FYLF has the potential to occur within the project footprint.

**Environmental Consequences**

This project is anticipated to potentially impact the FYLF. Because the FYLF is highly aquatic, potential aquatic impacts are shown below in Table 7. These impacts are the same as those for the California Red-legged frog, which is discussed in the Threatened and Endangered Species section of this chapter, but no upland impacts are anticipated.

**Table 7 - Impacts to Potential Foothill Yellow-legged Frog (FYLF) Aquatic Habitat**

<table>
<thead>
<tr>
<th>Habitat</th>
<th>potential temporary impacts (acres)</th>
<th>potential permanent impacts (acres)</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aquatic</td>
<td>0.28</td>
<td>0.04</td>
<td>Fish passage work is considered temporary and beneficial long-term; permanent impacts are due to removal of the triple culverts (36 feet) and concrete apron (75 feet) over 111 feet and 0.05 acre of Waters of the U.S.</td>
</tr>
</tbody>
</table>

*Temporary impacts will be restored onsite*

**Avoidance, Minimization, and/or Mitigation Measures**

The FYLF will be protected with the same avoidance and minimization measures as the California Red-legged frog (CRLF), which is discussed in the Threatened and Endangered Species section of this chapter. These measures include the following:

- Working in Huichica Creek and the riparian area during low and no-flow periods between June 1 and October 30 to avoid potential impacts to FYLF individuals. However, to minimize and avoid take of migratory birds, their nests and young, the Department proposes to conduct vegetation and tree removal within the riparian area between September 30 and January 30. This work will be limited to vegetation and trees that are within the project footprint. No grubbing or other ground disturbing actions will occur. Upon completion of this work, the Department will install storm water and erosion control BMPs. In addition, the Department proposes that revegetation work using hand tools be allowed to occur outside of the dry season work window to ensure successful revegetation outcomes.

- Storing all equipment outside of Huichica Creek and the riparian area.
• Installing temporary high visibility fencing that will outline and protect ESAs prior to the start of construction. The ESA fencing will be delineated on the final plans, and the fence will remain on-site until job completion.

• Installing temporary WEF around potential FYLF habitat

• The Department will prepare a water diversion and dewatering plan.

• A qualified biologist will be on-site during construction to monitor construction activities to ensure take is avoided or minimized.

• Specific avoidance and minimization measures from all permits and authorizations will be incorporated into the project plans and specifications and enforced during construction.

There is no specific compensatory mitigation proposed for the FYLF. Onsite improvements will benefit this species if it is present within Huichica Creek.

**Western Pond Turtle**

**Affected Environment**

An NES was completed for this project in August 2017.

The western pond turtle (WPT) is a state species of special concern, and is currently under review for federal listing as threatened or endangered by the USFWS. According to the CDFW, WPT habitat is described as follows:

- Individuals normally associate with permanent ponds, lakes, streams, irrigation ditches or permanent pools along intermittent streams.

- Pond turtles require basking sites such as partially submerged logs, rocks, mats of floating vegetation, or open mud banks. Turtles slip from basking sites to underwater retreats at the approach of humans or potential predators. Hibernation in colder areas is passed underwater in bottom mud.

Western pond turtles rarely move away from water sources except to nest and overwinter. Of the hundreds of WPTs that have been monitored using radio-telemetry, only two movement records are greater than 500 meters (0.31 miles) from water.

John Cleckler of USFWS observed the WPT in the project footprint on July 15, 2016. The nearest CNDDDB occurrence is approximately 3.5 miles to the east of the project footprint and occurred in a “large pond whose deepest point is 3 feet.” No WPT CNDDDB records occur within the Huichica Creek watershed. The WPT is assumed present within the footprint, and no formal surveys were conducted.

**Environmental Consequences**

This project is anticipated to potentially impact the WPT. Because the WPT is highly aquatic, potential aquatic impacts are shown in Table 8 below. These impacts are the same as those for
the California freshwater shrimp for aquatic and riparian areas, which is discussed in the Threatened and Endangered Species section of this chapter, but no upland impacts are anticipated.

Table 8 – Impacts to Potential Western Pond Turtle (WPT) Aquatic Habitat

<table>
<thead>
<tr>
<th>Habitat</th>
<th>potential temporary impacts (acres) a</th>
<th>potential permanent impacts (acres)</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aquatic</td>
<td>0.28</td>
<td>0.04</td>
<td>Fish passage work is considered temporary and beneficial long-term; permanent impacts are due to removal of the triple culverts (36 feet) and concrete apron (75 feet) over 111 feet and 0.05 acre of Waters of the U.S.</td>
</tr>
<tr>
<td>Riparian habitat</td>
<td>0.44</td>
<td>0</td>
<td>Fish passage work is considered temporary and beneficial long-term.</td>
</tr>
</tbody>
</table>

a Temporary impacts will be restored onsite

Avoidance, Minimization, and/or Mitigation Measures

Avoidance and minimization measures specific to the WPT include the following:

- A preconstruction survey will be performed prior to the start of construction
- During construction, an approved biological monitor will be onsite during ground and structure disturbing activities within the riparian and creek areas

There is no specific compensatory mitigation proposed for the WPT. Onsite improvements will benefit this species if it is present within Huichica Creek.

Migratory and Nongame birds

Affected Environment

An NES was completed for this project in August 2017.

Birds may nest within and on structures or habitat within the project footprint. Formal nesting surveys have not been completed, but several bird species have the potential to nest within tree, shrub, and ground layers in the project footprint. Swallow colonies have not been observed on the bridge structure or within the triple barrel culverts. No raptors have been observed nesting during any of the previous site visits, however there are large eucalyptus trees within the footprint and vicinity that provide potential raptor nest habitat.

Environmental Consequences

Impacts to known active bird nests will be avoided by following the avoidance and minimization measures discussed in the next section.
Avoidance, Minimization, and/or Mitigation Measures

Avoidance and minimization measures for migratory and nongame birds include the following:

- Prior to construction, the project footprint and immediate vicinity will be surveyed for nesting birds.

- To minimize and avoid take of migratory birds, their nests and young, the Department will conduct vegetation and tree trimming between September 30 and January 30 before the start of project construction. This work will be limited to vegetation and trees that are within the project footprint. No grubbing or other ground disturbing actions will occur. Upon completion of this work, the Department will install storm water and erosion control BMPs.

- If vegetation removal must occur during the nesting season, a qualified biologist must inspect the area no more than three days prior to removal. Vegetation removal can occur no longer than 72 hours after approval is given by the Engineer. After 72 hours, another nesting survey must be performed before any more vegetation removal can take place.

- If an active nest is found, a no work buffer will be enforced and maintained around the nest and identified with high visibility markers or fencing. Buffers will be 300 feet for raptors and 50 feet for all other birds protected by the Migratory Bird Treaty Act (MBTA) and California Fish and Game Code. If work is required inside the buffer, the Department will contact the CDFW and/or USFWS for guidance prior to any work being performed.

Bat Species

Affected Environment

An NES was completed for this project in August 2017.

California provides habitat for twenty-four bat species in the Families Phyllostomidae, Vespertilionidae, and Molossidae. Fifteen are rare and/or considered Mammal Species of Special Concern by the CDFW, Species of Concern by the USFWS or the US Forest Service. Townsend’s big-eared bat (*Corynorhinus townsendii*) was a CDFW candidate species for listing under the California Endangered Species Act as threatened or endangered but the listing was denied in 2016.

All of these species are known to have behavioral and ecological interactions with the transportation system, directly or indirectly. These interactions can be positive, such as roosting opportunities, or negative, such as physical injury from moving vehicles (Erickson 2002).

Bats may be found on bridges located throughout California. The species found on a particular bridge is subject to the geographical location and habitat features available. Lack of species records in a particular habitat or geographic area is more likely a reflection of inefficient survey methods rather than species absence. Within the Department’s District 4, seventeen bat species are known to use bridge structures. Bat species that roost on structure walls have the potential to use the Huichica Creek bridge for night roosting.
There are seven pallid bat CNDDB occurrences (*Antrozous pallidus*) located five miles from the project footprint. The pallid bat is categorized as "commonly found on bridges." No other bat species occurrences were in the CNDDB within five miles of the project footprint.

Department biologists have inspected the Huichica Creek culverts during the daytime for evidence of potential bat use (feces and urine staining). Department biologists have not detected both feces and urine staining within the culverts or outside the bridge. The circular metal substrate of the culverts is likely unsuitable for perching and roosting. In addition, the culverts and outer bridge faces lack crevices which could be used for roosting. Bats may also use trees in the riparian zone for roosting.

**Environmental Consequences**

Bats are not anticipated to use the Huichica Creek bridge as a day or night roost and no evidence of roosting has been detected to date. Bats likely use the Huichica Creek corridor for foraging.

**Avoidance, Minimization, and/or Mitigation Measures**

Avoidance and minimization measures specific to bat species include the following:

- The Department will conduct a preconstruction surveys to verify potential use by bats.
- If bats are observed, the Department will use exclusion measures to prevent use during construction in order to avoid potential mortality.

No compensatory mitigation is proposed for bat species.

**THREATENED AND ENDANGERED SPECIES**

**Regulatory Setting**

The primary federal law protecting threatened and endangered species is the Federal Endangered Species Act (FESA); 16 United States Code (USC) Section 1531, et seq. See also 50 Code of Federal Regulations (CFR) Part 402. This act and later amendments provide for the conservation of endangered and threatened species and the ecosystems upon which they depend. Under Section 7 of this act, federal agencies, such as the Federal Highway Administration (FHWA), are required to consult with the U.S. Fish and Wildlife Service (USFWS) and the National Oceanic and Atmospheric Administration’s National Marine Fisheries Service (NOAA Fisheries Service) to ensure that they are not undertaking, funding, permitting, or authorizing actions likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat. Critical habitat is defined as geographic locations critical to the existence of a threatened or endangered species. The outcome of consultation under Section 7 may include a Biological Opinion with an Incidental Take statement, a Letter of Concurrence and/or documentation of a No Effect finding. Section 3 of FESA defines take as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect or any attempt at such conduct."

California has enacted a similar law at the state level, the California Endangered Species Act (CESA), California Fish and Game Code Section 2050, et seq. CESA emphasizes early consultation to avoid potential impacts to rare, endangered, and threatened species and to
develop appropriate planning to offset project-caused losses of listed species populations and their essential habitats. The California Department of Fish and Wildlife (CDFW) is the agency responsible for implementing CESA. Section 2081 of the Fish and Game Code prohibits "take" of any species determined to be an endangered species or a threatened species. Take is defined in Section 88 of the Fish and Game Code as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." CESA allows for take incidental to otherwise lawful development projects; for these actions an incidental take permit is issued by the CDFW. For species listed under both the FESA and CESA requiring a Biological Opinion under Section 7 of the FESA, the CDFW may also authorize impacts to CESA species by issuing a Consistency Determination under Section 2080.1 of the California Fish and Game Code.

Another federal law, the Magnuson-Stevens Fishery Conservation and Management Act of 1976, was established to conserve and manage fishery resources found off the coast, as well as anadromous species and Continental Shelf fishery resources of the United States, by exercising (A) sovereign rights for the purposes of exploring, exploiting, conserving, and managing all fish within the exclusive economic zone established by Presidential Proclamation 5030, dated March 10, 1983, and (B) exclusive fishery management authority beyond the exclusive economic zone over such anadromous species, Continental Shelf fishery resources, and fishery resources in special areas.

**Affected Environment**

An NES was completed for this project in August 2017.

Huichica Creek is critical habitat for Central California coastal steelhead (CCCS, *Oncorhynchus mykiss*), which is federally listed as threatened under the FESA. The Department submitted a Biological Assessment (BA) to NOAA Fisheries on September 29, 2017 for the CCCS. NOAA Fisheries issued a Biological Opinion (BO) for this species issued on March 15, 2018, and it is located in Appendix I. The Department has now completed formal Section 7 consultation with NOAA Fisheries.

In addition to the CCCS, the federally and state endangered California freshwater shrimp (CFS, *Syncaris pacifica*) occurs within the project area, and the federally threatened California red-legged frog (CRLF, *Rana draytoni*) may potentially occur within the project area. These three species are discussed in detail in the next section.

For the CFS and CRLF species, the Department submitted a BA to the USFWS on September 29, 017. The USFWS issued a BO for these species on November 16, 2017, and it is located in Appendix H. The Department has now completed formal Section 7 consultation with the USFWS. The Department will also be in consultation with the CDFW for the CFS, and will obtain an Incidental Take Permit (ITP) for this species under the CESA during the design phase of the project.

The proposed project occurs within Essential Fish Habitat (EFH) for Chinook and Coho salmon. This EFH unit covers parts of Alameda, Contra Costa, Marin, Napa, San Francisco, Solano, and Sonoma Counties. The Department submitted a BA to NOAA Fisheries on September 29, 2017 that included the request of consultation on EFH. After reviewing the proposed action, NOAA Fisheries concluded in its March 15, 2018-issued BO that the action would not adversely affect EFH and therefore, no EFH consultation is required.
Appendix E shows federally or state listed and candidate species, critical habitat, or special status species occurring or known to occur in the project vicinity. Data for listed species are from the USFWS IPaC species database, and CDFW CNDB and CNPS rare plant database for the Napa USGS and eight surrounding quadrangles.

In addition to the completed Duhig Roadway Rehabilitation and Curve Realignment Project which obtained a BO in 2005, the Department has been in technical assistance with USFWS since 2015 and met with John Cleckler of the USFWS on July 15, 2016.

The project “May Affect, and is Likely to Adversely Affect” the CCCS, the CFS and the CRLF during construction, but due to the fish passage barrier removal and creek improvements, the project will likely benefit these species in the future. The proposed project will also not adversely modify the Coho or Chinook EFH. For all other federally-listed species shown in Appendix E, the Department has determined the project will have No Effect on these species.

**Central California Coastal Steelhead**

**Affected Environment**

An NES was completed for this project in August 2017.

The CCCS is the anadromous form of the rainbow trout, a salmonid species, which is native to western North America and the Pacific coast of Asia. CCCS is a subspecies of steelhead found in watersheds from the Russian River, Sonoma County, California to Aptos Creek, Santa Cruz County, California, and the San Francisco Bay and San Pablo Bay basins.

CCCS are born in fresh water, emigrate to the ocean for two to three years to complete most of their growth cycle, and then return to fresh water to spawn. In California, most CCCS spawn from December through April in small streams and tributaries where cool, well-oxygenated water is available year-round. The length of time for egg hatching depends primarily on water temperature. Fry emerge from the gravel about four to six weeks after hatching, but factors such as the depth of the redd (spawning nest), gravel size, siltation, and water temperature could speed up or retard this time.

The newly emerged fry move to the shallow, protected areas associated with the margins of the stream. The fry soon move to other areas of the stream and establish feeding locations that they defend. Most juveniles inhabit riffles, but some of the larger ones inhabit pools or deeper runs.

Juvenile CCCS generally rear in freshwater between one to three years, and both adults and juveniles are variable in the amount of time they spend in fresh and salt water. Throughout their range, the CCCS typically remain at sea for one or two growing seasons before returning to the freshwater to spawn. The CCCS do not necessarily migrate at any set age. Some individuals may never go out to sea and instead remain in the stream throughout their lives, and some steelhead will migrate out to sea at less than a year old.

Huichica Creek is federally-designated as CCCS critical habitat. The CCCS is inferred present within the project footprint, and both upstream and downstream of the footprint. In a review of historical and current steelhead distribution in the San Francisco Estuary, several sampling efforts document where CCCS were detected in Huichica Creek both upstream and downstream from the project footprint.
The Department has inferred presence for the CCCS due to Huichica Creek’s designation as critical habitat, relatively recent historical records of *Oncorhynchus mykiss*, and through technical assistance with NOAA Fisheries.

Direct effects to the migratory life stages of CCCS (both adult and juveniles) in Huichica Creek will be avoided through adherence to the proposed work window of June 1 through October 15. The Department conducted an interagency site visit with Darren Howe of NOAA on July 15, 2016 to discuss the current project design. In addition, the Department met with species and fish passage specialists from CDFW on April 4, 2016, August 26, 2016, and March 27, 2017.

The project “May Affect, and is Likely to Adversely Affect” the CCCS during construction. Table 9 below summarizes the impacts to the CCCS. CCCS individual and critical habitat is all waters below the OHWM and is equivalent to the "waters of the U.S." habitat noted in the Wetlands and Other Waters section of this chapter.

<table>
<thead>
<tr>
<th>Table 9 – Impacts to the Central California Coastal Steelhead (CCCS) and CCCS Aquatic Critical Habitat/Riparian Habitat*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Habitat</strong></td>
</tr>
<tr>
<td>-----------------</td>
</tr>
<tr>
<td>CCCS and CCCS aquatic Critical Habitat</td>
</tr>
<tr>
<td>CCCS riparian habitat</td>
</tr>
</tbody>
</table>

* All impacts are based on preliminary design and may change. Impacts will be updated if needed during the permitting process
b Temporary impacts will be restored onsite

**Avoidance, Minimization, and/or Mitigation Measures**

The Department has incorporated general avoidance and minimization measures for this project that apply to the CCCS, which are found in the Natural Communities section of this chapter.

Avoidance and minimization measures specific to the CCCS include the following:

- Working in Huichica Creek and the riparian area during low and no-flow periods between June 1 and October 30 to avoid potential impacts to CCCS individuals. However, to minimize and avoid take of migratory birds, their nests and young, the Department proposes to conduct vegetation and tree removal within the riparian area
between September 30 and January 30. This work will be limited to vegetation and trees that are within the project footprint. No grubbing or other ground disturbing actions will occur. Upon completion of this work, the Department will install storm water and erosion control BMPs. In addition, the Department proposes that revegetation work using hand tools be allowed to occur outside of the dry season work window to ensure successful revegetation outcomes.

- No pile-driving will be used for the project.
- Storing all equipment outside of Huichica Creek and the riparian area.
- Installing temporary high visibility fencing that will outline and protect ESAs prior to the start of construction. The ESA fencing will be delineated on the final plans, and the fence will remain on-site until project completion.
- Installing silt fences on the slopes adjacent to the work area to prevent silt from entering the watershed. Erosion controls will be maintained during the construction period.
- The Department will prepare a water diversion and dewatering plan.
- All excess soil will be disposed of at an approved upland site
- A qualified biologist will be on-site during construction to monitor construction activities to ensure take is avoided or minimized.
- Specific avoidance and minimization measures from all permits will be incorporated into the project plans and specifications and enforced during construction.

Compensatory Mitigation

The Department finds that the project is self-mitigating for the CCCS. Onsite improvements should result in improved conditions for the CCCS and other species in general.

The Department will improve CCCS habitat based on the following:

- Removing the triple culverts and paved creek bottom downstream from the bridge will restore a more natural stream bottom and allow for natural stream processes to occur underneath the bridge (36 feet) and approximately 75 feet downstream.
- Replacement of the triple culverts will remove a creek constriction flow point, allowing for a natural creek bottom and plant colonization of areas under the bridge and within the former concrete apron area.
- The original proposed fish passage design was 2.9% grade, which met CDFW and NOAA Fisheries fish passage guidelines. The Department has worked with CDFW and has redesigned the grade to 2.5% in order to allow for more potential creek stability through time. This change requires 80 more feet of work upstream of the bridge.
• The proposed fish passage remediation project will free up to 1.45 miles upstream CCCS critical habitat according to the 2011 Napa River Fish Barrier Plan. If all upstream barriers were removed, approximately 3.3 miles of CCCS critical habitat would become available. Thus, barrier removal will have considerable beneficial impacts for the CCCS well outside of the project footprint.

**California Freshwater Shrimp**

**Affected Environment**

An NES was completed for this project in August 2017.

The CFS was listed as endangered by the State of California on October 2, 1980, and the species was federally listed as endangered on October 31, 1988. A recovery plan was published for the California freshwater shrimp on July 31, 1998. Critical habitat was designated for this species on April 13, 2006.

CFS are decapod crustaceans that reach a length of less than 2.17 inches in length. Their coloration is variable but generally translucent to nearly transparent with small surface and internal color-producing cells that help the shrimp mimic submerged, decaying vegetation. They feed on aquatic detritus, primarily food material that settles out on the fine roots and other vegetation as the water slows in the habitats the shrimp prefer. Their food sources include fecal material produced by shredders, organic fines, periphytic and planktonic algae, aquatic macrophyte fragments, zooplankton, dissolved organic matter particles formed into clusters by flocculation, aufwuch (the algae, plant and animal forms that become encrusted on rocks and other hard surfaces), and they can scavenge dead fish and shrimp.

The reproductive ecology of the CFS has not been completely discerned or described, but scientific observations have shown reproduction occur once a year in late summer or early fall when stream conditions are relatively calm. Egg-bearing females have been observed as early as September and by November most adult females are bearing eggs. Adult females produce generally 50 to upwards of 200 eggs and they retain the fertilized eggs on her swimming legs (pleopods) throughout the winter. The young are released as miniature adults in late spring and grow rapidly throughout the summer to reach 0.75 inch in length by early autumn. Approximately sixteen months after release they are mature enough to breed. The California freshwater shrimp may live longer than three years.

The CFS is endemic to perennial lowland streams in Sonoma, Marin and Napa counties. Long term population trends are not available for Huichica Creek, although as the result of severe drought, the entire Huichica Creek population consisted of approximately 500 individuals in 1983, including adults and juveniles. The CFS population at Huichica is considered present by USFWS in review years 1988, 1998, and 2011. Areas with undercut banks are important high-flow refugia for the species, and this habitat feature may be a limiting factor for expansion and further recovery of the species.

This portion of Huichica Creek within the footprint is known to support CFS. According to the CNDDDB, this species was most recently captured within the project area in 1990 (CDFW 2017). During the 1990 survey, a total of 123 individual shrimp were netted within 0.5 miles upstream of the Highway 12/121 crossing, and an additional 280 individuals were netted within 1.25 miles downstream of the crossing (CDFW 2017). Although this record is over 25 years old, the Huichica Creek CFS population is presumed to still be extant.
In December 2016, the Napa Resource Conservation District (RCD) surveyed CFS habitat type and quality approximately 1,500 feet upstream and 1,500 feet downstream of Huichica Creek bridge.

Habitat type was classified as:

Winter: Undercut banks with a minimum horizontal extent of 2 feet

Summer: No significant undercut banks; areas of low water velocity present (i.e. pools, glides, runs in summer); suitable vegetation or other cover present

Dispersal: Swift moving water (i.e. riffles, runs) or otherwise lacking vegetation/cover

CFS habitat types are hierarchical with winter habitat also providing summer and dispersal habitat, and summer habitat also functioning as dispersal habitat. Dispersal habitat is generally not habitable by the species due to high water velocity, yet provides essential connectivity within the larger population.

Habitat quality was defined as follows:

Poor: Water depth less than six inches; sheer banks (earth or rock); very little cover (roots, branches, vegetation, etc.)

Moderate: Water depth greater than six inches; at least one cover feature present (roots, branches, vegetation, undercut bank, etc.)

Good: Water depth of one to four feet; at least two cover features present (roots, branches, vegetation, undercut bank, etc.)

Excellent: Water depth of one to four feet; at least two cover features present (roots, branches, vegetation, undercut bank, etc.); must be better developed for environmental enhancement or more abundant than “Good” habitat

Within the project footprint, only summer and dispersal habitat was found. A total of six pools were found to contain suitable winter habitat conditions for the CFS. All of these pools were located upstream of the Highway 12/121 crossing, beginning approximately 414 feet upstream of the SR 121 culvert inlet.

Environmental Consequences

The Department has inferred presence for the CFS. Huichica Creek is one of only twenty-three creeks known to harbor CFS (USFWS 2011). The section of Huichica Creek within the project footprint is also known to support CFS. According to the CNDDDB, this species was most recently captured within the project area in 1990. During the 1990 survey, a total of 123 individual shrimp were netted within 0.5 miles upstream of the SR 12/121 crossing, and an additional 280 individuals were netted within 1.2 miles downstream of the crossing.

The project “May Affect, and is Likely to Adversely Affect” the CFS during construction. Table 10 below summarizes the impacts to the CFS. CFS aquatic habitat is all waters below the OHWM and is equivalent to the “waters of the U.S.” habitat within the Wetlands and Other Waters
section of this chapter. Impacts to riparian areas are summarized in the Natural Communities section of this chapter, and for account for 0.44 acre.

<table>
<thead>
<tr>
<th>Habitat</th>
<th>potential temporary impacts (acres)</th>
<th>potential permanent impacts (acres)</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>CFS aquatic habitat</td>
<td>0.28</td>
<td>0.04</td>
<td>Fish passage work is considered temporary and beneficial long-term; permanent impacts are due to removal of the triple culverts (36 feet) and concrete apron (75 feet) over 111 feet and 0.05 acre of Waters of the U.S.</td>
</tr>
<tr>
<td>CFS riparian habitat</td>
<td>0.44</td>
<td>0</td>
<td>Fish passage work is considered temporary and beneficial long-term. CFS habitat enhancements will be added to the fish passage design in consultation with regulatory agencies.</td>
</tr>
</tbody>
</table>

*A All impacts are based on preliminary design and may change. Impacts will be updated if needed during the permitting process.

*b Temporary impacts will be restored onsite

Avoidance, Minimization, and/or Mitigation Measures

The Department has incorporated general avoidance and minimization measures for this project that apply to the CFS, which are found in the Natural Communities section of this chapter.

Avoidance and minimization measures specific to the CFS include the following:

- Working in Huichica Creek and the riparian area during low and no-flow periods between June 1 and October 15 to avoid potential impacts to CFS individuals. However, to minimize and avoid take of migratory birds, their nests and young, the Department proposes to conduct vegetation and tree removal within the riparian area between September 30 and January 30. This work will be limited to vegetation and trees that are within the project footprint. No grubbing or other ground disturbing actions will occur. Upon completion of this work, the Department will install storm water and erosion control BMPs. In addition, the Department proposes that revegetation work using hand tools be allowed to occur outside of the dry season work window to ensure successful revegetation outcomes.

- No pile-driving will be used for the project.

- Storing all equipment outside of Huichica Creek and the riparian area.
• Installing temporary high visibility fencing that will outline and protect ESAs prior to the start of construction. The ESA fencing will be delineated on the final plans, and the fence will remain on-site until job completion.

• Installing silt fences on the slopes adjacent to the work area to prevent silt from entering the watershed. Erosion controls will be maintained during the construction period.

• The Department will prepare a water diversion and dewatering plan.

• All excess soil will be disposed of at an approved upland site.

• A qualified biologist will be on-site during construction to monitor construction activities to ensure take is avoided or minimized.

• Specific avoidance and minimization measures from all permits will be incorporated into the project plans and specifications and enforced during construction.

Compensatory Mitigation

The Department finds that the project is self-mitigating for the CFS. Onsite improvements should result in improved conditions for the CFS and other species in general.

The Department will improve CFS habitat based on the following:

• Removing the triple culverts and paved creek bottom downstream from the bridge will restore a more natural stream bottom and allow for natural stream processes to occur underneath the bridge (36 feet) and approximately 75 feet downstream.

• Replacement of the triple culverts will remove a creek constriction flow point, allowing for a natural creek bottom and plant colonization of areas under the bridge and within the former concrete apron area.

• The original proposed fish passage design was 2.9% grade, which met CDFW and NOAA Fisheries fish passage guidelines. The Department has worked with the CDFW and has redesigned the grade to 2.5% in order to allow for more potential stability through time. This change requires 80 more of creek restoration.

• The proposed fish passage remediation project will free up to 1.45 miles upstream of CCCS critical habitat according to the 2011 Napa River Fish Barrier Plan. If all upstream barriers were removed, approximately 3.3 miles of CCCS critical habitat would become available. This barrier removal will likely have considerable beneficial impacts for the CFS well outside of the project footprint considering CFS winter habitat is located upstream of the triple culverts and fish passage barrier.
California Red-legged Frog

Affected Environment

An NES was completed for this project in August 2017.

The CRLF was federally listed as threatened species on May 23, 1996. A recovery plan was published for CRLF on September 12, 2002. Critical habitat was designated for this species on April 13, 2006, and a final revision was published on March 17, 2010. This project falls outside of the critical habitat for the CRLF.

The historical range of the CRLF extended coastaly from the vicinity of Elk Creek in Mendocino County, California, and inland from the vicinity of Redding, Shasta County, California, southward to northwestern Baja California, Mexico. The CRLF was historically documented in 46 counties, but the species is now extant in 238 drainages within 23 counties, representing a loss of 70 percent of its former range. CRLF is still locally abundant within portions of the San Francisco Bay Area and the Central Coast.

The CRLF predominantly inhabits permanent water sources such as streams, lakes, marshes, natural and constructed ponds, and ephemeral drainages in valley bottoms and foothills up to 4,921 feet in elevation. These areas may be characterized by the presence of dense, shrubby, or emergent vegetation closely associated with deep-water pools with fringes of cattails and dense stands of overhanging vegetation, and frogs will remain active throughout the summer. The species may also be found in ephemeral creeks and drainages and in disturbed areas such as channelized creeks and drainage ditches in urban and agricultural areas. CRLF habitats have been characterized by the USFWS, based on functional value, as aquatic breeding habitat, non-breeding aquatic and riparian habitat, upland habitat, and dispersal habitat. These habitats comprise the primary constituent elements for the CRLF, which are physical or biological features essential to the conservation of a species and which designation of its critical habitat is based on. Such features include areas used for normal feeding and sheltering behaviors and space for breeding and population growth and undisturbed habitats.

For CRLF, aquatic breeding habitat includes natural water features, such as slow-moving streams and pools within streams and manmade ponds that are capable of sustaining all aquatic life stages of the CRLF. These areas must hold water for at least twenty weeks during the year, which is the minimum amount of time needed for CRLF breeding and tadpole development and metamorphosis. Aquatic habitat need not be present every year, because CRLF can live eight to ten years in the wild.

Non-breeding aquatic and riparian habitat includes areas such as springs, seeps, moist cracks within dried ponds, and vegetated areas growing within the floodplains of rivers and streams. These areas do not hold enough water for CRLF breeding but provide the space needed for foraging and cover to sustain CRLF individuals. These areas are also important for retaining moisture and avoiding solar exposure and are important particularly during drought periods and for dispersal to other breeding habitats.

Upland habitats are important, because they buffer suitable aquatic habitat for dispersal movements and provide space for foraging, sheltering, and avoiding predation. These areas generally support plant species such as blackberry (Rubus spp.), poison oak (Toxicodendron diversilobum), coyote brush (Baccharis pilularis), oaks (Quercus spp.), and grasses. Upland habitat also consists of areas where CRLF can seek shelter such as under boulders, rocks,
animal burrows, fallen logs, and agricultural debris like watering troughs and hay stacks and forage on terrestrial species.

Dispersal habitat refers to accessible upland or riparian habitat located within one mile of occupied breeding areas. This includes natural habitats and altered habitats such as agricultural fields that do not contain barriers (e.g., heavily traveled roads without bridges or culverts) to dispersal.

The CRLF typically breeds between November and April, with earlier breeding records occurring in southern localities. Breeding often occurs in still or slow moving water at least 2.5 feet deep with emergent vegetation, such as cattails (Typha spp.), tules (Scirpus spp.), or overhanging willows. The CRLF has paired vocal sacs and vocalize in air. Female CRLF deposit egg masses on emergent vegetation so that the egg mass floats on or near the surface of the water. Individuals occurring in coastal drainages are active year-round, whereas those found in interior sites are normally less active during the cold season.

CRLF are often prolific breeders, laying their eggs during or shortly after large rainfall events in late winter and early spring. Egg masses containing 2,000 to 5,000 eggs are attached to vegetation below the surface and hatch after six to 14 days. In coastal lagoons, the most significant mortality factor in the pre-hatching stage is water salinity. Increased siltation during the breeding season can cause asphyxiation of eggs and small larvae. Larvae undergo metamorphosis 3.5 to seven months following hatching and reach sexual maturity at two to four years of age.

CRLF do not have a distinct breeding migration. Adult CRLF are often associated with permanent bodies of water. Some CRLF remain at breeding sites all year while others disperse. Dispersal distances are typically less than 0.5-mile, with a few individuals moving up to distances of one to two miles. The CRLF has been observed dispersing along riparian corridors and overland to other aquatic sites. The CRLF may move through riparian corridors, but some individuals, especially on rainy nights, move directly from one site to another through normally inhospitable habitats, such as heavily grazed pastures or oak-grassland savannas. Migratory movements have been characterized as the movement between aquatic sites and are most often associated with breeding activities. The CRLF has been documented traveling up to two miles without apparent regard to topography, vegetation type, or riparian corridors. Meanwhile, non-migrating frogs typically stay within 200 feet of aquatic habitat and are most often associated with dense vegetative cover, such as California blackberry (Rubus ursinus), poison oak (Toxicodendron diversilobum), and coyote brush.

A review of the CNDDB identified ten documented CRLF occurrences within a ten-mile radius of the project footprint. The nearest occurrence is CNDDB #1062 which is located approximately 7.3 miles to the southeast of the project footprint, and was observed in 2008.

At the time of this study, no CNDDB records occur within Huichica Creek, or are hydrologically connected to Huichica Creek and the project footprint. However, the Department has inferred presence based on past consultation with USFWS in a 2005 BO for the Duhig Roadway Rehabilitation and Curve Realignment project, which at that time included the current Huichica Creek project footprint. The 2005 BO states in part:

Protocol surveys have not been conducted in the action area; however, potential breeding ponds are in the vicinity and suitable dispersal habitat is present in Huichica Creek and several agricultural drainage ditches. California
red-legged frogs have been recorded moving 1-2 miles. The action area contains
habitat components that can be used by CRLF for feeding, resting, mating,
movement corridors, and other essential behaviors. Therefore, the USFWS
believes that CRLF is reasonably certain to occur within the action area because
of recent records in the vicinity of the action area, biology and ecology of the
animal, and the presence of suitable habitat in and adjacent to the action area.

There is no CRLF USFWS critical habitat or core recovery units within the footprint or BSA. The
nearest critical habitat unit occurs over approximately 7.5 miles in horizontal distance to the
southeast in Napa County. No critical habitat or core recovery unit is hydrologically connected
to the footprint or the BSA.

Environmental Consequences

The Department has inferred presence for the CRLF through past formal consultation and
current technical assistance with the USFWS. The Department conducted an interagency site
visit with John Cleckler of the USFWS on July 15, 2016 to discuss the current project design.

The project “May Affect, and is Likely to Adversely Affect” the CRLF during construction. Table
11 below summarizes impacts to the CRLF. CRLF aquatic habitat is all waters below the
OHWM and is equivalent to the “waters of the U.S.” habitat. CRLF upland habitat includes the
riparian area along Huichica Creek and the non-riparian upland along SR 121. Impacts to
riparian areas are summarized in the Natural Communities section of this chapter.
### Table 11 - Impacts to Potential California Red-legged Frog (CRLF) Upland and Aquatic Habitat

<table>
<thead>
<tr>
<th>Habitat</th>
<th>potential temporary impacts (acres)</th>
<th>potential permanent impacts (acres)</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upland</td>
<td>3.69</td>
<td>0.39</td>
<td>Permanent impacts to upland occur from shoulder widening along SR 121 directly adjacent to the roadway. This habitat consists of ruderal vegetation that is highly disturbed from day and nighttime traffic, mowing, and other maintenance activities. It is also bounded by intensive viticulture. Fish passage work is considered temporary and beneficial long-term. Barrier removal and a grade of 2.5% should enhance potential frog movements within the Huichica Creek riparian corridor.</td>
</tr>
<tr>
<td>Aquatic</td>
<td>0.28</td>
<td>0.04</td>
<td>Fish passage work is considered temporary and beneficial long-term; permanent impacts are due to removal of the triple culverts and concrete apron over 111 feet and 0.05 acre of Waters of the U.S.</td>
</tr>
</tbody>
</table>

*a All impacts are based on preliminary design and may change. Impacts will be updated if needed during the permitting process.
*b Temporary impacts will be restored onsite.

### Avoidance, Minimization, and/or Mitigation Measures

The Department has incorporated general avoidance and minimization measures for this project that apply to the CRLF, which are found in the Natural Communities section of this chapter.

Avoidance and minimization measures specific to the CRLF include the following:

- Working in Huichica Creek and the riparian area during low and no-flow periods between June 1 and October 30 to avoid potential impacts to CRLF individuals. However, to minimize and avoid take of migratory birds, their nests and young, the Department proposes to conduct vegetation and tree removal within the riparian area between September 30 and January 30. This work will be limited to vegetation and trees that are within the project footprint. No grubbing or other ground disturbing actions will occur. Upon completion of this work, the Department will install storm water and erosion control BMPs. In addition, the Department proposes that revegetation work using hand tools be allowed to occur outside of the dry season work window to ensure successful revegetation outcomes.

- Storing all equipment outside of Huichica Creek and the riparian area.
• Installing temporary high visibility fencing that will outline and protect ESAs prior to the start of construction. The ESA fencing will be delineated on the final plans, and the fence will remain on-site until job completion.

• Installing temporary WEF around potential CRLF habitat

• The Department will prepare a water diversion and dewatering plan.

• A qualified biologist will be on-site during construction to monitor construction activities to ensure take is avoided or minimized.

• Specific avoidance and minimization measures from all permits will be incorporated into the project plans and specifications and enforced during construction.

Compensatory Mitigation

The Department finds that the project is self-mitigating for the CRLF. Onsite improvements should result in improved conditions for the CRLF and other species in general.

The Department will improve CRLF habitat from existing conditions based on the following:

• Removing the triple culverts and paved creek bottom downstream from the bridge will restore a more natural stream bottom and allow for natural stream processes to occur underneath the bridge (36 feet) and approximately 75 feet downstream.

• Replacement of the triple culverts will remove a creek constriction flow point, allowing for a natural creek bottom and plant colonization of areas under the bridge and within the former concrete apron area.

• The original proposed fish passage design was 2.9% grade, which met CDFW and NOAA Fisheries fish passage guidelines. The Department has worked with the CDFW and has redesigned the grade to 2.5% in order to allow for more potential stability through time. This change requires 80 more feet of work upstream of the bridge.

• The current fish passage barrier is also a potential barrier to tadpole movements if the CRLF is present in the system or it colonizes Huichica Creek in the future. The proposed fish passage remediation project will free up to 1.45 miles upstream according to the 2011 Napa River Fish Barrier Plan. If all upstream barriers were removed, approximately 3.3 miles of habitat would become available. Thus, barrier removal could have considerable beneficial impacts for the CRLF well outside of the project footprint.
INVASIVE SPECIES

Regulatory Setting

On February 3, 1999, President William J. Clinton signed Executive Order (EO) 13112 requiring federal agencies to combat the introduction or spread of invasive species in the United States. The order defines invasive species as "any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem whose introduction does or is likely to cause economic or environmental harm or harm to human health." Federal Highway Administration (FHWA) guidance issued August 10, 1999 directs the use of the State's invasive species list maintained by the California Invasive Species Council to define the invasive species that must be considered as part of the National Environmental Policy Act (NEPA) analysis for a proposed project.

Affected Environment

An NES was completed for this project in August 2017.

Invasive aquatic species are present within or adjacent to the plant and habitat BSA, including bullfrogs and green sunfish. Invasive plant species are also present within or adjacent to the BSA, including eucalyptus and tree of heaven.

Environmental Consequences

None of the species on the California list of invasive species is used by the Department for erosion control or landscaping in Napa County. All equipment and materials will be inspected for the presence of invasive species.

Avoidance, Minimization, and/or Mitigation Measures

Limited exotics control is being proposed pursuant to Executive Order 13112 (1999). Pending agency approval, the Department proposes to eradicate bullfrogs, green sunfish, and other invasive aquatic species if encountered during construction monitoring. Department standard BMPs will ensure avoidance of the spread of exotics due to construction-related activities.

In compliance with the Executive Order on Invasive Species, EO 13112, and guidance from the FHWA, the landscaping and erosion control included in the project will not use species listed as invasive. In areas of particular sensitivity, extra precautions will be taken if invasive species are found in or next to the construction areas. These include the inspection and cleaning of construction equipment and eradication strategies to be implemented should an invasion occur.
Cumulative Impacts

Regulatory Setting

Cumulative impacts are those that result from past, present, and reasonably foreseeable future actions, combined with the potential impacts of this proposed project. A cumulative effect assessment looks at the collective impacts posed by individual land use plans and projects. Cumulative impacts can result from individually minor but collectively substantial impacts taking place over a period of time.

Cumulative impacts to resources in the project area may result from residential, commercial, industrial, and highway development, as well as from agricultural development and the conversion to more intensive agricultural cultivation. These land use activities can degrade habitat and species diversity through consequences such as displacement and fragmentation of habitats and populations, alteration of hydrology, contamination, erosion, sedimentation, disruption of migration corridors, changes in water quality, and introduction or promotion of predators. They can also contribute to potential community impacts identified for the project, such as changes in community character, traffic patterns, housing availability, and employment.

California Environmental Quality Act (CEQA) Guidelines Section 15130 describes when a cumulative impact analysis is necessary and what elements are necessary for an adequate discussion of cumulative impacts. The definition of cumulative impacts under CEQA can be found in Section 15355 of the CEQA Guidelines. A definition of cumulative impacts under the National Environmental Policy Act (NEPA) can be found in 40 Code of Federal Regulations (CFR), Section 1508.7 of the Council on Environmental Quality (CEQ) Regulations.

Affected Environment

Cumulative impacts are those that result from past, present, and reasonably foreseeable future actions, combined with the potential impacts of the proposed project. A cumulative effect assessment evaluates the collective impacts posed by individual land use plans and projects. Cumulative impacts can result from individually minor, but collectively substantial, impacts taking place over a period of time.

Resources with No Cumulative Effects

As stated previously at the beginning of this chapter, scoping for the environmental review of this SR 121 Huichica Creek Bridge Replacement and Fish Passage Project Initial Study/Environmental Assessment identified certain resource topics that are not applicable to the proposed project; therefore, the proposed project will not result in cumulative impacts to the following resources:

- Existing and Future Land Use
- Consistency with Federal, State, Regional and Local Plans and Programs
- Growth
- Community Character and Cohesion
- Environmental Justice
- Farmlands/Timberlands
- Coastal Zone
- Parks and Recreational Facilities
- Wild and Scenic Rivers
- Air Quality
- Noise
- Traffic and Transportation/Pedestrian and Bicycle Facilities
- Hazardous Waste

Similarly, the following resources were evaluated in this chapter, but it has been determined that the proposed project will not result in a direct or indirect adverse effect on the resource, and therefore will not contribute to a cumulative impact on that resource:

- Relocations and Real Property Acquisition
- Utilities/Emergency Services
- Hydrology and Floodplain
- Paleontology
- Plant Species (Special-status)

The following resources were evaluated as noted in this chapter, but it has been determined that the proposed project will not result in adverse effects, thus no cumulative impacts, on the following resources:

- Visual/Aesthetics
- Water Quality and Storm Water Runoff
- Natural Communities
- Wetlands and other Waters
- Animal Species (Special-status except those that are Threatened and Endangered species discussed below)
- Invasive Species

Certain resources are not susceptible to incremental/cumulative effects. One example is Geology/Soils/Seismic/Topography. These resources are site-specific and relate to the type of building or structure proposed as well as soil composition and slope on the site. There is no additive effect of the geologic/seismic hazards associated with other approved or foreseeable development together with the proposed project; therefore, no further cumulative analysis of this resource is warranted.

Resources with the Potential to Contribute to Cumulative Effects

Threatened and Endangered Species

As discussed in the Threatened and Endangered Species section of this chapter, the Department has determined that the project "May Affect, and is Likely to Adversely Affect" the CCCS, the CFS, and the CRLF during construction.

The Department finds that the project is self-mitigating for the CCCS, CFS and CRLF. Thus, the project will not result in a direct or indirect adverse effect on threatened and endangered species, and therefore not contribute to cumulative impacts. Onsite improvements should result in improved conditions for the CCCS, CFS, CRLF and other species in general.

The Department will improve CCCS, CFS and CRLF habitat based on the following:

- Removing the triple culverts and paved creek bottom downstream from the bridge will restore a more natural stream bottom and allow for natural stream processes to occur underneath the bridge (36 feet) and approximately 75 feet downstream.
• Replacement of the triple culverts will remove a creek constriction flow point, allowing for a natural creek bottom and plant colonization of areas under the bridge and within the former concrete apron area.

• The original proposed fish passage design was 2.9% grade, which met CDFW and NOAA Fisheries fish passage guidelines. The Department has worked with the CDFW and has redesigned the grade to 2.5% in order to allow for more potential creek stability through time. This change requires 80 more feet of work upstream of the bridge.

For the CCCS, the proposed fish passage remediation project will free up to 1.45 miles upstream CCCS critical habitat according to the 2011 Napa River Fish Barrier Plan. If all upstream barriers were removed, approximately 3.3 miles of CCCS critical habitat would become available. Thus, barrier removal will have considerable beneficial impacts for the CCCS well outside of the project footprint.

This barrier removal will also likely have considerable beneficial impacts for the CFS well outside of the project footprint considering CFS winter habitat is located upstream of the triple culverts and fish passage barrier.

The current fish passage barrier is also a potential barrier to tadpole movements if the CRLF is present in the system or it colonizes Huichica Creek in the future. The proposed fish passage remediation project will free up to 1.45 miles upstream according to the 2011 Napa River Fish Barrier Plan. If all upstream barriers were removed, approximately 3.3 miles of habitat would become available. Thus, barrier removal could have considerable beneficial impacts for the CRLF well outside of the project footprint.

Cultural Resources

Resource Study Area

The Resource Study Area (RSA) for cultural resources is the Lower Napa Valley and San Pablo Bay estuary. Bounded by the Mayacamas Mountains to the west and the Vaca Mountains to the east and opening into the northern San Pablo Bay, the RSA encompasses portions of several subsidiary drainages of the larger Napa River watershed. Table 12 shows projects within the RSA, and Figure 9 depicts the RSA.

Health and Historical Context

With access to marsh, bay, riparian, and quarry resources, the RSA would have provided ideal conditions for human settlement, as confirmed by dozens of archaeological investigations conducted from the 1910s onward that have identified Native American residential, task-specific, and cemetery sites distributed throughout the valley. The amassed body of knowledge has culminated into major research themes such as settlement patterning, subsistence strategies, environmental reconstruction, and refinement of a regionally specific chronology.

The project area has been historically altered primarily by agricultural development generally confined to the establishment of vineyards and wineries. Aside from this, and the construction of State Route 121, the area has remained minimally developed. These activities have nonetheless affected the preservation of archaeological site CA-NAP-189/H, as discussed below. The attenuation of Native American archaeological resources is by its nature a cumulative impact to the physical existence of sacred sites and the potential to address the

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research issues discussed above. Considering the health of the resource in terms of physical preservation, much of the site has been previously removed through road construction and archaeological data recovery, suggesting a state of moderate health. However, mitigation measures previously enacted have contributed to the informative health of the resource; data recovery resulted in a detailed record of the site’s history.

Cumulative Impacts

While much of the RSA has been intensively studied, the level of prehistoric activity in the region suggests that many as-yet undiscovered sites are present. Past, current, and funded future projects in the greater RSA that have identified impacts to Native American archaeological sites are listed in the table below. If these projects ultimately resulted or will result in the physical destruction of known or as-yet undiscovered resources, this may constitute a cumulative impact to the archaeological landscape.

As discussed in the Cultural Resources section of this chapter, three historic properties, all archaeological sites, were identified within the APE. CA-NAP-190 and the reburial site associated with CA-NAP-189/H will not be impacted by the project. The project will result in the physical destruction of portions of CA-NAP-189/H. CA-NAP-189/H was similarly impacted by the now-complete Duhig Road Improvements project. The currently proposed project has the potential to result in further physical destruction of portions of CA-NAP-189/H that remained after the Duhig Road project was complete. It is currently unknown precisely where these remaining site deposits may be located, as testing was precluded during the environmental phase of the project by denial of access to private property. If deposits associated with CA-NAP-189/H are found within the project footprint, then a site-specific cumulative impact will exist.

None of the current or future projects listed below were determined to create or increase impacts within the Huichica Creek project area. Therefore, no further impacts to CA-NAP-189/H are expected as a result of the projects reviewed. The proposed Huichica Creek Culvert Replacement and Fish Passage Repair project includes mitigation measures (as implemented through the Archaeological Treatment Plan, which includes data recovery, monitoring, reporting, and fencing to protect portions of the site) at CA-NAP-189/H that would reduce the loss of archeological data from the lower Napa Valley and San Pablo Bay region. The impact to the site imposed by the Duhig Road project was mitigated to a less-than-significant level under CEQA through a program of archaeological data recovery similar to the program currently proposed. The cumulative impact to CA-NAP-189/H will be mitigated by further data recovery and protective measures.

No net loss to the archaeological landscape of the RSA will occur as a result of the direct impacts of the project to CA-NAP-189/H. A substantial body of data has been compiled thus far of similar site types, and many sites of this nature are known within the RSA. While several development projects have been approved or recently completed within the RSA, the majority of those projects did not or will not impact Native American archaeological sites.
Table 12 – Projects within the Cultural Resources Resource Study Area

<table>
<thead>
<tr>
<th>Figure 9 Key</th>
<th>Project /Location</th>
<th>Project Type</th>
<th>Document Type</th>
<th>Project Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Duhig Road Improvements (SR 121 PM 0.3/2.1)</td>
<td>Transportation</td>
<td>Categorical Exclusion (CE)/Initial Study (IS)-Mitigated Negative Declaration (MND)</td>
<td>Complete</td>
</tr>
<tr>
<td>3</td>
<td>Milliken-Sarco-Tulocay Pipeline Project</td>
<td>Environmental</td>
<td>EIR</td>
<td>Complete</td>
</tr>
<tr>
<td>4</td>
<td>Syar Napa Quarry Expansion (west of Skyline Wilderness Park)</td>
<td>Industrial</td>
<td>EIR</td>
<td>Approved</td>
</tr>
</tbody>
</table>

Figure 9 – Projects within the Cultural Resources Resource Study Area
Climate Change

Climate change refers to long-term changes in temperature, precipitation, wind patterns, and other elements of the earth’s climate system. An ever-increasing body of scientific research attributes these climatological changes to greenhouse gas (GHG) emissions, particularly those generated from the production and use of fossil fuels.

While climate change has been a concern for several decades, the establishment of the Intergovernmental Panel on Climate Change (IPCC) by the United Nations and World Meteorological Organization in 1988 has led to increased efforts devoted to GHG emissions reduction and climate change research and policy. These efforts are primarily concerned with the emissions of GHGs generated by human activity, including carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), tetrafluoromethane, hexafluoroethane, sulfur hexafluoride (SF6), HFC-23 (fluoroform), HFC-134a (s, s, s, 2-tetrafluoroethane), and HFC-152a (difluoroethane).

In the U.S., the main source of GHG emissions is electricity generation, followed by transportation.8 In California, however, transportation sources (including passenger cars, light-duty trucks, other trucks, buses, and motorcycles) are the largest contributors of GHG emissions.9 The dominant GHG emitted is CO2, mostly from fossil fuel combustion.

Two terms are typically used when discussing how we address the impacts of climate change: “greenhouse gas mitigation” and “adaptation.” “Greenhouse gas mitigation” is a term for reducing GHG emissions to reduce or “mitigate” the impacts of climate change. “Adaptation” refers to planning for and responding to impacts resulting from climate change (such as adjusting transportation design standards to withstand more intense storms and higher sea levels).

REGULATORY SETTING

This section outlines federal and state efforts to comprehensively reduce GHG emissions from transportation sources.

Federal

To date, no national standards have been established for nationwide mobile-source GHG reduction targets, nor have any regulations or legislation been enacted specifically to address climate change and GHG emissions reduction at the project level.

The National Environmental Policy Act (NEPA) (42 United States Code [USC] Part 4332) requires federal agencies to assess the environmental effects of their proposed actions prior to making a decision on the action or project.

The Federal Highway Administration (FHWA) recognizes the threats that extreme weather, sea-level change, and other changes in environmental conditions pose to valuable transportation infrastructure and those who depend on it. FHWA therefore supports a sustainability approach that assesses vulnerability to climate risks and incorporates resilience into planning, asset management, project development and design, and operations and maintenance practices.10 This approach encourages planning for sustainable highways by addressing climate risks while

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9 https://www.arb.ca.gov/cc/inventory/data/data.htm
10 https://www.fhwa.dot.gov/environment/sustainability/resilience/
balancing environmental, economic, and social values—"the triple bottom line of sustainability." Program and project elements that foster sustainability and resilience also support economic vitality and global efficiency, increase safety and mobility, enhance the environment, promote energy conservation, and improve the quality of life. Addressing these factors up front in the planning process will assist in decision-making and improve efficiency at the program level, and will inform the analysis and stewardship needs of project-level decision-making.

Various efforts have been promulgated at the federal level to improve fuel economy and energy efficiency to address climate change and its associated effects. The Energy Policy Act of 1992 (EPACT92, 102nd Congress H.R.776.ENR): With this act, Congress set goals, created mandates, and amended utility laws to increase clean energy use and improve overall energy efficiency in the United States. EPACT92 consists of 27 titles detailing various measures designed to lessen the nation's dependence on imported energy, provide incentives for clean and renewable energy, and promote energy conservation in buildings. Title III of EPACT92 addresses alternative fuels. It gave the U.S. Department of Energy administrative power to regulate the minimum number of light-duty alternative fuel vehicles required in certain federal fleets beginning in fiscal year 1993. The primary goal of the Program is to cut petroleum use in the United States by 2.5 billion gallons per year by 2020.

Energy Policy Act of 2005 (109th Congress H.R.6 (2005–2006): This act sets forth an energy research and development program covering: (1) energy efficiency; (2) renewable energy; (3) oil and gas; (4) coal; (5) Indian energy; (6) nuclear matters and security; (7) vehicles and motor fuels, including ethanol; (8) hydrogen; (9) electricity; (10) energy tax incentives; (11) hydropower and geothermal energy; and (12) climate change technology.

Energy Policy and Conservation Act of 1975 (42 USC Section 6201) and Corporate Average Fuel Standards: This act establishes fuel economy standards for on-road motor vehicles sold in the United States. Compliance with federal fuel economy standards is determined through the Corporate Average Fuel Economy (CAFE) program on the basis of each manufacturer's average fuel economy for the portion of its vehicles produced for sale in the United States.

Executive Order 13514, Federal Leadership in Environmental, Energy, and Economic Performance, 74 Federal Register 52117 (October 8, 2009): This federal EO set sustainability goals for federal agencies and focuses on making improvements in their environmental, energy, and economic performance. It instituted as policy of the United States that federal agencies measure, report, and reduce their GHG emissions from direct and indirect activities.

Executive Order 13693, Planning for Federal Sustainability in the Next Decade, 80 Federal Register 15869 (March 2015): This EO reaffirms the policy of the United States that federal agencies measure, report, and reduce their GHG emissions from direct and indirect activities. It sets sustainability goals for all agencies to promote energy conservation, efficiency, and management by reducing energy consumption and GHG emissions. It builds on the adaptation and resiliency goals in previous executive orders to ensure agency operations and facilities prepare for impacts of climate change. This order revokes Executive Order 13514.

U.S. EPA's authority to regulate GHG emissions stems from the U.S. Supreme Court decision in Massachusetts v. EPA (2007). The Supreme Court ruled that GHGs meet the definition of air pollutants under the existing Clean Air Act and must be regulated if these gases could be reasonably anticipated to endanger public health or welfare. Responding to the Court's ruling,

U.S. EPA finalized an *endangerment finding* in December 2009. Based on scientific evidence it found that six GHGs constitute a threat to public health and welfare. Thus, it is the Supreme Court’s interpretation of the existing Act and EPA’s assessment of the scientific evidence that form the basis for EPA’s regulatory actions.

U.S. EPA in conjunction with the National Highway Traffic Safety Administration (NHTSA) issued the first of a series of GHG emission standards for *new cars and light-duty vehicles* in April 2010\(^\text{12}\) and significantly increased the fuel economy of all new passenger cars and light trucks sold in the United States. The standards required these vehicles to meet an average fuel economy of 34.1 miles per gallon by 2016. In August 2012, the federal government adopted the second rule that increases fuel economy for the fleet of passenger cars, light-duty trucks, and medium-duty passenger vehicles for model years 2017 and beyond to average fuel economy of 54.5 miles per gallon by 2025. Because NHTSA cannot set standards beyond model year 2021 due to statutory obligations and the rules’ long timeframe, a mid-term evaluation is included in the rule. The Mid-Term Evaluation is the overarching process by which NHTSA, EPA, and ARB will decide on CAFE and GHG emissions standard stringency for model years 2022–2025. NHTSA has not formally adopted standards for model years 2022 through 2025. However, the EPA finalized its mid-term review in January 2017, affirming that the target fleet average of at least 54.5 miles per gallon by 2025 was appropriate. In March 2017, President Trump ordered EPA to reopen the review and reconsider the mileage target.\(^\text{13}\)

NHTSA and EPA issued a Final Rule for “Phase 2” for medium- and heavy-duty vehicles to improve fuel efficiency and cut carbon pollution in October 2016. The agencies estimate that the standards will save up to 2 billion barrels of oil and reduce CO₂ emissions by up to 1.1 billion metric tons over the lifetimes of model year 2018–2027 vehicles.

*Presidential Executive Order 13783, Promoting Energy Independence and Economic Growth,* of March 28, 2017, orders all federal agencies to apply cost-benefit analyses to regulations of GHG emissions and evaluations of the social cost of carbon, nitrous oxide, and methane.

**State**

With the passage of legislation including State Senate and Assembly bills and executive orders, California has been innovative and proactive in addressing GHG emissions and climate change.

Assembly Bill 1493, Pavley Vehicular Emissions: Greenhouse Gases, 2002: This bill requires the California Air Resources Board (ARB) to develop and implement regulations to reduce automobile and light truck GHG emissions. These stricter emissions standards were designed to apply to automobiles and light trucks beginning with the 2009-model year.

Executive Order S-3-05 (June 1, 2005): The goal of this executive order (EO) is to reduce California’s GHG emissions to: (1) year 2000 levels by 2010, (2) year 1990 levels by 2020, and (3) 80 percent below year 1990 levels by 2050. This goal was further reinforced with the passage of Assembly Bill 32 in 2006 and SB 32 in 2016.

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Assembly Bill 32 (AB 32), Chapter 488, 2006: Núñez and Pavley, The Global Warming Solutions Act of 2006: AB 32 codified the 2020 GHG emissions reduction goals as outlined in EO S-3-05, while further mandating that ARB create a scoping plan and implement rules to achieve “real, quantifiable, cost-effective reductions of greenhouse gases.” The Legislature also intended that the statewide GHG emissions limit continue in existence and be used to maintain and continue reductions in emissions of GHGs beyond 2020 (Health and Safety Code Section 38551(b)). The law requires ARB to adopt rules and regulations in an open public process to achieve the maximum technologically feasible and cost-effective GHG reductions.

Executive Order S-20-06 (October 18, 2006): This order establishes the responsibilities and roles of the Secretary of the California Environmental Protection Agency (Cal/EPA) and state agencies with regard to climate change.

Executive Order S-01-07 (January 18, 2007): This order sets forth the low carbon fuel standard (LCFS) for California. Under this EO, the carbon intensity of California’s transportation fuels is to be reduced by at least 10 percent by the year 2020. ARB re-adopted the LCFS regulation in September 2015, and the changes went into effect on January 1, 2016. The program establishes a strong framework to promote the low-carbon fuel adoption necessary to achieve the Governor's 2030 and 2050 GHG reduction goals.

Senate Bill 97 (SB 97), Chapter 185, 2007, Greenhouse Gas Emissions: This bill requires the Governor’s Office of Planning and Research (OPR) to develop recommended amendments to the California Environmental Quality Act (CEQA) Guidelines for addressing GHG emissions. The amendments became effective on March 18, 2010.

Senate Bill 375 (SB 375), Chapter 728, 2008, Sustainable Communities and Climate Protection: This bill requires ARB to set regional emissions reduction targets for passenger vehicles. The Metropolitan Planning Organization (MPO) for each region must then develop a "Sustainable Communities Strategy" (SCS) that integrates transportation, land-use, and housing policies to plan how it will achieve the emissions target for its region.

Senate Bill 391 (SB 391), Chapter 585, 2009, California Transportation Plan: This bill requires the State's long-range transportation plan to meet California's climate change goals under AB 32.

Executive Order B-16-12 (March 2012) orders State entities under the direction of the Governor, including ARB, the California Energy Commission, and the Public Utilities Commission, to support the rapid commercialization of zero-emission vehicles. It directs these entities to achieve various benchmarks related to zero-emission vehicles.

Executive Order B-30-15 (April 2015) establishes an interim statewide GHG emission reduction target of 40 percent below 1990 levels by 2030 in order to ensure California meets its target of reducing GHG emissions to 80 percent below 1990 levels by 2050. It further orders all state agencies with jurisdiction over sources of GHG emissions to implement measures, pursuant to statutory authority, to achieve reductions of GHG emissions to meet the 2030 and 2050 GHG emissions reductions targets. It also directs ARB to update the Climate Change Scoping Plan to express the 2030 target in terms of million metric tons of carbon dioxide equivalent (MMTCO2e). Finally, it requires the Natural Resources Agency to update the state's climate adaptation strategy, Safeguarding California, every 3 years, and to ensure that its provisions are fully implemented.

Senate Bill 32, (SB 32) Chapter 249, 2016, codifies the GHG reduction targets established in EO B-30-15 to achieve a mid-range goal of 40 percent below 1990 levels by 2030.
ENVIRONMENTAL SETTING

In 2006, the Legislature passed the California Global Warming Solutions Act of 2006 (AB 32), which created a comprehensive, multi-year program to reduce GHG emissions in California. AB 32 required ARB to develop a Scoping Plan that describes the approach California will take to achieve the goal of reducing GHG emissions to 1990 levels by 2020. The Scoping Plan was first approved by ARB in 2008 and must be updated every 5 years. ARB approved the First Update to the Climate Change Scoping Plan on May 22, 2014. ARB is moving forward with a discussion draft of an updated Scoping Plan that will reflect the 2030 target established in EO B-30-15 and SB 32.

The AB 32 Scoping Plan and the subsequent updates contain the main strategies California will use to reduce GHG emissions. As part of its supporting documentation for the Draft Scoping Plan, ARB released the GHG inventory for California. ARB is responsible for maintaining and updating California’s GHG Inventory per H&SC Section 39607.4. The associated forecast/projection is an estimate of the emissions anticipated to occur in the year 2020 if none of the foreseeable measures included in the Scoping Plan were implemented.

An emissions projection estimates future emissions based on current emissions, expected regulatory implementation, and other technological, social, economic, and behavioral patterns. The projected 2020 emissions provided in Figure 10 represent a business-as-usual (BAU) scenario assuming none of the Scoping Plan measures are implemented. The 2020 BAU emissions estimate assists ARB in demonstrating progress toward meeting the 2020 goal of 431 MMTCO2e. The 2017 edition of the GHG emissions inventory (released June 2017) found total California emissions of 440.4 MMTCO2e, showing progress towards meeting the AB 32 goals.

The 2020 BAU emissions projection was revisited in support of the First Update to the Scoping Plan (2014). This projection accounts for updates to the economic forecasts of fuel and energy demand as well as other factors. It also accounts for the effects of the 2008 economic recession and the projected recovery. The total emissions expected in the 2020 BAU scenario include reductions anticipated from Pavley I and the Renewable Electricity Standard (30 MMTCO2e total). With these reductions in the baseline, estimated 2020 statewide BAU emissions are 509 MMTCO2e.

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14 2016 Edition of the GHG Emission Inventory Released (June 2016): https://www.arb.ca.gov/cc/inventory/data/data.htm
15 The revised target using Global Warming Potentials (GWP) from the IPCC Fourth Assessment Report (AR4)
PROJECT ANALYSIS

An individual project does not generate enough GHG emissions to significantly influence global climate change. Rather, global climate change is a cumulative impact. This means that a project may contribute to a potential impact through its incremental change in emissions when combined with the contributions of all other sources of GHG. In assessing cumulative impacts, it must be determined if a project’s incremental effect is “cumulatively considerable” (CEQA Guidelines Sections 15064(h)(1) and 15130). To make this determination the incremental impacts of the project must be compared with the effects of past, current, and probable future projects. To gather sufficient information on a global scale of all past, current, and future projects to make this determination is a difficult, if not impossible, task.

GHG emissions for transportation projects can be divided into those produced during operations and those produced during construction. The following represents a best faith effort to describe the potential GHG emissions related to the proposed project.

Operational Emissions

The purposes of the proposed project are to reduce the potential for cross-centerline and run-off-the road accidents on SR 121; provide continuity to the widening of SR 121 constructed in a previous project east and west of the Huichica Creek bridge; and satisfy regulatory fish passage requirements. This project proposes to widen SR 121 over Huichica Creek, remove the existing triple metal culvert, replace it with a free span bridge, and incorporate fish passage improvements and creek bed restoration along the creek. The proposed project is not a capacity increasing project so it is not anticipated to have any increase in operational GHG emissions as a result. The project is located in a semirural area outside any city’s sphere of influence or urban growth boundary, and the surrounding communities are not likely to experience significant increases in growth. As discussed below, construction emissions will be unavoidable, but there will likely be long-term GHG benefits associated with reduced maintenance and improved operation through smoother pavement surfaces.
Construction Emissions

Construction GHG emissions would result from material processing, on-site construction equipment, and traffic delays due to construction. These emissions will be produced at different levels throughout the construction phase; their frequency and occurrence can be reduced through innovations in plans and specifications and by implementing better traffic management during construction phases.

In addition, with innovations such as longer pavement lives, improved traffic management plans, and changes in materials, the GHG emissions produced during construction can be offset to some degree by longer intervals between maintenance and rehabilitation activities.

Construction generated GHG includes emissions resulted from material processing by onsite construction equipment, workers commuting to and from the project site, and traffic delays due to construction. The emissions will be produced at different rates throughout the project depending on the activities involved at various phases of construction. The analysis was focused on carbon dioxide (CO₂) emissions, as it is the single most important GHG pollutant due to its abundance when compared with other vehicle-emitted GHG, including methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbon (HFCs) and black carbon (BC).

Based on project information available for environmental studies, the construction-related CO₂ emissions were calculated using the Road Construction Emissions Model (RCERM), version 8.1.2, provided by the Sacramento Metropolitan Air Quality Management District. It was estimated that the total amount of CO₂ produced due to bridge replacement and fish passage construction would be 1,108 tons annually for construction duration of 24 months with an estimated project total of 2,215 tons.

To further reduce construction emissions, all construction contracts include the Caltrans Standard Specification 14-9.02, Air Pollution Control, requiring contractors to comply with air-pollutant-control rules, regulations, ordinances, and statutes; some of those provisions help reduce GHG emissions. The project will also implement a construction traffic management plan to minimize delays and idling traffic.

CEQA CONCLUSION

While the project will result in a slight increase in GHG emissions during construction, it is anticipated that the project will not result in any increase in operational GHG emissions. While it is Caltrans’ determination that in the absence of further regulatory or scientific information related to GHG emissions and CEQA significance, it is too speculative to make a significance determination regarding the project’s direct impact and its contribution on the cumulative scale to climate change, Caltrans is firmly committed to implementing measures to help reduce GHG emissions. These measures are outlined in the following section.

GREENHOUSE GAS REDUCTION STRATEGIES

Statewide Efforts

In an effort to further the vision of California’s GHG reduction targets outlined an AB 32 and SB 32, Governor Brown identified key climate change strategy pillars (concepts). These pillars highlight the idea that several major areas of the California economy will need to reduce emissions to meet the 2030 GHG emissions target. These pillars are (1) reducing today’s petroleum use in cars and trucks by up to 50 percent; (2) increasing from one-third to 50 percent
our electricity derived from renewable sources; (3) doubling the energy efficiency savings achieved at existing buildings and making heating fuels cleaner; (4) reducing the release of methane, black carbon, and other short-lived climate pollutants; (5) managing farm and rangelands, forests, and wetlands so they can store carbon; and (6) periodically updating the state’s climate adaptation strategy, *Safeguarding California*.

Figure 11 – The Governor’s Climate Change Pillars: 2030 Greenhouse Gas Reduction Goals

The transportation sector is integral to the people and economy of California. To achieve GHG emission reduction goals, it is vital that we build on our past successes in reducing criteria and toxic air pollutants from transportation and goods movement activities. GHG emission reductions will come from cleaner vehicle technologies, lower-carbon fuels, and reduction of vehicle miles traveled. One of Governor Brown’s key pillars sets the ambitious goal of reducing today’s petroleum use in cars and trucks by up to 50 percent by 2030.

Governor Brown called for support to manage natural and working lands, including forests, rangelands, farms, wetlands, and soils, so they can store carbon. These lands have the ability to remove carbon dioxide from the atmosphere through biological processes, and to then sequester carbon in above- and below-ground matter.

**Caltrans Activities**

Caltrans continues to be involved on the Governor’s Climate Action Team as the ARB works to implement EOs S-3-05 and S-01-07 and help achieve the targets set forth in AB 32. EO B-30-15, issued in April 2015, and SB 32 (2016), set a new interim target to cut GHG emissions to 40 percent below 1990 levels by 2030. The following major initiatives are underway at Caltrans to help meet these targets.

**California Transportation Plan (CTP 2040)**

The California Transportation Plan (CTP) is a statewide, long-range transportation plan to meet our future mobility needs and reduce GHG emissions. The CTP defines performance-based goals, policies, and strategies to achieve our collective vision for California’s future statewide,
integrated, multimodal transportation system. It serves as an umbrella document for all of the other statewide transportation planning documents.

SB 391 (Liu 2009) requires the CTP to meet California’s climate change goals under AB 32. Accordingly, the CTP 2040 identifies the statewide transportation system needed to achieve maximum feasible GHG emission reductions while meeting the state’s transportation needs. While MPOs have primary responsibility for identifying land use patterns to help reduce GHG emissions, CTP 2040 identifies additional strategies in Pricing, Transportation Alternatives, Mode Shift, and Operational Efficiency.

**CALTRANS STRATEGIC MANAGEMENT PLAN**

The Strategic Management Plan, released in 2015, creates a performance-based framework to preserve the environment and reduce GHG emissions, among other goals. Specific performance targets in the plan that will help to reduce GHG emissions include:

- Increasing percentage of non-auto mode share
- Reducing VMT per capita
- Reducing Caltrans’ internal operational (buildings, facilities, and fuel) GHG emissions

**FUNDING AND TECHNICAL ASSISTANCE PROGRAMS**

In addition to developing plans and performance targets to reduce GHG emissions, Caltrans also administers several funding and technical assistance programs that have GHG reduction benefits. These include the Bicycle Transportation Program, Safe Routes to School, Transportation Enhancement Funds, and Transit Planning Grants. A more extensive description of these programs can be found in *Caltrans Activities to Address Climate Change* (2013).

Caltrans Director’s Policy 30 (DP-30) Climate Change (June 22, 2012) is intended to establish a department policy that will ensure coordinated efforts to incorporate climate change into departmental decisions and activities.

*Caltrans Activities to Address Climate Change* (April 2013) provides a comprehensive overview of activities undertaken by Caltrans statewide to reduce GHG emissions resulting from agency operations.

**Project-Level GHG Reduction Strategies**

The following measures will also be implemented in the project to reduce GHG emissions and potential climate change impacts from the project.

- Replant trees removed due to construction activities to restore riparian zone. Trees help remove CO₂ from the atmosphere.

- According to Caltrans’ Standard Specifications, the contractor must comply with all local Air Pollution Control District’s rules, ordinances, and regulations for air quality restrictions.
ADAPTATION STRATEGIES

"Adaptation strategies" refer to how Caltrans and others can plan for the effects of climate change on the state's transportation infrastructure and strengthen or protect the facilities from damage—or, put another way, planning and design for resilience. Climate change is expected to produce increased variability in precipitation, rising temperatures, rising sea levels, variability in storm surges and their intensity, and the frequency and intensity of wildfires. These changes may affect the transportation infrastructure in various ways, such as damage to roadbeds from longer periods of intense heat; increasing storm damage from flooding and erosion; and inundation from rising sea levels. These effects will vary by location and may, in the most extreme cases, require that a facility be relocated or redesigned. These types of impacts to the transportation infrastructure may also have economic and strategic ramifications.

Federal Efforts

At the federal level, the Climate Change Adaptation Task Force, co-chaired by the CEQ, the Office of Science and Technology Policy (OSTP), and the National Oceanic and Atmospheric Administration (NOAA), released its interagency task force progress report on October 28, 2011, outlining the federal government's progress in expanding and strengthening the nation's capacity to better understand, prepare for, and respond to extreme events and other climate change impacts. The report provided an update on actions in key areas of federal adaptation, including: building resilience in local communities, safeguarding critical natural resources such as fresh water, and providing accessible climate information and tools to help decision-makers manage climate risks.

The federal Department of Transportation issued U.S. DOT Policy Statement on Climate Adaptation in June 2011, committing to "integrate consideration of climate change impacts and adaptation into the planning, operations, policies, and programs of DOT in order to ensure that taxpayer resources are invested wisely and that transportation infrastructure, services and operations remain effective in current and future climate conditions."17

To further the DOT Policy Statement, in December 15, 2014, FHWA issued order 5520 (Transportation System Preparedness and Resilience to Climate Change and Extreme Weather Events).18 This directive established FHWA policy to strive to identify the risks of climate change and extreme weather events to current and planned transportation systems. The FHWA will work to integrate consideration of these risks into its planning, operations, policies, and programs in order to promote preparedness and resilience; safeguard federal investments; and ensure the safety, reliability, and sustainability of the nation's transportation systems.

FHWA has developed guidance and tools for transportation planning that fosters resilience to climate effects and sustainability at the federal, state, and local levels.19

State Efforts

On November 14, 2008, then-Governor Arnold Schwarzenegger signed EO S-13-08, which directed a number of state agencies to address California's vulnerability to sea-level rise caused by climate change. This EO set in motion several agencies and actions to address the concern

16 https://obamawhitehouse.archives.gov/administration/eop/ceq/initiatives/resilience
18 https://www.fhwa.dot.gov/regsregs/directives/orders/5520.cfm
19 https://www.fhwa.dot.gov/environment/sustainability/resilience/
of sea-level rise and directed all state agencies planning to construct projects in areas vulnerable to future sea-level rise to consider a range of sea-level rise scenarios for the years 2050 and 2100, assess project vulnerability and, to the extent feasible, reduce expected risks and increase resiliency to sea-level rise. Sea-level rise estimates should also be used in conjunction with information on local uplift and subsidence, coastal erosion rates, predicted higher high water levels, and storm surge and storm wave data.

Governor Schwarzenegger also requested the National Academy of Sciences to prepare an assessment report to recommend how California should plan for future sea-level rise. The final report, *Sea-Level Rise for the Coasts of California, Oregon, and Washington* (Sea-Level Rise Assessment Report)\(^\text{20}\) was released in June 2012 and included relative sea-level rise projections for the three states, taking into account coastal erosion rates, tidal impacts, El Niño and La Niña events, storm surge, and land subsidence rates; and the range of uncertainty in selected sea-level rise projections. It provided a synthesis of existing information on projected sea-level rise impacts to state infrastructure (such as roads, public facilities, and beaches), natural areas, and coastal and marine ecosystems; and a discussion of future research needs regarding sea-level rise.

In response to EO S-13-08, the California Natural Resources Agency (Resources Agency), in coordination with local, regional, state, federal, and public and private entities, developed *The California Climate Adaptation Strategy* (Dec 2009),\(^\text{21}\) which summarized the best available science on climate change impacts to California, assessed California's vulnerability to the identified impacts, and outlined solutions that can be implemented within and across state agencies to promote resiliency. The adaptation strategy was updated and rebranded in 2014 as *Safeguarding California: Reducing Climate Risk* (Safeguarding California Plan).

Governor Jerry Brown enhanced the overall adaptation planning effort by signing EO B-30-15 in April 2015, requiring state agencies to factor climate change into all planning and investment decisions. In March 2016, sector-specific Implementation Action Plans that demonstrate how state agencies are implementing EO B-30-15 were added to the Safeguarding California Plan. This effort represents a multi-agency, cross-sector approach to addressing adaptation to climate change-related events statewide.

EO S-13-08 also gave rise to the *State of California Sea-Level Rise Interim Guidance Document* (SLR Guidance), produced by the Coastal and Ocean Working Group of the California Climate Action Team (CO-CAT), of which Caltrans is a member. First published in 2010, the document provided "guidance for incorporating sea-level rise (SLR) projections into planning and decision making for projects in California," specifically, "information and recommendations to enhance consistency across agencies in their development of approaches to SLR." The March 2013 update\(^\text{22}\) finalizes the SLR Guidance by incorporating findings of the National Academy's 2012 final Sea-Level Rise Assessment Report; the policy recommendations remain the same as those in the 2010 interim SLR Guidance. The guidance will be updated as necessary in the future to reflect the latest scientific understanding of how the climate is changing and how this change may affect the rates of SLR.

Climate change adaptation for transportation infrastructure involves long-term planning and risk management to address vulnerabilities in the transportation system from increased precipitation, precipitation.


\(^{21}\) [http://www.climatechange.ca.gov/adaptation/strategy/index.html](http://www.climatechange.ca.gov/adaptation/strategy/index.html)

and flooding; the increased frequency and intensity of storms and wildfires; rising temperatures; and rising sea levels. Caltrans is actively engaged in working towards identifying these risks throughout the state and will work to incorporate this information into all planning and investment decisions as directed in EO B-30-15.

The proposed project is outside the coastal zone and not in an area subject to sea-level rise. Accordingly, direct impacts to transportation facilities due to projected sea-level rise are not expected.
Chapter 3 – Comments and Coordination

Early and continuing coordination with the general public and public agencies is an essential part of the environmental process. It helps planners determine the necessary scope of environmental documentation and the level of analysis required, and to identify potential impacts and avoidance, minimization and/or mitigation measures and related environmental requirements. Agency consultation and public participation for this project have been accomplished through a variety of formal and informal methods, including Project Development Team (PDT) meetings, and interagency coordination meetings. This chapter summarizes the results of the Department’s efforts to fully identify, address, and resolve project-related issues through early and continuing coordination.

Cultural Resources

Correspondence from the SHPO to the Department is located in Appendix F. The Department received concurrence from the SHPO on August 25, 2016 that the built resource located at 5500 Sonoma Highway is not eligible for inclusion in the National Register of Historic Places. The July 2016 HPSR documented that the Department will continue to consult with the SHPO on assessment of effects to archaeological site CA-NAP-189/H, the associated reburial site, and site CA-NAP-190.

An executed Memorandum of Agreement (MOA) with the SHPO and the Department’s Cultural Studies Office that stipulates mitigation measures was signed in September 2017, and is located in Appendix G. Mitigation measures will be implemented through methods specified in an ATP, appended to the MOA. The ATP includes provisions for avoidance and mitigation to the historic resources in the project area such as data recovery, archaeological monitoring, establishment of ESAs, and continued consultation with Native American tribes.

Federal Endangered Species Act Consultation Summary

For the CCCS, the Department has submitted a BA to NOAA Fisheries. In addition to the Duhig Roadway Rehabilitation and Curve Realignment Project, which obtained a BO in 2005, the Department has been in contact with NOAA Fisheries since 2013 regarding fish passage design and recently met with Darren Howe of NOAA on July 15, 2016. The Department requested initiation of formal consultation with NOAA Fisheries by a letter dated September 29, 2017. This letter transmitted a BA and conveyed the Department’s determination that the project is likely to adversely affect the CCCS and their critical habitat. Following continued communication, NOAA Fisheries confirmed that the consultation initiation date was December 1, 2017. On March 15, 2018, NOAA Fisheries issued its BO and concluded that the project is not likely to jeopardize the continued existence of the CCCS; nor is it likely to adversely modify critical habitat.

For the CFS and the CRLF, the Department has submitted a BA to the USFWS. The USFWS issued its BO for these species on November 16, 2017. In addition to the parent project which obtained a BO in 2005, the Department been in technical assistance with USFWS since 2015 and met with John Cleckler of the USFWS on July 15, 2016. The Department requested initiation of formal consultation with USFWS in a letter dated September 29, 2017. This letter transmitted a BA and conveyed the Department’s determination that the project may affect, and is likely to adversely affect the CFS and CRLF. On November 17, 2017 USFWS issued its BO and concluded that the project may affect, and is likely to adversely affect the CFS and CRLF.
Essential Fish Habitat Consultation Summary

The proposed project occurs within Essential Fish Habitat (EFH) for Chinook and Coho salmon. This EFH unit covers parts of Alameda, Contra Costa, Marin, Napa, San Francisco, Solano, and Sonoma Counties. NOAA Fisheries has provided technical assistance to the Department for the project and its potential impacts to federally protected fisheries. The Department submitted a BA to NOAA Fisheries on September 29, 2017 that included the request of consultation on EFH. After reviewing the proposed action, NOAA Fisheries concluded in its March 15, 2018-issued BO that the action would not adversely affect EFH and therefore, no EFH consultation is required.

California Endangered Species Act Consultation Summary

The potential for species take, as defined under the CESA, is anticipated for the CFS. The Department has been in consultation with biologists from the CDFW since 2016 on both the fish passage design and potential onsite habitat improvements for the CFS. The Department will apply for a CDFW ITP during the design phase for this project.

Wetlands and Other Waters Coordination Summary

The Department conducted a wetland delineation for the project footprint in 2016. The Department has submitted the delineation to the USACE for review and the review is currently pending. The Department will be submitting an application for a Clean Water Act 404 Nationwide Permit from USACE and for a 401 water quality certification with the RWQCB.

For riparian and creek impacts, the Department will submit a Lake and Streambed Agreement application to CDFW during the design phase of the project.

Public Outreach

The Department circulated the Draft IS/EA to the public for solicitation of comments from September 20, 2017 to October 20, 2017. The Department published a Notice of Availability of Draft Environmental Document as well as Notice of Open House/Map Display on Changes Proposed for State Route 121 in the Napa Valley Register on September 21, 2017, and in the Sonoma Index Tribune on September 22, 2017. One comment was received via email during this comment period.

The Department hosted a public open house/map display to solicit comments and answer questions on October 3, 2017 from 5:30 pm to 7:30 pm at the Napa County Main Library, 580 Coombs Street, Napa, CA 94559. No formal comments were submitted at the open house/map display.

The Department submitted the Notice of Completion & Environmental Document Transmittal form to the State Clearinghouse (SCH) for state agency review. The SCH distributed the Draft IS/EA to various state agencies from September 25, 2017 to October 24, 2017. None of these agencies provided comments to the SCH.
Notice of Availability of Draft Environmental Document as well as Notice of Open House/Map Display on Changes Proposed for State Route 121

PUBLIC NOTICE

NOTICE OF AVAILABILITY OF DRAFT ENVIRONMENTAL DOCUMENT AND INTENT TO ADOPT A MITIGATED NEGATIVE DECLARATION AS WELL AS NOTICE OF OPEN HOUSE/MAP DISPLAY ON CHANGES PROPOSED FOR STATE ROUTE 121

What's being planned?
CALTRANS (California Department of Transportation) is proposing to widen State Route 121 over Nhuacha Creek (Bridge # 21-0053) by removing the existing steel culvert and replacing it with a bridge including fish passage improvements along Nhuacha Creek in unincorporated Napa County.

Way this affect me?
CALTRANS has studied the effects this project may have on the environment. Our studies show it will not significantly affect the quality of environment. The report that explains why is called an Initial Study (IS) with Proposed Mitigated Negative Declaration (MND)/Environmental Assessment (EA). This notice is to tell you of the preparation of the IS with Proposed MND/EA and all its availability for you to read and to invite you to attend a public open house/map display.

What's available?
Maps for the IS/Proposed MND/EA, and other project information are available for review and copying at the CALTRANS District 4 Office, 111 Grand Avenue, Oakland, California 94612, on weekdays from 8:00 AM to 5:00 PM. The initial study with Proposed MND/EA is also available at:

Napa County Main Public Library
580 Coombs Street
Napa, CA 94559

Where you come in
Do you have any comments about processing the project with an IS/EA and proposed MND? Do you disagree with the findings of our study as set forth in the proposed MND? Would you care to make any other comments on the project? Please mail your comments to Thomas Rosewar, Environmental Planner, California Department of Transportation, District 4 Office of Environmental Analysis, PO. Box 37000, MS 8-2, Oakland, CA 94626 or email them to thomas.rosewar@dot.ca.gov or call 916-744-2345. Please submit your comments in writing no later than October 20, 2017. The date we will begin accepting comments is September 20, 2017. If more than one major comment, CALTRANS will proceed with the project's design.

When and where
The Open House/Map Display will be on Tuesday, October 3, 2017, from 5:30 to 7:30 p.m. at the Napa County Main Public Library, 580 Coombs Street, Napa, CA 94559.

Contact
For more information about this study or any transportation matter, call CALTRANS at (510) 286-4444. Individuals who require documents in alternative formats are requested to contact the District 4 Public Affairs Office at (510) 286-6450. TDD users may contact the California Relay Service (TDD) line at 1-800-735-2929 or Voice Line at 1-800-735-2922.
Notice of Completion & Environmental Document Transmittal

Project Title: [Redacted] - Habitat Restoration & Fish Passage Project
Lead Agency: California Department of Transportation (District)
Contact Person: [Redacted]
Mail Address: [Redacted]
City: [Redacted]
County: [Redacted]
City Coordination: [Redacted]
Project Location: [Redacted]
[Redacted] - [Redacted]
[Redacted] - [Redacted]
[Redacted] - [Redacted]
[Redacted]
Answer: [Redacted]
Wildlife: [Redacted]
Water: [Redacted]
Air: [Redacted]

Document Types:

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Project Scope:
[Redacted]

Please note State Clearinghouse Number (SCCH) on all Comments.
SCCH: 2017092069

Please submit comments directly to the Lead Agency.
AQUIFACTION: 2
(Reference: 6/1/20)

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Response Letter from the SCH

STATE OF CALIFORNIA
GOVERNOR'S OFFICE OF PLANNING AND RESEARCH
STATE CLEARINGHOUSE AND PLANNING UNIT

October 25, 2017

Thomas Rosevear
California Department of Transportation, District 4
PO Box 23660, MS 8B
Oakland, CA 94623-0660

Subject: Huichica Creek Bridge Replacement & Fish Passage Project
SCH#: 2017092069

Dear Thomas Rosevear:

The State Clearinghouse submitted the above named Mitigated Negative Declaration to selected state agencies for review. The review period closed on October 24, 2017, and no state agencies submitted comments by that date. This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act.

Please call the State Clearinghouse at (916) 445-0613 if you have any questions regarding the environmental review process. If you have a question about the above-named project, please refer to the ten-digit State Clearinghouse number when contacting this office.

Sincerely,

Scott Morgan
Director, State Clearinghouse
Document Details Report
State Clearinghouse Data Base

SCH# 2017092049
Project Title Huichica Creek Bridge Replacement & Fish Passage Project
Lead Agency Caltrans #4

Type MND Mitigated Negative Declaration
Description Project proposes to widen SR 121 over Huichica Creek, remove the existing triple metal culvert (Bridge No. 21-0001), replace it with a free span bridge, and incorporate fish passage improvements and creek bed restoration along approx 400 ft of Huichica Creek. This proposed widening will not increase the vehicular capacity of SR 121. The purposes of this project are to reduce the potential for cross-centerline and run off the road accidents on SR 121, provide continuity to the widening of SR 121 constructed on a previous project (Duhig Roadway and Rehabilitation), and satisfy regulatory fish passage requirements.

Lead Agency Contact
Name Thomas Roseman
Agency California Department of Transportation, District 4
Phone (510) 286-6360
Fax
Email
Address PO Box 23662, MS 8B
City Oakland
State CA Zip 94623-0060

Project Location
County Napa
City Napa
Region
Lat/Long
Cross Streets SR 121 from PM 0.5 to 1.0 between Duhig Rd and Napa Rd
Parcel No.
Township Range Section Base

Proximity to:
Highways 121
Airports
Railways
Waterways
Schools
Land Use transportation facility

Project Issues Aesthetic/Visual; Archaeologic-Historic; Biological Resources; Flood Plain/Flooding; Water Quality; Landuse

Reviewing Agencies Resources Agency; Department of Fish and Wildlife, Region 3: Office of Historic Preservation; Department of Parks and Recreation; Department of Water Resources; California Highway Patrol; Regional Water Quality Control Board, Region 2; Native American Heritage Commission

Date Received 09/25/2017 Start of Review 09/25/2017 End of Review 10/24/2017

Note: Blanks in data fields result from insufficient information provided by lead agency.
Submitted Comment and Department's Response

Hi Mr. Stanley,

The California Department of Transportation (Caltrans) will unfortunately not be able to extend its formal 30-day comment period on the Initial Study with Proposed Mitigated Negative Declaration/Environmental Assessment for the Huichica Creek Bridge Replacement and Fish Passage Project past its October 20, 2017 deadline because of the project’s tight schedule for the completion of the environmental phase of the project, as well as the project’s lack of controversy.

However, Caltrans recognizes the California Department of Fish & Wildlife’s (CDFW) role as a California Environmental Quality Act (CEQA) responsible agency and looks forward to working with CDFW as the project progresses into the design phase when Caltrans will be applying for both the Incidental take Permit (ITP) and Section 1600 Streambed Alteration Agreement. Because of this critical role that the CDFW will play in this project, the CDFW is welcome to submit informal comments to Caltrans throughout our project delivery process; and Caltrans encourages ongoing communication between the two agencies, particularly with the Caltrans Office of Biological Sciences and Permits.

Your comment and this response will become part of the administrative record for this project, and will be documented in the (final) Initial Study with Mitigated Negative Declaration/Environmental Assessment, which is scheduled for completion by the end of 2017.

Sincerely,
Thomas Rosevear
California Department of Transportation

From: Stanley, Robert@Wildlife [mailto:Robert.Stanley@wildlife.ca.gov]
Sent: Friday, October 20, 2017 4:26 PM
To: Rosevear, Thomas@DOT <thomas.rosevear@dot.ca.gov>
Subject: Huichica Creek Bridge Replacement and Fish Passage Project

Hello,

My name is Rob Stanley and I am the Caltrans Liaison for the Bay Delta Region 3. Recently a draft MND for the Huichica Creek Bridge Replacement Project came across my desk and it arrived late, so I may not get the chance to get formal comments about the Project to you before the deadline.

I was wondering if it is possible to request an extension of the comment period?

Informally, my concerns are regarding the language on California Freshwater Shrimp, Foothill Yellow Legged Frog (FYLF) and Fish Passage Improvement.
California Freshwater Shrimp is a state listed species and the Department has restoration requirements we have used in Projects like the Napa River Bridge Replacement Project in downtown Calistoga. I would refer to the 1600 Agreement and ITP for this Project to understand what the Department's expectations are for this species and I would expect the permits to be very similar to those in restoration concept and measures. The other comment, is regardless of the quality or type of habitat present, if the species is present and killed, harmed or relocated an incidental take permit is required.

For FYLF, I would like to note that one statement concerns me, which is to treat FYLF as CRLF because FYLF is now a candidate listed, which makes it listed as threatened (Would require an ITP), while CRLF is a species of special concern that would require no ITP. So, the statement to treat FYLF as CRLF draws concern because to relocate a FYLF would constitute take and require an ITP. As with any Project the calculation of risk lies with the proponent to seek take coverage, but if you feel there is a potential for FYLF, than an ITP would be strongly recommended by the Department.

For Fish Passage, I would just comment to make sure that the funding for an adequate fish passage improvement plan with adaptive management is included in the Project budget.

Please feel free to contact me with any questions or concerns,

Rob Stanley
CDFW
Chapter 4 – List of Preparers

California Department of Transportation

Project Management
Ahmad Rahimi, Project Manager

Environmental Analysis
Wahida Rashid, Branch Chief
Thomas Rosevear, Associate Environmental Planner

Environmental Engineering – Water Quality
Brian Rowley, Transportation Engineer

Environmental Engineering – Hazardous Waste
Chris Wilson, Branch Chief

Environmental Engineering – Air and Noise Studies
Ray Boyer, Branch Chief

Cultural Resource Studies
Helen Blackmore, Associate Environmental Planner
Noah Stewart, Branch Chief, Built Resources/Architectural History
Jennifer Blake, Associate Environmental Planner
Kathryn Rose, Branch Chief, Archaeology

Landscape Architecture
Susan Lindsay, Branch Chief
Kasaia Luckel, Landscape Associate

Biological Sciences and Permits
Andy Amacher, Associate Environmental Planner
John Yeakel, Branch Chief

Hydraulic Engineering
Brian Wolcott, Transportation Engineer
Robin Amatya, Transportation Engineer
Joe Peterson, Office Chief

Geotechnical Design
Sunny Yang, Transportation Engineer
Hooshmand Nikoouei, Branch Chief
Hossain Salimi, Senior Materials and Research Engineer
Rifaat Nashed, Engineering Geologist
Chris Rissden, Branch Chief

Design-SHOPP
Stewart Lee, Branch Chief
Bill Fong, Transportation Engineer
Chapter 5 – Distribution List

Federal Agencies

Environmental Protection Agency, Region IX
Federal Activities Office, CMD-2
75 Hawthorne Street
San Francisco, CA 94105-3901

National Marine Fisheries Services
777 Sonoma Avenue Room 325
Santa Rosa, CA 95404

U.S. Army Corps of Engineers, Sacramento District
ATTN: Regulatory Branch
1325 J Street, Room 1480
Sacramento, CA 95814

U.S. Fish and Wildlife Service
2800 Cottage Way W-2605
Sacramento, CA 95825

State Agencies

State Clearinghouse, Executive Officer
1400 Tenth Street, Room 156
P.O. Box 3044
Sacramento, CA 95812-3044

Bay Area Air Quality Management District
939 Ellis Street
San Francisco, CA 94109

California Air Resources Board
1001 I Street
P.O. Box 2815
Sacramento, CA 95812

California Department of Conservation
801 K Street, MS 24-01
Sacramento, CA 95814

California Department of Fish & Wildlife
Region 3
7329 Silverado Trail
Napa, CA 94558

California Office of Historic Preservation
1416 Ninth Street, Room 1442
Sacramento, CA 95814
California Transportation Commission
1120 N Street, MS-52
Sacramento, CA 95814

Department of Toxic Substances Control
1001 I Street
Sacramento, CA 95814-2828
P.O. Box 806
Sacramento, CA 95812

Native American Heritage Commission
Executive Secretary
1550 Harbor Blvd, Suite 100
West Sacramento, CA 95691

Regional Water Quality Control Board
District 2
1515 Clay Street, Suite 1400
Oakland, CA 94612

Regional and Local Agencies

Association of Bay Area Governments
101 Eighth Street, P.O. Box 2050
Oakland, CA 94604-2050

Metropolitan Transportation Commission
101 Eighth Street – Metrocenter
Oakland, CA 94607

Federal and Statewide Elected Officials

The Honorable Kamala Harris
United States Senate
70 Washington Street, Suite 203
Oakland, CA 94607

The Honorable Dianne Feinstein
United States Senate
1 Post Street #2450
San Francisco CA 94104

The Honorable Bill Dodd
California State Senate, 3rd District
2721 Napa Valley Corporate Drive
Napa, CA 94558

The Honorable Mike Thompson
United States Congress, 5th District
2721 Napa Valley Corporate Drive
Napa, CA 94558
The Honorable Cecilia Aguiar-Curry  
California State Assembly, 4th District  
2721 Napa Valley Corporate Drive  
Napa, CA 94558

**County Board of Supervisors**

The Honorable Brad Wagenknecht  
Napa County Board of Supervisors, District 1  
County Administration Building  
1195 Third Street, Suite 310  
Napa, CA 94559

The Honorable Ryan Gregory  
Napa County Board of Supervisors, District 2  
County Administration Building  
1195 Third Street, Suite 310  
Napa, CA 94559

The Honorable Diane Dillon  
Napa County Board of Supervisors, District 3  
County Administration Building  
1195 Third Street, Suite 310  
Napa, CA 94559

The Honorable Alfredo Pedroza  
Napa County Board of Supervisors, District 4  
County Administration Building  
1195 Third Street, Suite 310  
Napa, CA 94559

The Honorable Belia Ramos  
Napa County Board of Supervisors, District 5  
County Administration Building  
1195 Third Street, Suite 310  
Napa, CA 94559

**City of Napa**

Mayor Jill Techel  
City of Napa  
955 School Street  
Napa, CA 94559

**City of Sonoma**

Mayor Rachel Hundley  
City of Sonoma  
No. 1 The Plaza  
Sonoma, CA 95476
Appendix A - CEQA Checklist

Supporting documentation of all CEQA checklist determinations is provided in Chapter 2 of this IS/EA. Documentation of "No Impact" determinations is provided at the beginning of Chapter 2. Discussion of all impacts, avoidance, minimization, and/or mitigation measures is under the appropriate topic headings in Chapter 2.
CEQA Environmental Checklist

This checklist identifies physical, biological, social and economic factors that might be affected by the proposed project. In many cases, background studies performed in connection with the projects indicate no impacts. A NO IMPACT answer in the last column reflects this determination. Where there is a need for clarifying discussion, the discussion is included either following the applicable section of the checklist or is within the body of the environmental document itself. The words "significant" and "significance" used throughout the following checklist are related to CEQA, not NEPA, impacts. The questions in this form are intended to encourage the thoughtful assessment of impacts and do not represent thresholds of significance.

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I. AESTHETICS: Would the project:

a) Have a substantial adverse effect on a scenic vista? □ □ □ ☒

b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway? □ □ ☒ □

c) Substantially degrade the existing visual character or quality of the site and its surroundings? □ □ □ ☒

d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area? □ □ □ ☒

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 Dept. 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 the forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:

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? □ □ □ ☒

b) Conflict with existing zoning for agricultural use, or a Williamson Act contract? □ □ □ ☒
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**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:

a) Conflict with or obstruct implementation of the applicable air quality plan?

b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?

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 releases of emissions which exceed quantitative thresholds for ozone precursors)?

d) Expose sensitive receptors to substantial pollutant concentrations?

e) Create objectionable odors affecting a substantial number of people?

**IV. BIOLOGICAL RESOURCES:** Would the project:

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

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 US Fish and Wildlife Service?
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?

   □ □ □ □

   ☒

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?

   □ □ □ □

   ☒

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

   □ □ □ □

   ☒

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?

   □ □ □ □

   ☒

V. CULTURAL RESOURCES: Would the project:

a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?

   □ □ □ □

   ☒

b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?

   □ ☒ □ □

c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

   □ □ □ □

   ☒

d) Disturb any human remains, including those interred outside of dedicated cemeteries?

   □ □ □ □

   ☒

VI. GEOLOGY AND SOILS: Would the project:

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?

   □ □ □ □

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   ii) Strong seismic ground shaking?

   □ □ ☒ □

   iii) Seismic-related ground failure, including liquefaction?

   □ □ □ □

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<th>iv) Landslides?</th>
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<td>b) Result in substantial soil erosion or the loss of topsoil?</td>
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<td>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?</td>
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<td>d) Be located on expansive soil, as defined in Table 16-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?</td>
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<td>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?</td>
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**VII. GREENHOUSE GAS EMISSIONS:** Would the project:

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Caltrans has used the best available information based to the extent possible on scientific and factual information, to describe, calculate, or estimate the amount of greenhouse gas emissions that may occur related to this project. The analysis included in the climate change section of this document provides the public and decision-makers as much information about the project as possible. It is Caltrans' determination that in the absence of statewide-adopted thresholds or GHG emissions limits, it is too speculative to make a significance determination regarding an individual project's direct and indirect impacts with respect to global climate change. Caltrans remains committed to implementing measures to reduce the potential effects of the project. These measures are outlined in the body of the environmental document.

**VIII. HAZARDS AND HAZARDOUS MATERIALS:** Would the project:

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

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?

c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?
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?

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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?

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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?

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g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

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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?

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**IX. HYDROLOGY AND WATER QUALITY.** Would the project:

a) Violate any water quality standards or waste discharge requirements?

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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)?

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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?

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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?

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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?

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f) Otherwise substantially degrade water quality?

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<td>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?</td>
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<td>h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?</td>
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<td>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?</td>
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<td>j) Inundation by selchie, tsunami, or mudflow</td>
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**X. LAND USE AND PLANNING:** Would the project:

| a) Physically divide an established community? | ☐ | ☐ | ☐ | ☒ |
| 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, 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? | ☐ | ☐ | ☐ | ☒ |

**XI. MINERAL RESOURCES:** Would the project:

| a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state? | ☐ | ☐ | ☐ | ☒ |
| 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? | ☐ | ☐ | ☐ | ☒ |

**XII. NOISE:** Would the project result in:

| 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?

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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?

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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?

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XIII. POPULATION AND HOUSING: Would the project:

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)?

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

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

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XIV. PUBLIC SERVICES:

a) Would the project result in 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?

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Police protection?

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Schools?

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Parks?

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Other public facilities?

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XV. RECREATION:

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? □ □ □ □

XVI. TRANSPORTATION/TRAFFIC: Would the project:

a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit? □ □ □ □

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? □ □ □ □

XVII. TRIBAL CULTURAL RESOURCES: Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or □ □ □ □
b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

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XVIII. UTILITIES AND SERVICE SYSTEMS: Would the project:

a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?

| ☐                             | ☐                                    | ☐                           | ☒        |

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?

| ☐                             | ☐                                    | ☐                           | ☒        |

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?

| ☐                             | ☐                                    | ☐                           | ☒        |

d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?

| ☐                             | ☐                                    | ☐                           | ☒        |

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?

| ☐                             | ☐                                    | ☐                           | ☒        |

f) Be served by a landfill with sufficient permitted capacity to accommodate the project’s solid waste disposal needs?

| ☐                             | ☐                                    | ☐                           | ☒        |

g) Comply with federal, state, and local statutes and regulations related to solid waste?

| ☐                             | ☐                                    | ☐                           | ☒        |

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### XIX. MANDATORY FINDINGS OF SIGNIFICANCE

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a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

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?
Appendix B – Title VI Policy Statement

March 2013

NON-DISCRIMINATION POLICY STATEMENT

The California Department of Transportation, under Title VI of the Civil Rights Act of 1964 and related statutes, ensures that no person in the State of California shall, on the grounds of race, color, national origin, sex, disability, religion, sexual orientation, or age, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity it administers.

For information or guidance on how to file a complaint based on the grounds of race, color, national origin, sex, disability, religion, sexual orientation, or age, please visit the following web page: http://www.dot.ca.gov/hq/hp/title_vi/title_vi_violated.htm.

Additionally, if you need this information in an alternate format, such as in Braille or in a language other than English, please contact the California Department of Transportation, Office of Business and Economic Opportunity, 1823 14th Street, MS-79, Sacramento, CA 95811. Telephone: (916) 324-0449, TTY: 711, or via Fax: (916) 324-1949.

Malcolm Dougherty
Director
Appendix C – List of Technical Studies

Natural Environment Study, August 2017

Water Quality Study, August 2017

Summary of Section 106 Compliance Measures Completed for the Huichica Creek Culvert Replacement and Fish Passage Repair Draft Environmental Document, May 2017


Paleontological Identification Report for Replacing Huichica Creek Bridge and Fish Passage Project, February 2017

Visual Impact Assessment (for) Huichica Creek Bridge Widening, July 2017

Structures Preliminary Geotechnical Report for Huichica Creek Bridge Replacement, July 2012.

Appendix D – Avoidance, Minimization and/or Mitigation Summary

**Air Quality:** Short term air quality effects during the proposed project’s construction period will be addressed by Department Special Provision and Standard Specification 14-9.02. Trucks and construction equipment emit hydrocarbons, oxides of nitrogen, carbon monoxide and particulates. Most project-related pollution during construction will consist of wind-blown dust generated by excavation, grading, hauling and various other activities. The effects from these activities will vary from day to day as construction progresses. The Special Provisions and Standard Specifications will include requirements to minimize or eliminate dust during construction through the application of water or dust palliatives.

**Noise:** Construction noise will be temporary and will be within acceptable levels for construction activity. The Department Standard Specifications Section 7-1.01, “Sound Control Requirements” regulates construction noise, which states that noise levels generated during construction shall comply with applicable local, state and federal regulations, and that all equipment shall be fitted with adequate mufflers according to the manufacturer’s specifications.

**Hazardous Waste:** An asbestos and lead-containing paint survey will be needed prior to the demolition of the Huichica Creek bridge. This survey will be conducted during the design phase of the project. The results will determine if any hazardous-material minimization measures will be necessary before bridge demolition work begins and which contract specification will be drafted for directing the work.

**Visual/Aesthetics:** Avoidance or minimization measures can diminish visual impacts of the project. Below are avoidance and/or minimization measures that would address specific visual issues, to be implemented with input from the District Landscape Architect:

- Hydroseed all disturbed areas with a mix of locally native vegetation to blend with the surrounding natural environment.
- Replant trees removed due to construction activities to restore riparian zone.
- Safety barriers for vehicles and cyclists will be constructed on the sides of the bridge deck. A see-through barrier such as the ST-70 barrier will likely be selected for aesthetic characteristics that are compatible with the visual characteristics of the setting, and consistent in appearance with other barriers in the vicinity. Final specifications will be determined during final project design with input from the Department Landscape Architect.

**Cultural Resources:** An executed Memorandum of Agreement (MOA) with the SHPO and the Department’s Cultural Studies Office that stipulates mitigation measures is located in Appendix G. Mitigation measures will be implemented through methods specified in an ATP, appended to the MOA. The ATP includes provisions for avoidance and mitigation to the historic resources in the project area such as data recovery, archaeological monitoring, establishment of ESAs, and continued consultation with Native American tribes.

Under the CEQA, the mitigation measures required to bring project impacts to a level of Less than Significant with Mitigation include the previously described ATP.
The other archaeological resources within the APE, CA-NAP-190 and the reburial site associated with CA-NAP-189/H are outside of the project footprint and will be protected in their entirety from inadvertent project impacts through establishment of ESAs.

**Water Quality and Storm Water Runoff**

*Temporary Impacts*

Temporary Construction Site BMPs, such as silt fence, fiber roll, drainage inlet protection, concrete wash-out, street sweeping, and construction entrance will be deployed for sediment control and material management. These BMPs are representative of those which may be recommended during the subsequent design phase of the project. Additionally, a creek diversion will be implemented, in order to provide for a dry working environment within the creek channel. This can take different forms, though gravel bag cofferdams are anticipated. An option requiring a smaller footprint would be the installation of sheet-pile cofferdams.

*Permanent Impacts*

As a 401 certification will be required, implementation of permanent stormwater treatment measures will be included as a condition, equivalent to the net new impervious surface of 0.13 acre. The preferred Treatment BMP type is bioretention, which may be designed as either a basin or swale configuration. As the soils within the project limits may provide adequate infiltration, site soils may remain for any Treatment BMP. A swale exists north of the SR 121 alignment, west of the bridge. If feasible, this swale may be modified to serve as a Treatment BMP.

**Water Pollution Control Program**

As the DSA is anticipated to be at least 0.40 acre, a WPCP will be required. Prior to commencement of construction activities, a WPCP must be prepared by the contractor and approved by the Department, pursuant to Department 2015 Standard Specification 13-2. The WPCP addresses potential temporary impacts via implementation of appropriate BMPs, such as those mentioned above, to the maximum extent practicable. Further, sampling and monitoring of construction site discharge point(s) may be recommended as part of the WPCP during the subsequent design phase of the project.

**Natural Communities/Wetlands and Other Waters/Threatened and Endangered Species:**

The Department proposes that the project as a whole is self-mitigating due to the improvement over existing conditions and the restoration of natural creek processes. The removal of the fish passage barrier, triple barrel culverts, and creek apron over 111 feet of creek will have beneficial impacts both onsite and both up and downstream of the project footprint.

The Department proposes the following onsite improvements to the creek and riparian area:

- Removal of fish passage barrier #714975
- Removal of triple barrel culverts with replacement of a free span bridge.
- Removal of concrete apron on the creek bed with replacement of natural stream bottom.
The original proposed fish passage design was 2.9% grade, which met CDFW and NOAA Fisheries fish passage guidelines. The Department has worked with the CDFW and has redesigned the grade to 2.5% in order to allow for more potential stability through time. This change requires 80 more feet of creek restoration.

The addition of habitat features that may enhance the creek for special-status species. Habitat features will be determined in coordination with regulatory agencies, but may include downed woody debris, logs, root wads, and habitat structures that may enhance the site for California freshwater shrimp.

Replanting on-site of any removed native riparian tree species at a ratio of at least 1:1. Replanted trees will be monitored for at least 5 years for plant establishment. An onsite restoration plan will be developed for agency review and approval.

A qualified biological monitor will eradicate American bullfrogs, green sunfish, and other invasive aquatic species if encountered during construction.

Natural Communities/Wetlands and Other Waters/Threatened and Endangered Species:

- **Permits.** The Department will include a copy of all relevant regulatory permits within the construction bid package of the proposed project. The Resident Engineer or their designee will be responsible for implementing the Terms and Conditions of those regulatory permits.

- **Biological Monitor Approval.** The USFWS and CDFW will review and approve the qualifications of the biological monitor(s) prior to initiating construction activities for the proposed project.

- **Biological Monitoring.** The approved biologist(s) will be on-site during initial ground-disturbing activities, and thereafter as needed to fulfill the role of the approved biologist as specified in the avoidance and minimization measures, and/or project permits. The biologist(s) will keep copies of applicable permits in their possession when on-site. Through the Resident Engineer or their designee, the approved biologist(s) shall be given the authority to communicate either verbally, by telephone, email or hardcopy with all project personnel to ensure that the risk of take to listed species is minimized, and that any permit requirements are fully implemented. Through the Resident Engineer or their designee, the approved biologist(s) shall have the authority to stop project activities to minimize take of listed species or if he/she determines that any permit requirements are not fully implemented.

- **Worker Environmental Awareness Training.** Prior to working on the project, all construction personnel will attend a mandatory environmental education program delivered by an approved biologist. At a minimum the training will include a description of CCCS, CRLF, and CFS, and other listed species, migratory birds and their habitats. The training will also discuss the potential occurrence of these species within the action area; an explanation of the status of these species and protection under the Endangered Species Act and other laws; the measures to be implemented to conserve listed species and their habitats as they relate to the work site; and boundaries within which construction may occur.
• **Pre-construction Surveys.** Prior to any ground disturbance, pre-construction surveys for listed species will be conducted by an approved biologist. These surveys will consist of walking surveys of the project limits and, if possible, accessible adjacent areas within at least 50 feet of the project limits. The biologist(s) will investigate all potential cover sites. This includes thorough investigation of mammal burrows, rocky outcrops, appropriately sized soil cracks, tree cavities, and debris. Native vertebrates found in the cover sites within the project limits will be documented and relocated to an adequate cover site in the vicinity.

• **WEF.** High visibility WEF at least 4 feet in height will be installed around suitable habitat for listed species within the outer footprint of the project to prevent wildlife from accessing work areas. The fencing will be removed only when all construction equipment is removed from the site. No project activities will occur outside the delineated project area. The WEF will be monitored periodically and all areas will be checked following rain events.

• **Listed Species On Site.** The Resident Engineer will immediately contact the agency-approved project biologist(s) in the event that a listed species is observed within a construction zone. The Resident Engineer will suspend construction activities within a 50-foot radius of the animal until the animal leaves the site voluntarily or an agency-approved protocol for removal has been established.

• **Prevention of Wildlife Entrapment.** To prevent inadvertent entrapment of wildlife species during construction, excavated holes or trenches more than one foot deep with walls steeper than 30 degrees will be covered at the close of each working day by plywood or similar materials. Alternatively, an additional four-foot high vertical barrier, independent of exclusionary fences, will be used to further prevent the inadvertent entrapment of wildlife species. If it is not feasible to cover an excavation or provide an additional four-foot high vertical barrier, independent of exclusionary fences, one or more escape ramps constructed of earth fill or wooden planks will be installed. Before such holes or trenches are filled, they will be thoroughly inspected for trapped animals. If at any time a trapped animal is discovered, the on-site biologist will immediately place escape ramps or other appropriate structures to allow the animal to escape. If the animal is a listed species, the CDFW or USFWS will be contacted by telephone for guidance.

• **Work Window for Nesting Birds.** To the extent practicable, clearing and grubbing activities and any tree removal will be conducted during the non-nesting season, from September 1 to February 14.

• **Pre-construction Surveys for Nesting Birds.** Pre-construction surveys for nesting birds will be conducted by a qualified biologist no more than 72 hours prior to the start of construction for activities occurring during the breeding season (February 1 to September 30).

• **Non-Disturbance Buffer for Nesting Birds.** If work is to occur within 300 feet of active raptor nests or 50 feet of active non-raptor nests, a non-disturbance buffer will be established at a distance sufficient to minimize disturbance based on the nest location, topography, cover, the species' sensitivity to disturbance, and the intensity/type of potential work activities.

• **Water Quality Inspection.** Water quality inspector(s) will inspect the site after a rain
event to ensure that the stormwater BMPs are adequate.

- **Vehicle Use.** Project employees will be required to comply with guidance governing vehicle use, speed limits on unpaved roads, fire prevention, and other hazards.

- **Night Work.** To the extent practicable, nighttime construction will be minimized.

- **Night Lighting.** Artificial lighting of the project site during nighttime hours will be minimized and directed away from non-paved surfaces to the maximum extent practicable.

- **Trash Control.** All food-related trash items such as wrappers, cans, bottles, and food scraps will be disposed of in closed containers and removed at least once a day from the work area.

- **Firearms.** No firearms will be allowed in the project area except for those carried by authorized security personnel, or local, State, or federal law enforcement officials.

- **Pets.** To prevent harassment, injury or mortality of sensitive species, no pets will be permitted on the project site.

- **Department Standard Best Management Practices BMPs.** The potential for adverse impacts to water quality will be avoided by implementing temporary and permanent BMPs outlined in Section 7-1.01G of the Department's Standard Specifications. Department erosion control BMPs will be used to minimize any wind or water-related erosion. The SWRCB has issued a NPDES Statewide Storm Water Permit to the Department to regulate storm water and non-storm water discharges from Department facilities. A SWPPP will be developed for the project, as one is required for all projects that have at least 1.0 acre of soil disturbance. The SWPPP complies with the Department SWMP. The SWMP includes guidance for Design staff to include provisions in construction contracts to include measures to protect sensitive areas and to prevent and minimize storm water and non-storm water discharges.

The SWPPP will reference the Department Construction Site BMPs Manual. This manual is comprehensive and includes many other protective measures and guidance to prevent and minimize pollutant discharges and can be found at the following website:


Protective measures will be included in the contract, including, at a minimum:

a. No discharge of pollutants from vehicle and equipment cleaning are allowed into the storm drain or water courses.

b. Vehicle and equipment fueling and maintenance operations must be at least 50 feet away from water courses.

c. Concrete wastes are collected in washouts and water from curing operations is collected and disposed of and not allowed into water courses.
d. Dust control will be implemented, including use of water trucks and tackifiers to control dust in excavation and fill areas, rock temporary access road entrances and exits, and covering temporary stockpiles when weather conditions require.

e. Coir rolls will be installed along or at the base of slopes during construction to capture sediment and temporary organic hydro-mulching will be applied to all unfinished disturbed and graded areas.

f. Work areas where temporary disturbance has removed the pre-existing vegetation will be re-seeded with a native seed mix.

g. Graded areas will be protected from erosion using a combination of silt fences, fiber rolls along toe of slopes or along edges of designated staging areas, and erosion-control netting (such as jute or coir) as appropriate.

h. A Revegetation Plan will be prepared for restoration of temporary work areas. Pavement and base will be removed; topography blended with the surrounding area; and topsoil will be salvaged from the new alignment area to be placed over the restored area, which will then be revegetated with native grassland species.

- **Monofilament Erosion Control.** Plastic mono-filament netting (erosion control matting) or similar material will not be used for the project because wildlife may become entangled or trapped in it. Acceptable substitutes include coconut coir matting or tackified hydroseeding compounds.

- **Concrete Waste and Stockpiles.** All grindings and asphaltic-concrete waste will be stored within previously disturbed areas absent of habitat and at a minimum of 50 feet from any aquatic habitat, culvert, or drainage feature.

- **Revegetation Following Construction.** All areas that are temporarily affected during construction will be revegetated with an assemblage of native grass and shrubs as appropriate. Invasive, exotic plants will be controlled within the project site to the maximum extent practicable, pursuant to Executive Order 13112.

**Natural Communities:** Avoidance and minimization measures specific to riparian habitat and trees include:

- Working in the Huichica Creek riparian and creek area during low-flow periods between June 1 and October 15 to avoid impacts to habitat during the wet season. However, to minimize and avoid take of migratory birds, their nests and young, the Department proposes to conduct vegetation and tree removal within the riparian area between September 30 and January 30. This work will be limited to vegetation and trees that are within the project footprint. No grubbing or other ground disturbing actions will occur. Upon completion of this work, the Department will install storm water and erosion control BMPs. In addition, the Department proposes that revegetation work using hand tools be allowed to occur outside of the dry season work window to ensure successful revegetation outcomes.

- Storing all equipment outside of the Huichica Creek riparian and creek area.
• Installing temporary high visibility fencing that will outline and protect non-impacted creek and riparian areas prior to the start of construction. The ESA fencing will be delineated on the final plans, and the fence will remain on-site until project completion.

• Installing silt fences on the slopes adjacent to the work area to prevent silt from entering the watershed. Erosion controls will be maintained during the construction period.

• Replanting on-site of any removed native riparian tree species at a ratio of at least 1:1. Replanted trees will be monitored for at least 5 years for plant establishment. An onsite restoration plan will be developed for agency review and approval.

• Specific avoidance and minimization measures from all regulatory permits to be obtained will be incorporated into the project plans and specifications and enforced during construction.

_Wetlands and Other Waters:_ Avoidance and minimization measures for waters include the following:

• Working in the Huichica Creek riparian area during low-flow periods between June 1 and October 15 to avoid impacts to wetlands and waters. However, to minimize and avoid take of migratory birds, their nests and young, the Department proposes to conduct vegetation and tree removal within the riparian area between September 30 and January 30. This work will be limited to vegetation and trees that are within the project footprint. No grubbing or other ground disturbing actions will occur. Upon completion of this work, the Department will install storm water and erosion control BMPs. In addition, the Department proposes that revegetation work using hand tools be allowed to occur outside of the dry season work window to ensure successful revegetation outcomes.

• Storing all equipment outside of the Huichica Creek riparian area.

• Installing temporary high visibility fencing that will outline and protect non-impacted waters areas prior to the start of construction. The ESA fencing will be delineated on the final plans, and the fence will remain on-site until job completion.

• Installing silt fences on the slopes adjacent to the work area to prevent silt from entering the watershed. Erosion controls will be maintained during the construction period.

• The Department will prepare water diversion and dewatering plan and avoid any work within wetted creek channel.

• Specific avoidance and minimization measures from all permits will be incorporated into the project plans and specifications and enforced during construction.
Animal Species (FYLF), Threatened and Endangered Species (CRLF): The FYLF will be protected with the same avoidance and minimization measures as the CRLF. These measures include the following:

- Working in Huichica Creek and the riparian area during low and no-flow periods between June 1 and October 15 to avoid potential impacts to CRLF and FYLF individuals. However, to minimize and avoid take of migratory birds, their nests and young, the Department proposes to conduct vegetation and tree removal within the riparian area between September 30 and January 30. This work will be limited to vegetation and trees that are within the project footprint. No grubbing or other ground disturbing actions will occur. Upon completion of this work, the Department will install storm water and erosion control BMPs. In addition, the Department proposes that revegetation work using hand tools be allowed to occur outside of the dry season work window to ensure successful revegetation outcomes.

- Storing all equipment outside of Huichica Creek and the riparian area.

- Installing temporary high visibility fencing that will outline and protect ESAs prior to the start of construction. The ESA fencing will be delineated on the final plans, and the fence will remain on-site until job completion.

- Installing temporary WEF around potential CRLF and FYLF habitat

- The Department will prepare a water diversion and dewatering plan.

- A qualified biologist will be on-site during construction to monitor construction activities to ensure take is avoided or minimized.

- Specific avoidance and minimization measures from all permits will be incorporated into the project plans and specifications and enforced during construction.

Animal Species (WPT): Avoidance and minimization measures specific to the WPT include the following:

- A preconstruction survey will be performed prior to the start of construction

- During construction, an approved biological monitor will be onsite during ground and structure disturbing activities within the riparian and creek areas

Animal Species (Migratory and Nongame Birds): Avoidance and minimization measures for migratory and nongame birds include the following:

- Prior to construction, the project footprint and immediate vicinity will be surveyed for nesting birds.

- To minimize and avoid take of migratory birds, their nests and young, the Department will conduct vegetation and tree trimming between September 30 and January 30 before the start of project construction. This work will be limited to vegetation and trees that are within the project footprint. No grubbing or other ground disturbing actions will occur.
Upon completion of this work, the Department will install storm water and erosion control BMPs.

- If vegetation removal must occur during the nesting season, a qualified biologist must inspect the area no more than three days prior to removal. Vegetation removal can occur no longer than 72 hours after approval is given by the Engineer. After 72 hours, another nesting survey must be performed before any more vegetation removal can take place.

- If an active nest is found, a no work buffer will be enforced and maintained around the nest and identified with high visibility markers or fencing. Buffers will be 300 feet for raptors and 50 feet for all other birds protected by the Migratory Bird Treaty Act (MBTA) and California Fish and Game Code. If work is required inside the buffer, the Department will contact the CDFW and/or USFWS for guidance prior to any work being performed.

**Animal Species (Bat Species):** Avoidance and minimization measures specific to bat species include the following:

- The Department will conduct a preconstruction surveys to verify potential use by bats.

- If bats are observed, the Department will use exclusion measures to prevent use during construction in order to avoid potential mortality.

**Threatened and Endangered Species (CCCS, CFS):** Avoidance and minimization measures specific to the CCCS and CFS include the following:

- Working in Huichica Creek and the riparian area during low and no-flow periods between June 1 and October 15 to avoid potential impacts to CCCS and CFS individuals. However, to minimize and avoid take of migratory birds, their nests and young, the Department proposes to conduct vegetation and tree removal within the riparian area between September 30 and January 30. This work will be limited to vegetation and trees that are within the project footprint. No grubbing or other ground disturbing actions will occur. Upon completion of this work, the Department will install storm water and erosion control BMPs. In addition, the Department proposes that revegetation work using hand tools be allowed to occur outside of the dry season work window to ensure successful revegetation outcomes.

- No pile-driving will be used for the project.

- Storing all equipment outside of Huichica Creek and the riparian area.

- Installing temporary high visibility fencing that will outline and protect ESAs prior to the start of construction. The ESA fencing will be delineated on the final plans, and the fence will remain on-site until job completion.

- Installing silt fences on the slopes adjacent to the work area to prevent silt from entering the watershed. Erosion controls will be maintained during the construction period.

- The Department will prepare a water diversion and dewatering plan.
• All excess soil will be disposed of at an approved upland site.

• A qualified biologist will be on-site during construction to monitor construction activities to ensure take is avoided or minimized.

• Specific avoidance and minimization measures from all permits will be incorporated into the project plans and specifications and enforced during construction.

**Invasive Species:** Limited exotics control is being proposed pursuant to Executive Order 13112 (1999). Pending agency approval, the Department proposes to eradicate bullfrogs, green sunfish, and other invasive aquatic species if encountered during construction monitoring. Department standard BMPs will ensure avoidance of the spread of exotics due to construction-related activities.

In compliance with the Executive Order on Invasive Species, EO 13112, and guidance from the FHWA, the landscaping and erosion control included in the project will not use species listed as invasive. In areas of particular sensitivity, extra precautions will be taken if invasive species are found in or next to the construction areas. These include the inspection and cleaning of construction equipment and eradication strategies to be implemented should an invasion occur.
Appendix E – Special-status Plant and Animal Species Lists

Federally or state listed and candidate species, critical habitat, or special status species occurring or known to occur in the Project Area vicinity are listed below. Data for listed species are from the USFWS Information for IPaC species database, and CDFW CNDDDB and CNPS rare plant database for the USGS and eight surrounding quadrangles.

*Status: E = Endangered, T = Threatened, X = Critical Habitat, PX = Proposed Critical Habitat, D = Delisted, R = Rare, SC= Special Concern, FPS = Fully Protected Species, BEGE = Bald Eagle and Golden Eagle Protection Act

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Species Status</th>
<th>Habitat requirements (from CNDDDB, USFWS, or NMFS)</th>
<th>Habitat present/absent</th>
<th>Species present/absent</th>
<th>Rationale</th>
<th>Effect Determination</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Plants:</strong></td>
<td></td>
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<tr>
<td>Henderson's bent grass</td>
<td></td>
<td>Found in valley and foothill grassland and vernal pools in moist places. From 213-3375 feet in elevation.</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present. Vernal pools are not present in the footprint.</td>
<td></td>
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<tr>
<td>Agrostis hendersonii</td>
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<tr>
<td>Francisca onion</td>
<td></td>
<td>Found in cismontane woodland and valley and foothill grassland in clay soils; often on serpentine on dry hillsides. From 164-984 feet in elevation.</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present. Primary parent material in the footprint is sandstone and secondary is conglomerate (USGS GIS data layer).</td>
<td></td>
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<tr>
<td>Allium peninsulare var. franciscanum</td>
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<tr>
<td>Napa false indigo</td>
<td></td>
<td>Found in broadleafed upland forest, chaparral, and cismontane woodland in openings. From 393-6560 feet in elevation</td>
<td>Present</td>
<td>Absent</td>
<td>Habitat is present. Habitat is primarily ruderal and riparian and the footprint below known elevation range.</td>
<td></td>
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<tr>
<td>Amorpha californica var. napensis</td>
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<tr>
<td>Rincon Ridge manzanita</td>
<td></td>
<td>Found in chaparral, but a highly restricted endemic to red rhodies in Sonoma County. From 246-1016 feet in elevation.</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present. Primary parent material in the footprint is sandstone and secondary is conglomerate (USGS GIS data layer).</td>
<td></td>
</tr>
<tr>
<td>Arctostaphylos stanfordiana ssp. decumbens</td>
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<tr>
<td>Common Name</td>
<td>Species Status</td>
<td>Habitat requirements (from CNDDB, USFWS, or NMFS)</td>
<td>Habitat present/absent</td>
<td>Species present/absent</td>
<td>Rationale</td>
<td>Effect Determination</td>
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</tr>
<tr>
<td>Clara Hunt’s milk-vetch</td>
<td>Federal: E</td>
<td>Found in cismontane woodland, valley and foothill</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present. Primary parent material in the footprint is sandstone and secondary is conglomerate (USGS GIS data layer).</td>
<td>No Effect</td>
</tr>
<tr>
<td><em>Astragalus claranus</em></td>
<td>State: T</td>
<td>grassland, and chaparral. Found on open grassy</td>
<td></td>
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<td></td>
<td>CNPS: 1B.1</td>
<td>hillsides, esp. on exposed shoulders in thin,</td>
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<tr>
<td></td>
<td></td>
<td>volcanic clay moist soil in spring. The species</td>
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<td></td>
<td></td>
<td>is now restricted to five localities in</td>
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<tr>
<td></td>
<td></td>
<td>northwestern Napa and eastern Sonoma County,</td>
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<td></td>
<td></td>
<td>four of which were known at the time of listing</td>
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<tr>
<td></td>
<td></td>
<td>(USFWS 5-year review, 2009). From 246-770 feet</td>
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<td></td>
<td></td>
<td>in elevation.</td>
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</tr>
<tr>
<td>Aalki milk-vetch</td>
<td></td>
<td>Found in alkali playas, valley and foothill</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present. Vernal pools are not present in the footprint.</td>
<td></td>
</tr>
<tr>
<td><em>Astragalus tenerr</em></td>
<td></td>
<td>grassland, and vernal pools on low ground,</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>var. tener</td>
<td></td>
<td>alkali flats, and flooded lands; in annual</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Balsamorhiza macrolepis</em></td>
<td></td>
<td>grassland or in playas or vernal pools. From 1-55</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>feet in elevation.</td>
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</tr>
<tr>
<td>Big-scale balsamroot</td>
<td></td>
<td>Found in valley and foothill grassland,</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present. Primary parent material in the footprint is sandstone</td>
<td>No Effect</td>
</tr>
<tr>
<td><em>Balsamorhiza macrolepis</em></td>
<td></td>
<td>cismontane woodland, and sometimes on</td>
<td></td>
<td></td>
<td>and secondary is conglomerate (USGS GIS data layer).</td>
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<tr>
<td></td>
<td></td>
<td>serpentinite. Plant is considered a “strong</td>
<td></td>
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<td></td>
<td></td>
<td>indicator” of serpentinite soil (Califora 2013).</td>
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<td></td>
<td></td>
<td>From 6-3028 feet in elevation.</td>
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</tr>
<tr>
<td>Sonoma sunshine</td>
<td></td>
<td>Found in vernal pools within Valley grassland,</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present. Vernal pools are not present in the footprint.</td>
<td>No Effect</td>
</tr>
<tr>
<td><em>Bienenosperma bakeri</em></td>
<td>1B.1</td>
<td>freshwater wetlands, and wetland-riparian</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>habitats.</td>
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</tr>
<tr>
<td>Narrow-anthered</td>
<td>1B.2</td>
<td>Found in broadleaved upland forest, chaparral,</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present. Primary parent material in the footprint is sandstone</td>
<td>No Effect</td>
</tr>
<tr>
<td>Brodiaea</td>
<td></td>
<td>cismontane woodland, lower montane coniferous</td>
<td></td>
<td></td>
<td>and secondary is conglomerate (USGS GIS data layer).</td>
<td></td>
</tr>
<tr>
<td>Brodiaea leptandra</td>
<td></td>
<td>forest, and valley and foothill grassland in</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>volcanic substrates. From 360-3001 feet in</td>
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</tr>
<tr>
<td>Mt. Diablo fairy-lantern</td>
<td></td>
<td>Found on wooded and bushy slopes within</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present. Habitat is primarily ruderal and riparian and the</td>
<td>No Effect</td>
</tr>
<tr>
<td><em>Calochortus pulchellus</em></td>
<td></td>
<td>chaparral, cismontane woodland, riparian</td>
<td></td>
<td></td>
<td>footprint below known elevation range.</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>woodland, and valley and foothill grassland from</td>
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<tr>
<td></td>
<td></td>
<td>656-2624 feet in elevation.</td>
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</tr>
</tbody>
</table>

127
<table>
<thead>
<tr>
<th>Common Name</th>
<th>Species Status</th>
<th>Habitat requirements (from CNDDB, USFWS, or NMFS)</th>
<th>Habitat present/absent</th>
<th>Species present/absent</th>
<th>Rationale</th>
<th>Effect Determination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lyngbye’s sedge</td>
<td>Carex lyngbyei</td>
<td>Found in marshes and swamps (brackish or freshwater from 0 to 656 feet in elevation.</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present. Marshes and swamps are not present.</td>
<td></td>
</tr>
<tr>
<td>Tiburon paintbrush</td>
<td>Castilleja affinis ssp. neglecta</td>
<td>Found on rocky serpentine slopes within valley and foothill grassland.</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present. Primary parent material in the footprint is sandstone and secondary is conglomerate (USGS GIS data layer).</td>
<td>No Effect</td>
</tr>
<tr>
<td>Mead’s owl clover</td>
<td>Castilleja ambiguas ssp. meadii</td>
<td>All populations of var. meadii occur within a highly localized district of the Atlas Peak plateau on a single site type characterized by very gradual slopes, shallow clay soils of volcanic origin, and numerous surface rock outcrops (rubble) (Egger et al. 2012).</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present. Primary parent material in the footprint is sandstone and secondary is conglomerate (USGS GIS data layer).</td>
<td></td>
</tr>
<tr>
<td>Rincon Ridge ceanothus</td>
<td>Ceanothus confusus</td>
<td>Found in closed-cone coniferous forest, chaparral, and cismontane woodland. Known from volcanic or serpentine soils, and dry shrubby slopes. From 246-3453 feet in elevation.</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present. Primary parent material in the footprint is sandstone and secondary is conglomerate (USGS GIS data layer).</td>
<td></td>
</tr>
<tr>
<td>Calistoga ceanothus</td>
<td>Ceanothus divergens</td>
<td>Found in chaparral on rocky, serpentine or volcanic sites. From 557-3116 feet in elevation.</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present. Primary parent material in the footprint is sandstone and secondary is conglomerate (USGS GIS data layer).</td>
<td></td>
</tr>
<tr>
<td>Common Name</td>
<td>Species Status</td>
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<td>Species present/absent</td>
<td>Rationale</td>
<td>Effect Determination</td>
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</tr>
<tr>
<td>Holly-leaved ceanothus</td>
<td></td>
<td>Found in chaparral on rocky, volcanic slopes from 393 to 2099 feet in elevation.</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present. Primary parent material in the footprint is sandstone and secondary is conglomerate (USGS GIS data layer).</td>
<td></td>
</tr>
<tr>
<td>Ceanothus purpureus</td>
<td>1B.2</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Sonoma ceanothus</td>
<td></td>
<td>Found in chaparral on sandy, serpentine or volcanic soils. From 688-2624 feet in elevation.</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present. Primary parent material in the footprint is sandstone and secondary is conglomerate (USGS GIS data layer).</td>
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</tr>
<tr>
<td>Ceanothus sonomensis</td>
<td>1B.2</td>
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<tr>
<td>Pappose tarplant</td>
<td></td>
<td>Found in coastal prairie, meadows and seeps, coastal salt marsh, valley and foothill grassland. Microhabitat is very moist, often alkaline sites. From 6-1378 feet in elevation.</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present. Footprint is not very mesic or alkaline.</td>
<td></td>
</tr>
<tr>
<td>Centromadia parryi</td>
<td>1B.2</td>
<td></td>
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<tr>
<td>ssp. parryi</td>
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<tr>
<td>Parry's rough tarplant</td>
<td></td>
<td>Found in alkaline, very moist meadows and seeps, sometimes roadsides within valley and foothill grassland and vernal pools.</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present. Footprint is not very mesic or alkaline.</td>
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</tr>
<tr>
<td>Centromadia parryi</td>
<td>4.2</td>
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<tr>
<td>ssp. rudis</td>
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<tr>
<td>Soft bird's-beak</td>
<td></td>
<td>Found in coastal salt marsh with Distichlis, Salicornia, Frankenia, etc., from 0-10 feet in elevation.</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present. Footprint is not coastal marsh habitat.</td>
<td>No Effect</td>
</tr>
<tr>
<td>Chloropyron molle</td>
<td>E</td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>ssp. molle</td>
<td>R</td>
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</tr>
<tr>
<td>Sonoma spiniflora</td>
<td></td>
<td>Found in coastal prairie on sandy soil. From 32-164 feet in elevation.</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present.</td>
<td>No Effect</td>
</tr>
<tr>
<td>Chorizanthe valida</td>
<td>E</td>
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</tr>
<tr>
<td>Serpentine cryptantha</td>
<td></td>
<td>Found in chaparral on serpentine outcrops. From 443-2411 feet in elevation.</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present. Primary parent material in the footprint is sandstone and secondary is conglomerate (USGS GIS data layer).</td>
<td></td>
</tr>
<tr>
<td>Cryptantha dissita</td>
<td>1B.2</td>
<td></td>
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</tr>
<tr>
<td>Common Name</td>
<td>Species Status</td>
<td>Habitat requirements (from CNDDB, USFWS, or NMFS)</td>
<td>Habitat present/absent</td>
<td>Species present/absent</td>
<td>Rationale</td>
<td>Effect Determination</td>
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</tr>
<tr>
<td>Dwarf downingia</td>
<td></td>
<td>Found in valley and foothill grassland (mesic sites) and vernal pools. Found in vernal lake and pool margins with a variety of associates. Found in several types of vernal pools from 0-1591 feet in elevation.</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present. Vernal pools are not present in the footprint.</td>
<td>Habitat Determination</td>
</tr>
<tr>
<td>Downingia pusillia</td>
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<td></td>
</tr>
<tr>
<td>Streamside daisy</td>
<td>3</td>
<td>Found in broadleaved upland forest, cismontane woodland, and north coast coniferous forest in rocky and mesic areas from 98-3608 feet in elevation.</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present. Footprint is not rocky mesic</td>
<td>Habitat Determination</td>
</tr>
<tr>
<td>Enigeron bicoloretsii</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Greene's narrow-leaved daisy</td>
<td>1B.2</td>
<td>Found in chaparral on serpentine and volcanic substrates, generally in shrubby vegetation. From 246-3476 feet in elevation.</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present. Primary parent material in the footprint is sandstone and secondary is conglomerate (USGS GIS data layer).</td>
<td>Habitat Determination</td>
</tr>
<tr>
<td>Enigeron greenei</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tiburon buckwheat</td>
<td>1B.1</td>
<td>Found in serpentine sandy to gravelly soil in chaparral, cismontane woodland, coastal prairie, and valley and foothill grassland.</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present. Primary parent material in the footprint is sandstone and secondary is conglomerate (USGS GIS data layer).</td>
<td>Habitat Determination</td>
</tr>
<tr>
<td>Eriogonum luteolum var. caninum</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jepson's coyote-thistle</td>
<td>1B.2</td>
<td>Found in vernal pools, valley and foothill grassland in clay. From 10-1001 feet in elevation.</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present. Vernal pool habitat is not present.</td>
<td>Habitat Determination</td>
</tr>
<tr>
<td>Eryngium jepsonii</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>San Joaquin spearscale</td>
<td>1B.2</td>
<td>Found in Chenopod scrub, alkali meadow, and valley and foothill grassland habitats. Microhabitat is seasonal alkali wetlands or alkali sink scrub with Distichlis spicata, Frankenia, etc. From 0-920 feet in elevation.</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present. Footprint is not seasonally mesic or alkaline.</td>
<td>Habitat Determination</td>
</tr>
<tr>
<td>Extreplex joaquiniana</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Woolly-headed gilia</td>
<td>1B.1</td>
<td>Found in serpentine soils and rocky outcrops within coastal bluff scrub, and valley and foothill grassland. From 32-722 feet in elevation.</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present. Primary parent material in the footprint is sandstone and secondary is conglomerate (USGS GIS data layer).</td>
<td>Habitat Determination</td>
</tr>
<tr>
<td>Gilia capitata ssp. tomentosa</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Common Name</td>
<td>Species Status</td>
<td>Habitat requirements (from CNDDDB, USFWS, or NMFS)</td>
<td>Habitat present/absent</td>
<td>Species present/absent</td>
<td>Rationale</td>
<td>Effect Determination</td>
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</tr>
<tr>
<td>Diablo helianthoida</td>
<td>1B.2</td>
<td>Found in broadleaved upland forest, chaparral,</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present.</td>
<td></td>
</tr>
<tr>
<td>Helianthella castanea</td>
<td></td>
<td>cismontane woodland, coastal scrub, riparian</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>woodland, and valley and foothill grassland.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Usually in chaparral/oak woodland</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>interface in rocky, azonal soils, often in partial</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>shade. From 82-3772 feet in elevation.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White seaside tarplant</td>
<td>1B.2</td>
<td>Found in coastal scrub and valley and foothill</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present.</td>
<td></td>
</tr>
<tr>
<td>Hemizonia congesta ssp.</td>
<td></td>
<td>grassland in grassy valleys and hills, often in</td>
<td></td>
<td></td>
<td>Footprint is mainly ruderal grassland and active viticulture.</td>
<td></td>
</tr>
<tr>
<td>congesta</td>
<td></td>
<td>fallow fields. From 82-656 feet in elevation.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Two-carpellate</td>
<td>1B.2</td>
<td>Found in serpentine chaparral and serpentine</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present.</td>
<td></td>
</tr>
<tr>
<td>western flax</td>
<td></td>
<td>chaparral in serpentine barrens at edge of</td>
<td></td>
<td></td>
<td>Primary parent material in the footprint is sandstone and</td>
<td></td>
</tr>
<tr>
<td>Hesperolinon</td>
<td></td>
<td>chaparral. From 492-2689 feet in elevation.</td>
<td></td>
<td></td>
<td>secondary is conglomerate (USGS GIS data layer).</td>
<td></td>
</tr>
<tr>
<td>bicarpellatum</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brewer's western flax</td>
<td>1B.2</td>
<td>Often found in rocky serpentine soil in serpentine</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present.</td>
<td></td>
</tr>
<tr>
<td>Hesperolinon</td>
<td></td>
<td>chaparral and serpentine grassland. From 98-2903</td>
<td></td>
<td></td>
<td>Primary parent material in the footprint is sandstone and</td>
<td></td>
</tr>
<tr>
<td>brevior</td>
<td></td>
<td>feet in elevation.</td>
<td></td>
<td></td>
<td>secondary is conglomerate (USGS GIS data layer).</td>
<td></td>
</tr>
<tr>
<td>Sharsmith’s western flax</td>
<td>1B.2</td>
<td>Found between 1082 and 1902 feet in elevation in</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present.</td>
<td></td>
</tr>
<tr>
<td>Hesperolinon</td>
<td></td>
<td>chaparral in serpentine soils.</td>
<td></td>
<td></td>
<td>Primary parent material in the footprint is sandstone and</td>
<td></td>
</tr>
<tr>
<td>sharismithiae</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>secondary is conglomerate (USGS GIS data layer).</td>
<td></td>
</tr>
<tr>
<td>Thin-lobed Horkelia</td>
<td>1B.2</td>
<td>Found in coastal scrub, chaparral in sandy soils,</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present.</td>
<td></td>
</tr>
<tr>
<td>Horkelia tenuicoba</td>
<td></td>
<td>mesic openings. Found from 45-2151 feet in</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coast Iris</td>
<td>4.2</td>
<td>Found in coastal prairie, lower montane coniferous</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present.</td>
<td></td>
</tr>
<tr>
<td>Iris longipesima</td>
<td></td>
<td>forest, meadows and seeps on mesic sites in heavy</td>
<td></td>
<td></td>
<td>Coastal prairie not present.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>soils from 0-1968 feet in elevation.</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Common Name</td>
<td>Species Status</td>
<td>Habitat requirements (from CNDDDB, USFWS, or NMFS)</td>
<td>Habitat present/absent</td>
<td>Species present/absent</td>
<td>Rationale</td>
<td>Effect Determination</td>
</tr>
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</tr>
<tr>
<td>Carquinez goldenbush</td>
<td></td>
<td>Within valley and foothill grassland, found in alkaline soils, flats, and lower hills on low benches near drainages and on tops and sides of mounds in swale habitat. From 0-66 feet in elevation.</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present. Footprint does not consist of swale habitat.</td>
<td></td>
</tr>
<tr>
<td>Isocoma argula</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Northern California black walnut</td>
<td></td>
<td>Found in riparian forest and riparian woodland. Few extant native stands remain; widely naturalized. Found on deep alluvial soil associated with a creek or stream. From 0-1443 feet in elevation.</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present. The nearest CNDDDB occurrence is over 13 miles to the east (CNDDDB # 1)</td>
<td></td>
</tr>
<tr>
<td>Juglans hindsii</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contra Costa goldfields</td>
<td>E</td>
<td>Valley and foothill grassland; vernal pools, cismontane woodland. Extirpated from most of its range; extremely endangered. Found in vernal pools, swales, low depressions, and in open grassy areas. Found from 0-1460 feet in elevation.</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present. Vernal pools and mesic depressions are not present in the footprint.</td>
<td>No Effect</td>
</tr>
<tr>
<td>Lasthenia conjugens</td>
<td>1B.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Delta tule pea</td>
<td></td>
<td>Found in freshwater and brackish marshes. Often found w/ Typha, Aster lentus, Rosa californica, Juncus spp., Scirpus, etc. Usually on marsh and slough edges.</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present. Marsh habitat not present in the project footprint.</td>
<td></td>
</tr>
<tr>
<td>Lathyrus jeplsonii var. jeplsonii</td>
<td>1B.2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Legenere</td>
<td></td>
<td>Found in beds of vernal pools from 3-2850 feet in elevation.</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present. Vernal pool habitat is not present.</td>
<td></td>
</tr>
<tr>
<td>Legenere lirnosa</td>
<td>1B.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jepson's leptosiphon</td>
<td></td>
<td>Found in chaparral, and cismontane woodland on open to partially shaded grassy slopes. On volcanics or the periphery of serpentine substrates. From 328-1640 feet in elevation.</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present. Primary parent material in the footprint is sandstone and secondary is conglomerate (USGS GIS data layer).</td>
<td></td>
</tr>
<tr>
<td>Leptosiphon jeplsonii</td>
<td>1B.2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mason's lilaeopsis</td>
<td></td>
<td>Found in freshwater and brackish marshes, riparian scrub; in tidal zones, in muddy or silty soil formed through river deposition or river bank erosion. Found at elevations between 0 and 33 feet.</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present.</td>
<td></td>
</tr>
<tr>
<td>Lilaeopsis masonii</td>
<td>R</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sebastopol meadowfoam</td>
<td></td>
<td>Mescic meadows, vernal pools, valley and foothill grassland. Swales, wet meadows and marshy areas in valley oak savanna; on poorly drained soils of clays and sandy loam. From 49-1000 feet in elevation.</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present. Vernal pool and mesic depression habitat is not present</td>
<td>No Effect</td>
</tr>
<tr>
<td>Linanthus vinculans</td>
<td>E</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>E</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

132
<table>
<thead>
<tr>
<th>Common Name</th>
<th>Species Status</th>
<th>Habitat requirements (from CNDDDB, USFWS, or NMFS)</th>
<th>Habitat present/absent</th>
<th>Species present/absent</th>
<th>Rationale</th>
<th>Effect Determination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cobb Mountain lupine</td>
<td></td>
<td>Found in chaparral, cismontane woodland, and lower</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present. Primary parent material in the footprint is sandstone</td>
<td></td>
</tr>
<tr>
<td><em>Lupinus sericatus</em></td>
<td>Federal 1B.2</td>
<td>montane coniferous forest in stands of knobcone</td>
<td></td>
<td></td>
<td>and secondary is conglomerate (USGS GIS data layer).</td>
<td></td>
</tr>
<tr>
<td></td>
<td>State 3.2</td>
<td>pine-oak woodland, on open wooded slopes in</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CNPS</td>
<td>gravelly soils; sometimes on serpentine. From 590-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4920 feet in elevation.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ML Diablo cottonweed</td>
<td></td>
<td>Found in valley and foothill grassland, cismontane</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present. Rocky slopes are not present.</td>
<td></td>
</tr>
<tr>
<td><em>Micropus amphibolus</em></td>
<td>3.2</td>
<td>woodland, and broadleaved upland forest in bare,</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>grassy or rocky slopes. From 164-2624 feet in</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Few-flowered navarretia</td>
<td></td>
<td>Found in volcanic ash flow, and volcanic substrate</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present. Primary parent material in the footprint is sandstone</td>
<td>No Effect</td>
</tr>
<tr>
<td><em>Navarretia leucocephala</em></td>
<td>1B.1</td>
<td>vernal pools. From 1312-2804 feet in elevation.</td>
<td></td>
<td></td>
<td>and secondary is conglomerate (USGS GIS data layer).</td>
<td></td>
</tr>
<tr>
<td>pauciflora</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sonoma beardtongue</td>
<td></td>
<td>Found in chaparral in crevices in rock outcrops</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present. Rocky slopes are not present.</td>
<td></td>
</tr>
<tr>
<td><em>Penstemon newberryi</em> var.</td>
<td>1B.3</td>
<td>and talus slopes from 2296-4493 feet in elevation.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>sonomensis</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marin knotweed</td>
<td></td>
<td>Found in coastal salt marshes and brackish</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present.</td>
<td></td>
</tr>
<tr>
<td><em>Polygonum marinumense</em></td>
<td>3.1</td>
<td>marshes from 0-32 feet in elevation.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>California beaked-rush</td>
<td></td>
<td>Found in bogs and fens, marshes and swamps, lower</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present. Marsh habitat is not present.</td>
<td></td>
</tr>
<tr>
<td><em>Rynchospora californica</em></td>
<td>1B.1</td>
<td>montane coniferous forest, meadows and seeps.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Microhabitat are freshwater seeps and open marshy</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>areas. 148-886 feet in elevation.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Napa checkerbloom</td>
<td></td>
<td>Found in chaparral on rhyolitic substrates. From</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present. Marsh habitat is not present.</td>
<td></td>
</tr>
<tr>
<td><em>Sidalcea hickmanii</em></td>
<td>1B.1</td>
<td>1361-200 feet in elevation.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ssp. napensis</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marin checkerbloom</td>
<td></td>
<td>Found in chaparral on serpentine or volcanic soils;</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present. Primary parent material in the footprint is sandstone</td>
<td></td>
</tr>
<tr>
<td><em>Sidalcea hickmanii</em></td>
<td>1B.3</td>
<td>sometimes appears after burns. From 164-1410 feet</td>
<td></td>
<td></td>
<td>and secondary is conglomerate (USGS GIS data layer).</td>
<td></td>
</tr>
<tr>
<td>ssp. viridis</td>
<td></td>
<td>in elevation.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
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<td>Effect Determination</td>
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</tr>
<tr>
<td>Keck's checkerbloom</td>
<td>E</td>
<td>Found in cismontane woodland, valley and foothill grassland grassy slopes in blue oak woodland. From 246-2132 feet in elevation.</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present. Blue oak woodland is not present.</td>
<td>No Effect</td>
</tr>
<tr>
<td>Sidalcea keckii</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Most beautiful jewel-flower</td>
<td></td>
<td>Found in chaparral, valley and foothill grassland, and cismontane woodland habitats on serpentine outcrops, on ridges and slopes. From 39-2394 feet in elevation.</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present. Primary parent material in the footprint is sandstone and secondary is conglomerate (USGS GIS data layer).</td>
<td></td>
</tr>
<tr>
<td>Streptanthus elbidus ssp. peramoenosus</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Tiburon jewel-flower</td>
<td>E</td>
<td>Found in valley and foothill grassland on shallow, rocky serpentine slopes between 98-492 feet in elevation.</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present. Primary parent material in the footprint is sandstone and secondary is conglomerate (USGS GIS data layer).</td>
<td>No Effect</td>
</tr>
<tr>
<td>Streptanthus glandulosus ssp. niger</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Green jewelflower</td>
<td></td>
<td>Found in chaparral and cismontane woodland in openings in chaparral or woodland; serpentine, rocky sites. From 426-760 feet in elevation.</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present. Primary parent material in the footprint is sandstone and secondary is conglomerate (USGS GIS data layer).</td>
<td></td>
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<tr>
<td>Streptanthus hesperidis</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Suisun Marsh aster</td>
<td></td>
<td>Found in marshes and swamps (brackish and freshwater).</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present. Marsh habitat is not present.</td>
<td></td>
</tr>
<tr>
<td>Symphyotrichum lenticum</td>
<td></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>Napa bluecurls</td>
<td></td>
<td>Found in cismontane woodland, chaparral, valley and foothill grassland, vernal pools, and lower montane coniferous forest. Often in open, sunny areas. Also has been found in vernal pools. From 98-1935 feet in elevation.</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present. Footprint is primarily ruderal, disturbed habitat.</td>
<td></td>
</tr>
<tr>
<td>Trichostema ruygtii</td>
<td></td>
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</tr>
<tr>
<td>Common Name</td>
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<td>Habitat requirements (from CNDB, USFWS, or NMFS)</td>
<td>Habitat present/absent</td>
<td>Species present/absent</td>
<td>Rationale</td>
<td>Effect Determination</td>
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</tr>
</tbody>
</table>
| Showy rancheria clover/ Two forked clover  
*Trifolium amoenum*                  |                | Found in valley and foothill grassland, and coastal bluff scrub. Sometimes found on serpentine soil, open sunny sites, and swales. Most recently sighted on roadside and eroding cliff face. The only known natural site is on the bluffs at Dillon Beach in Marin County, discovered in 1996 (USFWS 2012). In addition to the natural site, two small experimental populations were reintroduced at the Bodega Marine Laboratory in Sonoma County and two experimental populations persist at two sites on D Ranch at Point Reyes National Seashore in Marin County (USFWS 2012). There are no known natural populations of the upright inland form. From 15-1837 feet in elevation. | Absent                 | Absent                 | Habitat not present. Project footprint is outside of known range. | No Effect             |
| Saline clover  
*Trifolium hydrophilum*               |                | Found in marshes and swamps, valley and foothill grassland, and vernal pools on mesic, alkaline sites. From 0-984 feet in elevation. | Absent                 | Absent                 | Habitat not present. Footprint is not mesic or alkaline. | No Effect             |
| Oval-leaved viburnum  
*Viburnum ellipticum*                  |                | Found in chaparral, cismontane woodland, and lower montane coniferous forest from 705-4592 feet in elevation. | Absent                 | Absent                 | Habitat not present. Footprint is below known elevation range. | No Effect             |
| **Invertebrates:**                   |                |                                                                                                              |                        |                        |                                                |                      |
| Conservancy fairy shrimp  
*Branchinecta conservatio*           |                | Endemic to the grasslands of the northern two-thirds of the Central Valley; found in large, turbid pools. Inhabit stastic pools located in swales formed by old, braided alluvium filled by winter/spring rains that last until June. | Absent                 | Absent                 | Habitat not present. | No Effect             |
| Vernal pool fairy shrimp  
*Branchinecta lynchi*                  |                | Endemic to the grasslands of the Central Valley, central coast mountains, and south coast mountains, in stastic rain-filled pools. Inhabit small, clear-water sandstone-depression pools and grassed swale, earth slump, or basalt-flow depression pools. | Absent                 | Absent                 | Habitat not present. | No Effect             |
| Monarch butterfly  
*Danainus plexipus*                  |                | Roosts located in wind-protected tree groves (eucalyptus, Monterey pine, cypress), with nectar and water sources nearby. | Absent                 | Absent                 | Habitat not present. | No Effect             |
<table>
<thead>
<tr>
<th>Common Name</th>
<th>Species Status</th>
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<th>Rationale</th>
<th>Effect Determination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valley elderberry longhorn beetle</td>
<td>T</td>
<td>Occurs only in the Central Valley of California, in association with blue elderberry (Sambucus mexicana). Prefers to lay eggs in elderberries 2-8 inches in diameter; some preference is shown for “stressed” elderberries.</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present. Project is outside presumed historical range (USFWS).</td>
<td>No Effect</td>
</tr>
<tr>
<td>Callippe silverspot butterfly</td>
<td>E</td>
<td>Restricted to the northern coastal scrub of the San Francisco peninsula. Host plant is Viola pedunculata. Most adults found on east-facing slopes; males congregate on hilltops in search of females.</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present.</td>
<td>No Effect</td>
</tr>
<tr>
<td>California freshwater shrimp</td>
<td>E, E</td>
<td>Endemic to Marin, Napa, and Sonoma Counties. Found in low elevation, low gradient streams where riparian cover is moderate to heavy in shallow pools away from main stream flow. In the winter, inhabits undercut banks with exposed roots. In the summer, inhabits leafy branches touching water.</td>
<td>Present</td>
<td>Present</td>
<td>Species and habitat are inferred to be present.</td>
<td>May Affect, Likely to Adversely Affect</td>
</tr>
<tr>
<td>Fish:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Delta smelt Hypomesus transpacifcis</td>
<td>T, E</td>
<td>Found in Sacramento-San Joaquin delta. Seasonally in Suisun Bay, Carquinez Strait, and San Pablo Bay. Seldom found at salinities &gt; 10 parts per thousand. Most often at salinities &lt; 2 parts per thousand.</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present.</td>
<td>No Effect</td>
</tr>
<tr>
<td>Central Valley coastal steelhead</td>
<td>T, X</td>
<td>Federal listing refers to runs in coastal basins from the Pajaro River south to, but not including, the Santa Maria river.</td>
<td>Present</td>
<td>Present</td>
<td>Species and habitat are inferred to be present.</td>
<td>May Affect, Likely to Adversely Affect</td>
</tr>
<tr>
<td>Sacramento splittail</td>
<td>SC</td>
<td>Endemic to the lakes and rivers of the Central Valley, but now confined to the delta. Suisun Bay and associated marshes. Slow moving river sections, dead end sloughs. Requires flooded vegetation for spawning and foraging for young.</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present.</td>
<td></td>
</tr>
<tr>
<td>Longfin smelt Spinichus thaleichthys</td>
<td>T</td>
<td>Species is, euryhaline, nektonic and anadromous. Found in open waters of estuaries, mostly in middle or bottom of water column. Prefer salinities of 15-30 parts per thousand, but can be found in completely freshwater to almost pure seawater.</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present.</td>
<td></td>
</tr>
<tr>
<td>Amphibians:</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td>Common Name</td>
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</tr>
<tr>
<td>California giant salamander</td>
<td></td>
<td>Known from wet coastal forests near streams and seeps from Mendocino Co. south to Monterey Co. and east to Napa Co. Aquatic larvae found in cold, clear streams, occasionally in lakes and ponds. Adults known from wet forests under rocks and logs near streams and lakes.</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present.</td>
<td></td>
</tr>
<tr>
<td>Foothill yellow-legged frog</td>
<td></td>
<td>Found in partly-shaded, shallow streams and riffles with a rocky substrate in a variety of habitats. Needs at least some cobble-sized substrate for egg-laying. Needs at least 15 weeks to attain metamorphosis.</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present.</td>
<td></td>
</tr>
<tr>
<td>California red-legged frog</td>
<td></td>
<td>Found in lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation. Requires 11-20 weeks of permanent water for larval development. Must have access to aestivation habitat.</td>
<td>Present</td>
<td>Present</td>
<td>Species is inferred present. Previous project underwent formal consultation</td>
<td>May Affect, Likely to Adversely Affect</td>
</tr>
<tr>
<td>Western pond turtle</td>
<td></td>
<td>A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches, usually with aquatic vegetation. Needs basking sites and suitable (sandly banks or grassy open fields) upland habitat up to 0.3 miles from water for egg-laying.</td>
<td>Present</td>
<td>Present</td>
<td>Species observed by USFWS within footprint during a site visit.</td>
<td></td>
</tr>
<tr>
<td>Tricolored blackbird</td>
<td></td>
<td>Highly colonial species, most numerous in Central Valley and vicinity. Largely endemic to California. Requires open water, protected nesting substrate, and foraging area with insect prey within a few km of the colony.</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present.</td>
<td></td>
</tr>
<tr>
<td>Golden eagle</td>
<td></td>
<td>Rolling foothills, mountain areas, sage-juniper flats, and desert. Cliff-walled canyons provide nesting habitat in most parts of range; also, large trees in open areas.</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present.</td>
<td>No Effect</td>
</tr>
<tr>
<td>Common Name</td>
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<tr>
<td>Burrowing owl</td>
<td>SC</td>
<td>Found in open, dry annual or perennial grasslands, deserts and scrublands characterized by low-growing vegetation. The owl is a subsurface nester, depenent upon burrowing mammals, most notably, the California ground squirrel.</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present.</td>
<td></td>
</tr>
<tr>
<td>Swainson's hawk</td>
<td>T</td>
<td>Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, and agricultural or ranch lands. Requires adjacent suitable foraging areas such as grasslands, or alfalfa or grain fields supporting rodent populations.</td>
<td>Potential</td>
<td>Potential</td>
<td>Current observations in Napa County are approximately 5 miles to the east. Species has not been observed within or near the footprint to date.</td>
<td></td>
</tr>
<tr>
<td>Western snowy plover</td>
<td>T, X</td>
<td>Found on sandy beaches, salt pond levees, and shores of large alkali lakes. Needs sandy, gravelly or friable soils for nesting.</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present.</td>
<td></td>
</tr>
<tr>
<td>Northern Harrier</td>
<td>SC</td>
<td>Found in coastal salt and fresh-water marsh. Nests and forages in grasslands, from salt grass in desert sink to mountain Cienagas. Nests on ground in shrubby vegetation, usually at marsh edge; nest built of a large mound of sticks in wet areas.</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present.</td>
<td></td>
</tr>
<tr>
<td>Black swift</td>
<td>SC</td>
<td>Found in the coastal belt of Santa Cruz and Monterey Counties; central and southern Sierra Nevada; San Bernardino and San Jacinto mountains. Breeds in small colonies on cliffs behind or adjacent to waterfalls in deep canyons and sea-bluffs above the surf.</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present.</td>
<td></td>
</tr>
<tr>
<td>White-tailed kite</td>
<td>FPS</td>
<td>Rolling foothills and valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodland. Open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching.</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present.</td>
<td></td>
</tr>
<tr>
<td>American peregrine falcon</td>
<td>D</td>
<td>Found near wetlands, lakes, rivers, or other water; on cliffs, banks, dunes, mounds; also, human-made structures. Nest consists of a scrape or a depression or ledge in an open site.</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present.</td>
<td></td>
</tr>
<tr>
<td>Common Name</td>
<td>Species Status</td>
<td>Habitat requirements</td>
<td>Habitat present/absent</td>
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<td>Rationale</td>
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</tr>
<tr>
<td>Saltmarsh common yellowthroat</td>
<td>SC</td>
<td>Resident of the San Francisco Bay region, in fresh and salt water marshes. Requires thick, continuous cover down to water surface for foraging; tall grasses, tule patches, willows for nesting.</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present.</td>
<td></td>
</tr>
<tr>
<td>Haliaeetus leucocephalus</td>
<td>D, BEGE, E, FPS</td>
<td>Found along Ocean shore, lake margin, and rivers for both nesting and wintering. Most nests within 1 mile of water. Nests in large, old-growth, or dominant live tree w/open branches, especially Ponderosa pine. Roosts communally in winter.</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present.</td>
<td>No Effect</td>
</tr>
<tr>
<td>Caspian tern</td>
<td>Hydroprogne caspia</td>
<td>Nests on sandy or gravely beaches and shell banks in small colonies inland and along the coast. Inland fresh-water lakes and marshes; also, brackish or salt waters of estuaries and bays.</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present.</td>
<td></td>
</tr>
<tr>
<td>California black rail</td>
<td>Laterallus jamaicensis coturnicus</td>
<td>Inhabits freshwater marshes, wet meadows and shallow margins of saltwater marshes bordering larger bays. Needs water depths of about 1 inch that does not fluctuate during the year and dense vegetation for nesting habitat.</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present.</td>
<td></td>
</tr>
<tr>
<td>Suisun song sparrow</td>
<td>Melospiza melodia maxillaris</td>
<td>Resident of brackish-water marshes surrounding Suisun Bay. Inhabits cattails, tules and other sedges, and Salicornia; also known to frequent tangles bordering sloughs.</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present.</td>
<td></td>
</tr>
<tr>
<td>San Pablo song sparrow</td>
<td>Melospiza melodia samuelis</td>
<td>Resident of salt marshes along the north side of San Francisco and San Pablo Bays. Inhabits tidal sloughs in the Salicornia marshes; nests in Grindelia bordering slough channels.</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present.</td>
<td></td>
</tr>
<tr>
<td>Ridgway’s rail</td>
<td>Rallus obsoletus</td>
<td>Found in salt-water and brackish marshes traversed by tidal sloughs in the vicinity of San Francisco Bay. Associated with abundant growths of pickleweed, but feeds away from cover on invertebrates from mud-bottomed sloughs.</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present.</td>
<td>No Effect</td>
</tr>
<tr>
<td>Bank swallow</td>
<td>Riparia</td>
<td>Colonial nester; nests primarily in riparian and other lowland habitats west of the desert. Requires vertical banks/slabs with fine-textured/sandy soils near streams, rivers, lakes, ocean to dig nesting hole.</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present.</td>
<td></td>
</tr>
<tr>
<td>Common Name</td>
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</tr>
<tr>
<td>California least tern</td>
<td>E, E, FPS</td>
<td>Nests along the coast from San Francisco Bay south to northern Baja California. Is a colonial breeder on bare or sparsely vegetated, flat substrates: sand beaches, alkali flats, sandflats, or paved areas.</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present.</td>
<td>No Effect</td>
</tr>
<tr>
<td>Northern Spotted Owl</td>
<td>T, X</td>
<td>Inhabits old-growth forests or mixed stands of old-growth and mature trees. Occasionally in younger forests w/patches of big trees.</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present.</td>
<td>No Effect</td>
</tr>
<tr>
<td>Pallid bat</td>
<td>SC</td>
<td>Found in deserts, grasslands, shrublands, woodlands and forests. Most common in open, dry habitats with rocky areas for roosting. Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.</td>
<td>Absent</td>
<td>Potential</td>
<td>Species likely present foraging in the vicinity. Roosting habitat not present.</td>
<td></td>
</tr>
<tr>
<td>Western red bat</td>
<td>SC</td>
<td>Roosts primarily in trees, 2-40 ft above ground, from sea level up through mixed conifer forests. Prefers habitat edges &amp; mosaics with trees that are protected from above &amp; open below with open areas for foraging.</td>
<td>Potential</td>
<td>Potential</td>
<td>Roosting and foraging habitat potentially present.</td>
<td></td>
</tr>
<tr>
<td>Salt marsh harvest mouse</td>
<td>E, FPS</td>
<td>Found only in the saline emergent wetlands of San Francisco Bay and its tributaries. Pickleweed is the primary habitat. Does not burrow, but builds loosely organized nests. Requires higher areas for flood escape.</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present.</td>
<td>No Effect</td>
</tr>
<tr>
<td>Suisun shrew</td>
<td>SC</td>
<td>Tidal marshes of the northern shores of San Pablo and Suisun bays. Requires dense low-lying cover and driftweed and other litter above the mean hightide line for nesting and foraging.</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present.</td>
<td></td>
</tr>
<tr>
<td>American badger</td>
<td>SC</td>
<td>Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Needs sufficient food, friable soils and open, uncultivated ground. Preys on burrowing rodents. Digs burrows.</td>
<td>Absent</td>
<td>Absent</td>
<td>Habitat not present.</td>
<td></td>
</tr>
</tbody>
</table>

**CNPS California Rare Plant Rank:**
(1A) Presumed extinct in California; (1B) Rare, threatened, or endangered in California and elsewhere; (2) Rare, threatened, or endangered in California, but more common elsewhere; (3) More information is needed; (4) Limited distribution, watch list

**Threat Rank:**
0.1 Seriously threatened in California (more than 80% of occurrences threatened / high degree of immediacy of threat)
0.2 Fairly threatened in California (20% to 80% occurrences threatened / moderate degree of immediacy of threat)
0.3 Not very threatened in California (less than 20% of occurrences threatened / low degree and immediacy of threat or no current threats known)

References


USFWS Species List

United States Department of the Interior
FISH AND WILDLIFE SERVICE
Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
Phone: (916) 414-6600 Fax: (916) 414-6713

In Reply Refer To: March 22, 2018
Consultation Code: 08ESMF00-2018-SL1-1642
Event Code: 08ESMF00-2018-E-04749
Project Name: NAP-121-0.5/1.0 - 10430 - Huichica Bridge Replacement Project

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project.

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, under the jurisdiction of the U.S. Fish and Wildlife Service (Service) that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the Service under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.).

Please follow the link below to see if your proposed project has the potential to affect other species or their habitats under the jurisdiction of the National Marine Fisheries Service:

http://www.nwr.noaa.gov/protected_species/species_list/species_lists.html

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-iPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-iPaC system by completing the same process used to receive the enclosed list.
The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the “Endangered Species Consultation Handbook” at:


Please be aware that hawks and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comintow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.
Attachment(s):

- Official Species List
Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
(916) 414-6600
Project Summary

Consultation Code: 08ESMF00-2018-SL1-1642

Event Code: 08ESMF00-2018-E-04749

Project Name: NAP-121-5/1.0 - I9430 - Huichica Bridge Replacement Project

Project Type: TRANSPORTATION

Project Description: This project proposes to widen SR 121 over Huichica Creek, remove the existing triple metal culverts (Bridge No. 21-0001), replace it with a free (single) span bridge, incorporate fish passage improvements, restore creek banks along approximately 480 feet of Huichica Creek, and perform other miscellaneous works.

One staging area and two access roads are proposed during construction. The staging area is on the northwest side of the bridge and the access roads are on the northwest and southwest sides of the bridge extending to the top of the creek banks. The lengths of the access roads are proposed to be approximately 100 feet long and 12 feet wide each. The maximum depth of excavation for the access roads is 10 feet, which is primarily at the top of the creek banks. It is likely that a bioswale on the northwest side of the bridge will be impacted temporarily to build the temporary access road but it will be restored to the pre-construction condition prior to project completion. Construction work is anticipated to take two construction seasons.

A traffic lane in each direction would be maintained throughout construction. The roadway will be shifted maximum 26 feet to the south for traffic handling during stage construction.

After construction, this temporary pavement and the corresponding structure over Huichica Creek would be removed.

The following activities are anticipated during construction:

- Place two-way traffic on the north side by using existing railing, two 11-foot lanes and temporary railing.
- Remove approximately 12-foot wide structural section above culverts of the roadway.
on the south side of the existing roadway.
- Install 28-foot-wide section of the new precast/prestressed (PC/PS) concrete slab (approximately 2 feet thick with 3" polyester concrete on top) bridge on the south side.
- Switch two-way traffic to the newly constructed concrete slab bridge.
- Remove the rest of the existing structural section above culverts of the existing north side of the roadway.
- Construct 28-foot-wide section of the PC/PS concrete slab bridge.
- Remove 8-foot portion of the deck structure from the south side used during stage construction.
- Place concrete barrier Type 732 or steel rail Type ST-10 in each direction.
- Remove existing culverts.
- Perform fish passage and creek bank restoration work in coordination with bridge and roadway work.
- Place the pavement delineation.

For the final configuration, the roadway would be widened about 8 feet maximum to the east and west of the bridge with 3 feet of shoulder backing. The depth of the structural section would be 2 to 3 feet. The proposed centerline will be offset south from the existing centerline by 2 feet maximum.

The three 78-inch diameter corrugated metal culverts and the concrete headwalls of the existing structure were built in 1968. According to the latest Bridge Inspection Report dated 04/08/2014, there is a scour hole approximately 3 feet deep at the right side of the outlet of the middle culvert. The inlets to two of the culverts are blocked with vegetation. One culvert has its metal end detached from the concrete headwall. Slight rust was found in all three culvert inverts. During the first construction season, the existing pavement and embankment material on top of the culverts will be removed while leaving the culverts in place. The culverts will be completely removed from underneath the new bridge during the second
construction season.

The existing roadway at Huichica Creek is 35 feet wide with two standard 12-foot lanes and shoulders that vary from 5 to 6 feet. The proposed single span bridge will be 45 feet long and 48 feet wide to accommodate standard 8-foot shoulders.

The proposed fish passage remediation design will include removing paved portions of the channel, grading approximately 480 feet of the channel to a longitudinal 2.5% slope, and constructing a natural roughened channel.

Project Location:
Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/38.23565121398394/N122.36789425127738W

Counties: Napa, CA
Endangered Species Act Species

There is a total of 9 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IfPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

<table>
<thead>
<tr>
<th>NAME</th>
<th>STATUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salt Marsh Harvest Mouse Reithrodontomys raviventris</td>
<td>Endangered</td>
</tr>
</tbody>
</table>

No critical habitat has been designated for this species.
Species profile: [https://ecos.fws.gov/species.google](https://ecos.fws.gov/species.google)

Birds

<table>
<thead>
<tr>
<th>NAME</th>
<th>STATUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>California Least Tern Sterna antillarum bairdii</td>
<td>Endangered</td>
</tr>
</tbody>
</table>

No critical habitat has been designated for this species.
Species profile: [https://ecos.fws.gov/species.google](https://ecos.fws.gov/species.google)

<table>
<thead>
<tr>
<th>NAME</th>
<th>STATUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northern Spotted Owl Strix occidentalis caurina</td>
<td>Threatened</td>
</tr>
</tbody>
</table>

There is final critical habitat for this species. Your location is outside the critical habitat.
Species profile: [https://ecos.fws.gov/species.google](https://ecos.fws.gov/species.google)

Amphibians

<table>
<thead>
<tr>
<th>NAME</th>
<th>STATUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>California Red-legged Frog Rana draytonii</td>
<td>Threatened</td>
</tr>
</tbody>
</table>

There is final critical habitat for this species. Your location is outside the critical habitat.
Species profile: [https://ecos.fws.gov/species.google](https://ecos.fws.gov/species.google)
**Fish**

<table>
<thead>
<tr>
<th>NAME</th>
<th>STATUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delta Smelt <em>Hypomesus transpacificus</em></td>
<td>Threatened</td>
</tr>
<tr>
<td>There is final critical habitat for this species. Your location is outside the critical habitat.</td>
<td></td>
</tr>
<tr>
<td>Species profile: <a href="https://ecos.fws.gov/species/221">https://ecos.fws.gov/species/221</a></td>
<td></td>
</tr>
</tbody>
</table>

**Crustaceans**

<table>
<thead>
<tr>
<th>NAME</th>
<th>STATUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>California Freshwater Shrimp <em>Syncarides pacifica</em></td>
<td>Endangered</td>
</tr>
<tr>
<td>No critical habitat has been designated for this species.</td>
<td></td>
</tr>
<tr>
<td>Species profile: <a href="https://ecos.fws.gov/species/7903">https://ecos.fws.gov/species/7903</a></td>
<td></td>
</tr>
<tr>
<td>Conservancy Fairy Shrimp <em>Branchinecta conservato</em></td>
<td>Endangered</td>
</tr>
<tr>
<td>There is final critical habitat for this species. Your location is outside the critical habitat.</td>
<td></td>
</tr>
<tr>
<td>Species profile: <a href="https://ecos.fws.gov/species/8246">https://ecos.fws.gov/species/8246</a></td>
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</tbody>
</table>

**Flowering Plants**

<table>
<thead>
<tr>
<th>NAME</th>
<th>STATUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contra Costa Goldfields <em>Lasthenia conjugens</em></td>
<td>Endangered</td>
</tr>
<tr>
<td>There is final critical habitat for this species. Your location is outside the critical habitat.</td>
<td></td>
</tr>
<tr>
<td>Species profile: <a href="https://ecos.fws.gov/species/7019">https://ecos.fws.gov/species/7019</a></td>
<td></td>
</tr>
<tr>
<td>Showy Indian Clover <em>Trifolium amoenum</em></td>
<td>Endangered</td>
</tr>
<tr>
<td>No critical habitat has been designated for this species.</td>
<td></td>
</tr>
<tr>
<td>Species profile: <a href="https://ecos.fws.gov/species/9459">https://ecos.fws.gov/species/9459</a></td>
<td></td>
</tr>
</tbody>
</table>

**Critical habitats**

There are no critical habitats within your project area under this office's jurisdiction.
I am requesting a species list to update an expired species list for this project.

Quad Name: Napa

**ESA Anadromous Fish**
SONCC Coho ESU (T)
CCC Coho ESU (E)
CC Chinook Salmon ESU (T)
CVSR Chinook Salmon ESU (T)
SRWR Chinook Salmon ESU (E)
NC Steelhead DPS (T)
CCC Steelhead DPS (T) -
SCCC Steelhead DPS (T)
SC Steelhead DPS (E)
CCV Steelhead DPS (T)
Eulachon (T)

sDPS Green Sturgeon (T) -

**ESA Anadromous Fish Critical Habitat**
SONCC Coho Critical Habitat
CCC Coho Critical Habitat
CC Chinook Salmon Critical Habitat
CVSR Chinook Salmon Critical Habitat
SRWR Chinook Salmon Critical Habitat
NC Steelhead Critical Habitat
CCC Steelhead Critical Habitat -
SCCC Steelhead Critical Habitat
SC Steelhead Critical Habitat
CCV Steelhead Critical Habitat
Eulachon Critical Habitat

sDPS Green Sturgeon Critical Habitat -

**ESA Marine Invertebrates**
Range Black Abalone (E)
Range White Abalone (E)
NOAA Species List (continued)

**ESA Marine Invertebrates Critical Habitat**
Black Abalone Critical Habitat -

**ESA Sea Turtles**
East Pacific Green Sea Turtle (T)
Olive Ridley Sea Turtle (T/F)
Leatherback Sea Turtle (E)
North Pacific Loggerhead Sea Turtle (E)

**ESA Whales**
Blue Whale (E)
Fin Whale (E)
Humpback Whale (E)
Southern Resident Killer Whale (E)
North Pacific Right Whale (E)
Sei Whale (E)
Sperm Whale (E)

**ESA Pinnipeds**
Guadalupe Fur Seal (T)
Steller Sea Lion Critical Habitat -

**Essential Fish Habitat**
Coho EFH - X
Chinook Salmon EFH - X
Groundfish EFH - X
Coastal Pelagics EFH -
Highly Migratory Species EFH -

**MMPA Species (See list at left)**
See list at left and consult the NMFS Long Beach office 562-980-4000

**ESA and MMPA Cetaceans/Pinnipeds**
MMPA Cetaceans -
MMPA Pinnipeds -

Thanks,

Nick Torrez
Associate Environmental Planner – Biologist
Office of Biological Sciences and Permits
Caltrans, District 4
111 Grand Ave, MS:8E
Oakland CA, 94612
(510) 622-8727
NOAA Species List (continued)

<table>
<thead>
<tr>
<th>From:</th>
<th>NMFS/SEA Species - NOAA Service Account</th>
</tr>
</thead>
<tbody>
<tr>
<td>To:</td>
<td>James, McIntosh/NOOT</td>
</tr>
<tr>
<td>Subject:</td>
<td>Re: NAP-171-0.9/1.0 - E42318 - Humbrick Creek Bridge Replacement</td>
</tr>
<tr>
<td>Date:</td>
<td>Thursday, March 21, 2018 1:58:56 PM</td>
</tr>
</tbody>
</table>

Receipt of this message confirms that NMFS has received your email to sea@mvnoa.specieslist.noaa.gov. If you are a federal agency (or representative) and have followed the steps outlined on the California Species List Tools web page (http://www.aacsta.fisheries.noaa.gov/smsps_data/california_species_list_tools.html), you have generated an official Endangered Species Act species list.

Messages sent to this email address are not responded to directly. For project specific questions, please contact your local NMFS office:

Northern California/Klamath (Arcata) 707-822-7201
North-Central Coast (Santa Rosa) 707-387-0737
Southern California (Long Beach) 562-980-4000
California Central Valley (Sacramento) 916-930-3000
<table>
<thead>
<tr>
<th>Species</th>
<th>Element Code</th>
<th>Federal Status</th>
<th>State Status</th>
<th>Global Rank</th>
<th>State Rank</th>
<th>Rare Plant Rank/CFPW SBC or FF</th>
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<tbody>
<tr>
<td>Adela olivella</td>
<td>ILEEG0040</td>
<td>None</td>
<td>None</td>
<td>G2</td>
<td>S2</td>
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<tr>
<td>Opal's longhorn moth</td>
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<td></td>
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<tr>
<td>Agelalus tricolor</td>
<td>AIBPK90020</td>
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<td>Candidate</td>
<td>G2G3</td>
<td>S1S2</td>
<td>SSC</td>
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<tr>
<td>Included blackbird</td>
<td></td>
<td></td>
<td>Endangered</td>
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<tr>
<td>Agrostis henderoni</td>
<td>PMP0A00010</td>
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<td>None</td>
<td>G2Q</td>
<td>S2</td>
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<tr>
<td>Henderson's bent grass</td>
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<td></td>
<td></td>
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<tr>
<td>Allium peninsulare var. francoisianum</td>
<td>PMJL02111</td>
<td>None</td>
<td>None</td>
<td>G5T1</td>
<td>S1</td>
<td>1B.2</td>
</tr>
<tr>
<td>Franciscan onion</td>
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<tr>
<td>Amorpha californica var. napaensis</td>
<td>POFA08012</td>
<td>None</td>
<td>None</td>
<td>G4T2</td>
<td>S2</td>
<td>1B.2</td>
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<td>Napa tea indigo</td>
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<tr>
<td>Amniocereus lanatus</td>
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<td>None</td>
<td>None</td>
<td>G2G3</td>
<td>S2S3</td>
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</tr>
<tr>
<td>Bent featherfelderwiek</td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>Andrena bennespermati</td>
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<td>None</td>
<td>G2</td>
<td>S2</td>
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<tr>
<td>Bennisperma ventral pool andrew bee</td>
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<td></td>
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<td>Antrimus pallidus</td>
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<td>None</td>
<td>G5</td>
<td>S3</td>
<td>SSC</td>
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<tr>
<td>pelted bat</td>
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<tr>
<td>Aquis chryacea</td>
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<td>None</td>
<td>G5</td>
<td>S3</td>
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<tr>
<td>golden eagle</td>
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<tr>
<td>Archidiscus stanfordiana sp. decumbens</td>
<td>POER004104</td>
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<td>None</td>
<td>G3T1</td>
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<td>Rincon Ridge marantia</td>
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<td>Ardea alba</td>
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<td>None</td>
<td>G5</td>
<td>S4</td>
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<tr>
<td>great egret</td>
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<tr>
<td>Ardea herodias</td>
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<td>None</td>
<td>None</td>
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<td>S4</td>
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<tr>
<td>great blue heron</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Astragalus clareus</td>
<td>POFA01100</td>
<td>None</td>
<td>None</td>
<td>G2T2</td>
<td>S2</td>
<td>1B.2</td>
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<tr>
<td>Clara Hurt's milk-vetch</td>
<td></td>
<td></td>
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<td>Astragalus tener var. tener</td>
<td>POFA01110</td>
<td>None</td>
<td>None</td>
<td>G2T2</td>
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<tr>
<td>alkali milk-vetch</td>
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<tr>
<td>Athena curvularis</td>
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<td>None</td>
<td>None</td>
<td>G4</td>
<td>S3</td>
<td>SSC</td>
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<tr>
<td>burrowing owl</td>
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<tr>
<td>Balsamorhiza macrostigma</td>
<td>POAST10100</td>
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<td>None</td>
<td>G2</td>
<td>S2</td>
<td>1B.2</td>
</tr>
<tr>
<td>big-scale balsamroot</td>
<td></td>
<td></td>
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<tr>
<td>Bienenopoma bakeri</td>
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<td>None</td>
<td>None</td>
<td>G2</td>
<td>S2</td>
<td>1B.2</td>
</tr>
<tr>
<td>Sonoma sunshine</td>
<td></td>
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<tr>
<td>Bombus caliginosus</td>
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<td>None</td>
<td>None</td>
<td>G4</td>
<td>S1</td>
<td>S152</td>
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<tr>
<td>obscure bumble bee</td>
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<td>Species</td>
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<tr>
<td>Bembecia occidentalis</td>
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<td>None</td>
<td>G303</td>
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<tr>
<td>Banchaneta jevichi</td>
<td>BANJE00300</td>
<td>Threatened</td>
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<td>G3</td>
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<td>Bremia leconteii</td>
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<td>None</td>
<td>G27</td>
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<td>Brodiaea leptandra</td>
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<td>None</td>
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| Phalaropus fulicarius | ASNF001020 | None | None | G12 | S4 | 18.4 |
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*ovis-leaved viburnum*
# CNPS Species List

## CNPS Inventory of Rare and Endangered Plants

**Status:** Plant Press Manager window with 59 items - Tue, Aug 1, 2017 21:01:11

- During each visit, we provide you with an empty "Plant Press" form to record items of interest.
- Several report formats are available. Use the CSV and XML options to download raw data.

### CNPS Inventory of Rare and Endangered Plants

#### Standard List - with Plant Press controls

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DELETE unneeded items. Save if checking now.
Appendix F – Correspondence from the State Historic Preservation Officer

STATE OF CALIFORNIA – THE NATURAL RESOURCES AGENCY
EDMUND G. BROWN, JR. Governor
OFFICE OF HISTORIC PRESERVATION
DEPARTMENT OF PARKS AND RECREATION
1726 23rd Street, Suite 100
SACRAMENTO, CA 95811-7700
(916) 445-7000 Fax (916) 445-7035
info@parks.ca.gov
www.chp.parks.ca.gov

August 25, 2016

VIA EMAIL

In reply refer to: FHWA_2016_0802_001

Brett Rushing
Office Chief, Office of Cultural Resource Studies
Caltrans District 4
111 Grand Avenue
PO Box 23660
Oakland, CA 94623-0660

Subject: Determination of Eligibility for the Proposed Huichica Creek Bridge Replacement and Fish Passage Repair Project in Napa County, CA

Dear Mr. Rushing:

Thank you for consulting with me about the subject undertaking in accordance with the January 1, 2014 First Amended Programmatic Agreement Among the Federal Highway Administration, the Advisory Council on Historic Preservation, the California State Historic Preservation Officer, and the California Department of Transportation Regarding Compliance with Section 106 of the National Historic Preservation Act, as it Pertains to the Administration of the Federal-Aid Highway Program in California (PA).

Caltrans is proposing to replace the Huichica Creek Bridge (21 0001) on State Route 121 at post mile 0.75 in Napa County, CA. A full project description can be found on page 1 on the Historic Property Survey Report.

Caltrans has determined that 5500 Sonoma Highway is not eligible for the listing in the National Register of Historic Places (NRHP). Based on my review of the submitted documentation I concur.

I look forward to working with Caltrans in the future with regards to this project. If you have any questions, please contact Natalie Lindquist of my staff at (916) 445-7014 with e-mail at natalie.lindquist@parks.ca.gov or Alicia Perez at (916) 445-7020 with e-mail at alicia.perez@parks.ca.gov.

Sincerely,

Julianne Polanco
State Historic Preservation Officer
January 13, 2017

Reply in Reference To: FHWA_2016_0802_001

Brett Rushing
Office Chief, Office of Cultural Resource Studies
Caltrans District 4
111 Grand Avenue
PO Box 23660
Oakland, CA 94623-0860

Subject: Notification of a Finding of Adverse Effect for the Huichica Creek Bridge Replacement and Fish Passage Repair Project on State Route 121 in Napa County

Dear Mr. Rushing:

The Office of Historic Preservation (CHP) received your letter on December 20, 2016 with regard to the above-referenced undertaking. The California Department of Transportation (Caltrans) is continuing consulting with the State Historic Preservation Officer (SHPO) in accordance with the January 2014 First Amended Programmatic Agreement among the Federal Highway Administration, the Advisory Council on Historic Preservation, the California State Historic Preservation Office, and the California Department of Transportation Regarding Compliance with Section 106 of the National Historic Preservation Act, as it Pertains to the Administration of the Federal-Aid Highway Program in California (Section 106 PA). The following documentation was submitted with your most recent letter:

- Supplemental Historic Property Survey Report and Finding of Adverse Effect for the Huichica Creek Bridge Replacement and Fish Passage Repair Project (December 2016).

Initial consultation with the SHPO for this undertaking included a Historic Property Survey Report (HPSR), Archaeological Survey Report (ASR), and Historic Resources Evaluation Report (HRER) submitted on July 27, 2016. Four cultural resources, one built resource and three archaeological resources, were identified within the Area of Potential Effects (APE) for the undertaking and include the following:

- 5503 Sonoma Highway, a farm complex consisting of ten buildings;
- CA-NAP-189/H (P-28-000175), a midden deposit occupation from the Lower Archaic to historic period that represents an "intensively occupied village"
mound containing human interments. The resource also contains various concentrations of historic materials;

- NAP-190, a prehistoric village site consisting of a midden mound and associated artifact scatters, including a potential human humerus; and
- The reburial site associated with NAP-189/H of fifteen individuals, isolated human bones, associated grave goods, and midden soils removed during the 2005-2010 data recovery efforts at NAP-189/H.

In previous consultation, the SHPO concurred with Caltrans’ determination that 5500 Sonoma Highway is ineligible for listing on the NRHP (SHPO, OHP Reference #FHWA_2016_0802_001, 25 August 2016). NAP-189/H and the associated reburial site were previously found eligible for inclusion on the National Register of Historic Places (NRHP) on March 30, 2005 under Criterion D (SHPO Reference #FHWA050218A).

Pursuant to Stipulations IX.B and X.A of the Section 106 PA, Caltrans has applied the criteria of adverse effects to assess the undertaking’s effects on historic properties and has concluded that construction related activities have the potential to adversely affect portions of NAP-189/H located within the area of direct impact (ADI) within the APE. Furthermore, the geoarchaeological modeling indicates a high potential exists for encountering additional archaeological deposits within the ADI. Therefore, Caltrans has determined that the undertaking as a whole will result in an adverse effect. In addition, in accordance with Attachment 5 of the Section 106 PA, the reburial site associated with NAP-189/H will be protected from adverse effects through the establishment of an environmentally sensitive area (ESA). NAP-190 has never been formally evaluated and because it is located outside of the ADI Caltrans will assume its eligibility for listing on the NRHP under Criterion D for the purposes of this undertaking only and will be designated as an ESA.

Upon review of Caltrans’ supporting documentation, I have no comment on Caltrans’ finding of adverse effect. Caltrans will continue consultation with the SHPO to resolve adverse effects pursuant to Stipulation XI of the PA through preparation of a Memorandum of Agreement (MOA) and the implementation of an Archaeological Treatment Plan. If you require further information, please contact Alicia Perez at 916-445-7020 or Alicia.Perez@ca.dot.gov.

Sincerely,

Julianne Polanco
State Historic Preservation Officer
MEMORANDUM OF AGREEMENT

BETWEEN THE CALIFORNIA DEPARTMENT OF TRANSPORTATION AND
THE CALIFORNIA STATE HISTORIC PRESERVATION OFFICER
REGARDING THE HUICHICA CREEK BRIDGE REPLACEMENT
AND FISH PASSAGE REPAIR PROJECT

STATE ROUTE 121, NAPA COUNTY, CALIFORNIA

WHEREAS, pursuant to §23 U.S.C. 327 the Federal Highway Administration (FHWA) has assigned and the California Department of Transportation (Caltrans, including all subordinate divisions defined below) has assumed FHWA responsibility for environmental review, consultation and coordination under the provisions of the Memorandum of Understanding (MOU) between the Federal Highway Administration and the California Department of Transportation's Participation in the Project Delivery Program Pursuant to 23 U.S.C. 327, which became effective on October 1, 2012, and applies to this undertaking; and

WHEREAS, pursuant to the January 2014 First Amended Programmatic Agreement Among the Federal Highway Administration, the Advisory Council on Historic Preservation, the California State Historic Preservation Officer, and the California Department of Transportation Regarding Compliance with Section 106 of the National Historic Preservation Act as it Pertains to the Administration of the Federal-Aid Highway Program in California (Section 106 PA), Caltrans is deemed to be a federal agency for all highway-aid projects it has assumed, and in that capacity Caltrans has assigned the role of “agency official” to the caltrans Division of Environmental Analysis (DEA) Chief for the purpose of compliance with 36 CFR Part 800. The responsibility for oversight, day-to-day responsibilities and coordination of the Section 106 process are further delegated to the DEA Cultural Studies Office (CSO) Chief; and

WHEREAS, Caltrans has determined that the Huiuchica Creek Bridge Replacement and Fish Passage Repair Project (Undertaking), on State Route 121 in Napa County, California, as described in Attachment A to this Memorandum of Agreement (MOA), will have an adverse effect on archaeological site CA-NAP-189/1, a property determined to be eligible for inclusion in the National Register of Historic Places (National Register) under Criterion D (with concurrence from the California State Historic Preservation Officer), and therefore, is a historic property as defined at 36 CFR Part 800.16((1))); and

WHEREAS, archaeological site CA-NAP-190 and the reburial location of human remains recovered from CA-NAP-189/1 will be protected from adverse effects through the establishment of Environmentally Sensitive Areas (ESAs); and

WHEREAS, Caltrans has consulted with the California State Historic Preservation Officer (SHPO) pursuant to Stipulation X.C and XI of Section 106 PA, and where the Section 106 PA so directs, in accordance with 36 CFR Part 800, the regulation that implements Section 106 of the National Historic Preservation Act of 1966 (16 U.S.C. 470f), as amended regarding the
Undertaking's effect on historic properties, and has notified the Advisory Council on Historic Preservation (ACHP) of the adverse effect finding pursuant to 36 CFR § 800.6(a)(1), and will file a copy of this MOA with the ACHP in accordance with Stipulation X.C.3.b of the Section 106 PA; and

WHEREAS, Caltrans has thoroughly considered alternatives to the Undertaking, has determined that the statutory and regulatory constraints on the design of the Undertaking preclude the possibility of avoiding adverse effects to CA-NAP-189/1 during the Undertaking's implementation, and has further determined that the execution and implementation of this MOA will take into account the adverse effects of the Undertaking; and

WHEREAS, Caltrans District 4 (District 4) has participated in the consultation and is an invited signatory on this MOA; and

WHEREAS, Caltrans continues on-going consultation with the Mishewal Wappo Tribe of Alexander Valley as described in Attachment D and has invited them to concur on this MOA;  

NOW, THEREFORE, Caltrans and the SHPO agree that if the Undertaking proceeds, the Undertaking shall be implemented in accordance with the following stipulations in order to take into account the effects of the Undertaking on historic properties, and further agree that these stipulations shall govern the Undertaking and all of its parts until this MOA expires or is terminated.

STIPULATIONS

Caltrans shall ensure that the following stipulations are carried out:

I. AREA OF POTENTIAL EFFECTS
   A. The Area of Potential Effects (APE) was designed in accordance with Stipulation VIII.A of the Section 106 PA and is depicted in Attachment B of this MOA. The APE was delineated to include all areas where work is proposed, including the known or reasonably anticipated boundaries of archaeological and cultural properties and any locations where construction activities will take place.

   B. If Caltrans determines that additional APE revisions are necessary, Caltrans shall inform the parties to the MOA of the revisions and consult for no more than 15 days to reach agreement on the proposed revisions. If Caltrans, the SHPO, and other appropriate signatories cannot reach such agreement, then the parties to this MOA shall resolve the dispute in accordance with Stipulation VLC below. If all parties reach mutual agreement on the proposed revisions, Caltrans will submit a new APE map reflecting the revisions, consistent with Stipulation VII.A and Attachment 3 of the Section 106 PA, no later than 30 days following such agreement. Any further investigation or document necessitated by the revised APE will follow the procedures
for the identification and evaluation of potential Historic Properties as specified in Stipulation VIII of the Section 106 PA and in accordance with 36 CFR §800.4(a)(2-4) and 88.4(b). Amendment of the APE will not require an amendment to the MOA. The revised APE and supporting documentation shall be incorporated into Attachment B to this MOA.

II. TREATMENT OF THE HISTORIC PROPERTIES

A. Historic Property Treatment Plan

1. Caltrans shall ensure that the adverse effects of the Undertaking on archaeological site CA-NAP-189/H are resolved by implementing the May 2017 Archaeological Treatment Plan for the Huichica Creek Bridge Replacement and Fish Passage Repair Project (Treatment Plan) that is Attachment C of this MOA. Data recovery is prescribed for archaeological deposits contributing to the National Register eligibility of this historic property adversely affected by construction activities.

2. Caltrans shall include provisions to ensure against incidental damage to those portions of CA-NAP-189/H outside the Area of Direct Impact (ADI); such provisions will specify the establishment of an ESA around these areas. The ESA shall conform to the stipulations and Attachment 5 of the Section 106 PA. The ESA Action Plan is part of the Treatment Plan (Attachment C).

3. Any party to this MOA may propose to amend the Treatment Plan. Such amendment will not require amendment of this MOA. Consultation on Treatment Plan amendments will be no longer than thirty (30) days in duration beginning upon receipt of proposed amendments by consulting parties.

4. In the event that disputes regarding amendments proposed hereunder arise, they shall be addressed through further consultation among the MOA parties, and a reasonable time frame for such consultation shall be established by Caltrans of not less than fifteen days unless agreed upon by the signatories. If the dispute is not resolved within this time frame, Caltrans shall render a final decision regarding the dispute and the MOA parties shall proceed in accordance with the terms of that decision.

5. Caltrans will not authorize the execution of any Undertaking activity that may adversely affect historic properties in the Undertaking’s APE prior to the implementation and completion of the fieldwork that the Treatment Plan prescribes.

B. ESA and AMA Action Plan

1. Caltrans shall ensure that the Undertaking will not adversely affect CA-NAP-190 or the reburial location of human remains recovered from CA-NAP-189/H by designating those resources as ESA and through implementation of the Archaeological Monitoring Area (AMA) and ESA Action Plan in Attachment C.
C. Reporting Requirements and Related Reviews

1. Within eighteen (18) months after District 4 has determined that all fieldwork required by Stipulation II has been completed, Caltrans will ensure preparation, and subsequent distribution to Caltrans CSO and any participating representatives of the Mishewal Wappo Tribe of Alexander Valley for review and comment, a draft technical report that documents the results of implementing and completing the Treatment Plan. These parties will be afforded thirty (30) days following receipt of the draft technical report to submit any written comments to District 4. Failure to respond within this time frame shall not preclude District 4 from authorizing revisions to the draft technical report as District 4 may deem appropriate.

2. District 4 will take all comments into account in revising the technical report and submit a final version to CSO for approval. Upon approval, CSO will transmit the technical report to the SHPO along with any comments from the Mishewal Wappo Tribe of Alexander Valley that were not addressed in the report. The SHPO will have thirty (30) days to comment on the report. If the SHPO does not respond within thirty (30) days Caltrans may consider the submitted report as final. The SHPO may request a fifteen (15) day extension if needed.

3. Copies of the final technical report documenting the results of the Treatment Plan implementation will be distributed by District 4 to the SHPO, participating Native Americans, and to the Northwest Information Center of the California Historical Resources Information System.

III. NATIVE AMERICAN CONSULTATION

Caltrans has consulted with the Mishewal Wappo Tribe of Alexander Valley regarding the proposed Undertaking and its effects on historic properties, will continue to consult with them, and will afford them, should they so desire, the opportunity to participate in the implementation of this MOA and the Undertaking. If other tribes or Native American groups who attach religious or cultural significance to historic properties that may be affected by the Undertaking are identified, Caltrans will invite them to participate as consulting parties as the Section 106 process moves forward.

IV. TREATMENT OF HUMAN REMAINS OF NATIVE AMERICAN ORIGIN

As legally mandated, human remains and related items discovered on privately-owned land during the implementation of the terms of this MOA and the Undertaking will be treated in accordance with the requirements of Health and Safety Code Section 7050.5(b). If pursuant to of Health and Safety Code Section 7050.5(c) the coroner determines that the human remains are or may be those of a Native American, then the discovery shall be treated in accordance with the provisions of Public Resources Code Sections 5057.58 (a)-(d). The County Coroner shall be contacted if human
remains are discovered. The County Coroner shall have two working days to inspect the remains after receiving notification. During this time, all remains, associated soils, and artifacts shall remain in situ and/or on site, and shall be protected from public viewing. This may include restricting access to the discovery site and the need to hire 24 hour security.

The County Coroner has twenty-four (24) hours to notify the NAHC. The NAHC shall then notify a Most Likely Descendant (MLD), who has forty-eight (48) hours to make recommendations to Caltrans, the landowner. Caltrans, as the landowner, shall contact the California SHPO and the Most Likely Descendant(s) within twenty-four (24) hours of the County Coroner's determination that the remains are Native American in origin. Caltrans shall ensure that, to the extent permitted by applicable law and regulation, the view of the Most Likely Descendant(s), as determined by the California Native American Heritage Commission, is taken into consideration when decisions are made about the disposition of Native American human remains and associated objects. Caltrans shall take appropriate measures to protect the discovery site from disturbance during any negotiations. Information concerning the discovery shall not be disclosed to the public pursuant to the specific exemption set forth in California Government Code Section 6254.5(e).

V. DISCOVERIES AND UNANTICIPATED EFFECTS

If Caltrans determines after construction of the Undertaking has commenced, that either the Undertaking will affect a previously unidentified property that may be eligible for the National Register, or affect a known historic property in an unanticipated manner, Caltrans will address the discovery or unanticipated effect in accordance with Suggestion XV.B of the Section 106 PA. Caltrans at its discretion may hereunder and pursuant to 36 CFR § 800.13 (c) assume any discovered property to be eligible for inclusion in the National Register.

VI. ADMINISTRATIVE PROVISIONS

A. Standards

1. Definitions. The definitions provided at 36 CFR § 800.16 are applicable throughout this MOA.

2. Parties to this agreement are defined as follows:
   i. Signatory parties have the sole authority to execute, amend, or terminate this MOA.
   ii. Invited signatory parties have the same rights to terminate or amend this MOA as the other signatories.
   iii. Concerning parties signing this MOA do so to acknowledge their agreement or concurrence with the MOA, but have no legal authority under

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the MOA to terminate or amend this MOA. Concurring with the terms of this MOA does not constitute their agreement with the Undertaking.

3. **Professional Qualifications.** Caltrans will ensure that only individuals meeting the *Secretary of the Interior’s Professional Qualification Standards* (48 FR 44738-39) as defined in Attachment 1 of the PA, in the relevant field of study carry out or review appropriateness and quality of the actions and products required by Stipulations I through V in this MOA. However, nothing in this Stipulation may be interpreted to preclude Caltrans or any agent or contractor thereof from using the properly supervised services of persons who do not meet the POS.

4. **Documentation Standards.** Written documentation of activities prescribed by Stipulations II, III, V, and VI of this MOA shall conform to *Secretary of the Interior’s Standards and Guidelines for Archaeology and Historic Preservation* (48 FR 44716-44740) as well as to applicable standards and guidelines established by the SHPO.

5. **Curation and Curation Standards.** If legal owner(s) of materials resulting from the activities presented by this MOA choose to curate those materials, Caltrans shall ensure that, to the extent permitted under § 5097.98 and § 5097.991 of the California Public Resources Code and the Native American Graves Protection and Repatriation Act (NAGPRA) [25 USC 3001-3013] and its implementing regulations (43 CFR Part 10), the materials and records resulting from the activities prescribed by this MOA are curated in accordance with 36 CFR Part 79. Caltrans shall ensure that the views of the consulting parties are taken into consideration prior to decisions being made about the final disposition of archaeological materials resulting from activities prescribed by this MOA.

**B. Confidentiality**

The MOA parties acknowledge that the historic properties covered by this MOA are subject to the provisions of § 304 of the NHPA and § 6254.10 of the California Government Code (Public Records Act), relating to the disclosure of archaeological site information and, having so acknowledged, will ensure that all actions and documentation prescribed by this MOA are consistent with said sections.

**C. Resolving Objections**

1. Should any party to this MOA object at any time in writing to the manner in which the terms of this MOA are implemented, to any action carried out or proposed with respect to implementation of the MOA (other than the Undertaking itself), or to any documentation prepared in accordance with and subject to the terms of this MOA, Caltrans shall immediately notify the other MOA parties of the objection,
request their comments on the objection within fifteen (15) days following receipt of Caltrans’ notification, and proceed to consult with the objecting party for no more than thirty (30) days to resolve the objection. Caltrans will honor the request of the other parties to participate in the consultation and will take any comments provided by those parties into account.

2. If the objection is resolved during the thirty (30)-day consultation period, Caltrans may proceed with the disputed action in accordance with the terms of such resolution.

3. If at the end of the thirty (30)-day consultation period, Caltrans determines that the objection cannot be resolved through such consultation, then Caltrans shall forward all documentation relevant to the objection to the ACHP, including Caltrans’ proposed response to the objection, with the expectation that the ACHP will, within thirty (30) days after receipt of such documentation:
   i. Advise Caltrans that the ACHP concurs in Caltrans’ proposed response to objection, whereupon Caltrans will respond to the objection accordingly. The objection shall thereby be resolved; or
   ii. Provide Caltrans with recommendations, which Caltrans will take into account in reaching a final decision regarding its response to the objection. The objection shall thereby be resolved; or
   iii. Notify Caltrans that the objection will be referred for comment pursuant to 36 CFR §800.7(c) and proceed to refer the objection and comment. Caltrans shall take the resulting comments into account in accordance with 36 CFR § 800.7(c) (4) and Section 110(1) of the NHPA. The objection shall thereby be resolved.

4. Should the ACHP not exercise one of the above options within 30 days after receipt of all pertinent documentation, Caltrans may proceed to implement its proposed response. The objection shall thereby be resolved.

5. Caltrans shall take into account any of the ACHP’s recommendations or comments provided in accordance with this stipulation with reference only to the subject of the objection. Caltrans’s responsibility to carry out all actions under this MOA that are not the subjects of the objection shall remain unchanged.

6. At any time during implementation of the measures stipulated in this MOA, should a member of the public raise an objection in writing pertaining to such implementation to any signatory party to this MOA, that signatory party shall immediately notify Caltrans. Caltrans shall immediately notify the other signatory parties in writing of the objection. Any signatory party may choose to comment in writing on the objection to Caltrans. Caltrans shall establish a reasonable time frame for this comment period. Caltrans shall consider the objection, and in reaching its decision, Caltrans will take all comments from the other signatory parties into account. Within fifteen (15) days following closure of the comment
period, Caltrans will render a decision regarding the objection and respond to the objectioning party. Caltrans will promptly notify the other signatory parties of its decision in writing, including a copy of the response to the objectioning party. Caltrans’ decision regarding resolution of the objection will be final. Following issuance of its final decision, Caltrans may authorize the action subject to dispute hereunder to proceed in accordance with the terms of that decision.

7. Caltrans shall provide all parties to this MOA, and the ACHP, if the ACHP has commented, and any parties that have objected pursuant to sections C.3 and C.4 of this Stipulation, with a copy of its final written decision regarding any objection addressed pursuant to this stipulation.

8. Caltrans may authorize any action subject to objection under this stipulation to proceed after the objection has been resolved in accordance with the terms of this stipulation.

D. Amendments
1. Any signatory party to this MOA may propose that this MOA be amended, whereupon all signatory parties shall consult for no more than thirty (30) days to consider such amendment. The amendment will be effective on the date a copy signed by all of the original signatories is filed with the ACHP. If the signatories cannot agree to appropriate terms to amend the MOA, any signatory may terminate the agreement in accordance with Stipulation VII.E, below.

2. Attachments to this MOA may be amended through consultation as prescribed in Stipulation I or Stipulation II, as appropriate, without amending the MOA proper.

E. Termination
1. If this MOA is not amended as provided for in section D of this Stipulation, or if either signatory proposes termination of this MOA for other reasons, the signatory party proposing termination shall, in writing, notify the other MOA parties, explain the reasons for proposing termination, and consult with the other parties for at least thirty (30) days to seek alternatives to termination because the Undertaking no longer meets the definition set forth in 36 CFR § 800.16(y).

2. Should such consultation result in an agreement on an alternative to termination, the signatory parties shall proceed in accordance with the terms of that agreement.

3. Should such consultation fail, the signatory party proposing termination may terminate this MOA by promptly notifying the other MOA parties in writing. Termination hereunder shall render this MOA without further force or effect.

4. If this MOA is terminated hereunder, and if Caltrans determines that the Undertaking will nonetheless proceed, then Caltrans shall comply with the requirements of 36 CFR § 800.3-800.6, or request the comments of the ACHP pursuant to 36 CFR Part 800.
F. Annual Reporting

In addition to the documentation and reporting described in Stipulation III, Caltrans shall provide the parties to this agreement an annual update. Such updates shall include any scheduling changes proposed, any problems encountered, failures to adopt proposed mitigation measures, and any disputes and objections received in Caltrans’ efforts to carry out the terms of this MOA. The update will be due no later than December 31 of each year, beginning December 31, 2017 and continuing annually thereafter throughout the duration of this MOA. At the request of any party to this MOA, or if deemed necessary at least on an annual basis, Caltrans shall ensure that one or more meetings are held to facilitate review and comments, and to resolve questions and comments.

G. Duration of the MOA

The duration of this MOA shall be no more than five (5) years following the date of execution by the SHPO and Caltrans, or upon completion of the Undertaking, whichever comes first. If the terms are not satisfactorily fulfilled at that time, Caltrans shall consult with the signatories and concurring parties to extend it or to reconsider its terms. Reconsideration may include continuation of the MOA as originally executed, amendment of the MOA, or termination. In the event of termination, Caltrans will comply with Stipulations III through XI of the Section 106 PA if it determines that the Undertaking will proceed notwithstanding termination of this MOA.

H. Effective Date

This MOA will take effect on the date that it has been executed by Caltrans and the SHPO.

EXECUTION of this MOA by Caltrans and the SHPO, its filing with the ACHP in accordance with 36 CFR § 800.6(b)(1)(iv), and subsequent implementation of its terms, shall evidence, pursuant to 36 CFR § 800.6(c), that this MOA is an agreement with the ACHP for purposes of Section 116(1) of the NHPA, and shall further evidence that Caltrans has afforded the ACHP an opportunity to comment on the Undertaking and its effects on historic properties, and that Caltrans has taken into account the effects of the Undertaking on historic properties.
MEMORANDUM OF AGREEMENT

BETWEEN THE CALIFORNIA DEPARTMENT OF TRANSPORTATION AND
THE CALIFORNIA STATE HISTORIC PRESERVATION OFFICER
REGARDING THE HUICHICA CREEK BRIDGE REPLACEMENT AND FISH
PASSENGER REPAIR PROJECT
STATE ROUTE 121, NAPA COUNTY, CALIFORNIA

SIGNATORY PARTIES:

California Department of Transportation

By ____________ Date 9/17/17

Philip J. Stolarski, Chief
Division of Environmental Analysis

California State Historic Preservation Officer

By ____________ Date 9/17/17

Jillianne Polanco
State Historic Preservation Officer
MEMORANDUM OF AGREEMENT
BETWEEN THE CALIFORNIA DEPARTMENT OF TRANSPORTATION AND
THE CALIFORNIA STATE HISTORIC PRESERVATION OFFICER
REGARDING THE HUICHICA CREEK BRIDGE REPLACEMENT AND FISH
PASSAGE REPAIR PROJECT
STATE ROUTE 121, NAPA COUNTY, CALIFORNIA

INVITED SIGNATORY:
California Department of Transportation
By ______________________________ Date 9/17

Bijan Sattari
District Director
District 4, Oakland
MEMORANDUM OF AGREEMENT

BETWEEN THE CALIFORNIA DEPARTMENT OF TRANSPORTATION AND
THE CALIFORNIA STATE HISTORIC PRESERVATION OFFICER
REGARDING THE HUICHICA CREEK BRIDGE REPLACEMENT AND FISH
PASSAGE REPAIR PROJECT
STATE ROUTE 121, NAPA COUNTY, CALIFORNIA

CONCURRING PARTY:

Mishewal Wappo Tribe of Alexander Valley

By ____________________________ Date __________

Scott Gabaldon
Chairperson
Attachment A

Project Description for the Huichica Creek Bridge Replacement and Fish Passage Repair Project
PROJECT LOCATION AND DESCRIPTION

Caltrans, under the authority of the Federal Highway Administration (FHWA), proposes to replace the Huichica Creek Bridge (Bridge No. 21 0001), widen the roadway, and repair the fish passage through Huichica Creek along SR 121, PM 0.30 to 1.00, in Napa County, California (Figure 1).

Background
The scope of this project was originally part of the Duhig Road Improvement Project (EA 44420), which provided full shoulder and curve corrections on SR 121 for approximately 1.7 miles from near the Sonoma County line to Duhig Road. The improvements proposed at Huichica Creek west, including fish passage improvements, were not acceptable to the Regional Water Quality Control Board, California Department of Fish and Wildlife, or the National Marine Fisheries Service. Revising the fish passage design would have significantly delayed the delivery of the safety aspects of the original project. To keep the safety project on schedule, it was agreed that the improvements at Huichica Creek be omitted from the original safety project and implemented by a follow-up project at a later date.

Purpose and Need
The purpose of this project is to reduce the potential for cross-centerline and run-off-the-road accidents, to provide continuity to the safety improvements under the parent project, and to satisfy regulatory fish passage requirements. This project is needed to complete the portion of the original project that was omitted in order to deliver the safety project on schedule (see above).

Alternatives
No-Build Alternative:
The No-Build Alternative would leave the current bridge as it is. The shoulders would remain at the non-standard width of 5 to 6 feet, the triple-metal culvert would remain in place as a barrier to fish passage, and the roadway would not conform to the recently widened SR 121 east and west of the bridge. Only maintenance work would be done on the bridge as necessary.

Build Alternative:
This alternative is the preferred alternative. The Build Alternative would remove the existing triple metal culvert (Bridge No. 21-0001) and replace it with a free span bridge, widen the roadway, incorporate fish passage improvements, and restore the creek bank along approximately 400 feet of Huichica Creek. Temporary construction easements (TCEs) may be required along the creek banks for slope reconstruction and bank restoration. Equipment staging is proposed to take place within Caltrans ROW as well as within an open space on private property directly north of SR 121. Acquisition of new ROW will be required. Construction work is anticipated to take two construction seasons. Preliminary layouts are shown in Figure 2.

Construction Activities
The following outlines the anticipated construction activities in expected order of work:
- Two-way traffic would be placed on the north side by using existing bridge railing, two 11-foot lanes, and k-rail.
Figure 1. Project vicinity and location.
• Twelve feet of the structural section above the culverts on the south side of the existing bridge would be removed.
• A 27-foot section of the new precast/prestressed (PC/PS) concrete slab (2 feet thick with 3 feet of hot mix asphalt on top) would be installed on the south side.
• Two-way traffic would be switched to the newly installed concrete slab bridge.
• The existing structural section above the culverts on the north side would be removed.
• A 30-foot section of the new PC/PS concrete slab bridge would be installed on the north side.
• Fish passage and creek bank restoration work would be performed in coordination with bridge and roadway work.
• Concrete barrier Type 732 or steel rail Type ST-10 would be placed in each direction.
• The existing culverts would be removed.
• Placement of pavement delineation would be the final activity.

Roadway Widening
Currently, the roadway within the project limits is a two-lane undivided conventional highway consisting of one 12-foot lane and 5- to 6-foot shoulder in each direction without a median. The project would shift the centerline of the roadway by a maximum of 2 feet to the south from the existing alignment. Both the north and south sides of the roadway would be widened by a maximum of 8 feet. The depth of the structural section would be 2 to 3 feet, requiring grading to a maximum of 3 feet below the existing grade. Three feet of shoulder backing would be required in some areas. Shoulder backing would involve adding and compacting fill soils to the level of the finished pavement.

Bridge Replacement
The existing culverts and concrete headwalls were built in 1968. According to the latest Bridge Inspection Report dated April 8, 2014, there is a scour hole, approximately 3 feet wide, at the eastern side of the middle culvert. The inlets to two of the culverts are blocked with vegetation. The existing triple metal culvert would be removed and replaced with a free span bridge. The new bridge would be 45 feet long and 37 feet wide to accommodate standard 8-foot shoulders with Type 732 concrete barriers or steel rail type ST-10. Abutments for the bridge would be built on concrete pile foundations and will require excavation to a depth of 15 feet. These foundations would be supported by 40-foot long cast-in-drilled-hole (CIDH) piles, for a total depth impact of 55 feet. For traffic handling during construction, the roadway would be temporarily shifted to a maximum of 26 feet to the south, requiring excavation to a maximum depth of 3 feet.

Fish Passage Repair
Currently, the channel of Huichica Creek downstream from the culvert is too steep for fish to navigate. A 175-foot section of channel immediately downstream of the triple 78-inch cross culvert is steep and consists of a 6-8-foot drop at one location. The proposed fish passage design would remove paved portions of the channel, grading approximately 400 feet of the channel to a longitudinal 3% slope and constructing a roughened channel by incorporating half-ton rocks with a mix of natural creek bed material, thereby reducing future scour along the creek banks. Seven step-pools are proposed with a maximum of 0.5 feet of jump. The current width of the channel bottom is 14 feet. A maximum of 2 feet of cut and 6 feet of fill within the creek banks would be required to achieve a transverse slope along the proposed channel bottom of 14:1 (14 feet wide).
then 2:1 (3 feet wide), then the channel would meet the existing bank at a slope of 4:1. This newly constructed low bench above the channel would provide native riparian vegetation corridors on both sides of the channel. Rocks will be placed along the weirs of step-pools and keyed in along the toe of the channel side-slopes. These elements would extend approximately 50 feet upstream and 300 feet downstream of the existing culvert. These limits are from the right of way line on the upstream end to the point in the creek where the slope stabilizes on the downstream end. The preliminary design assumes cut and fill within the existing channel profile to obtain the 3% continuous grade. Woody debris, large shadow rocks, and willow plantings would be incorporated throughout the channel to enhance fish and fresh water shrimp habitat. Interim intermittent grade control cutoffs using buried rock across the channel bottom will also be needed to stabilize the installation and prohibit any head cut from migrating upstream throughout the proposed improvements. The roughened channel design will extend slightly downstream of the existing private bridge.

To offset direct impacts on California freshwater shrimp habitat, the stream bank habitat will be enhanced or restored within the project vicinity. Areas of stream bank that are disturbed during project construction will be planted with vegetation in conjunction with the placement of vegetated rock slope protection. The habitat structure will likely include a structured vane feature with a rock groin in the channel topped and framed with large wood and a complex of horizontal alder and willow plantings. Supporting the large wood are a series of soil lifts in the channel bank which are incorporated in the vegetated rock slope protection. The final design of any habitat feature will be determined through consultation with the USFWS and CDFW.

**Creek Bank Restoration**

Within the same limits as the proposed roughened channel, creek bank restoration work is proposed. The existing creek banks are at a 1:1 or steeper slope and in some areas are nearly vertical. In order to stabilize these side slopes, the bank restoration will include reconstructing the banks and placing erosion control and riverine plants on the side slopes. The final configuration would be determined through further studies from Geotechnical Design and Erosion Control.

Creek bank restoration will involve ROW negotiations to discuss properties beyond the top of existing banks. While this facilitates future planting of slopes and helps stabilize the slopes, it negatively impacts the project by interrupting existing perimeter roads around the vineyard, removing trees along the bank, or re-setting an existing private bridge.

**Access Roads**

Two access roads are proposed for use during construction: one on the northwest side of the bridge and one on the southwest side, both extending to the top of the creek bank. The lengths of the access roads are proposed to be 100 feet long and 12 feet wide, and the maximum depth of excavation is 10 feet.

**Drainage Improvements**

Proposed drainage improvements would consist of 18-inch-wide culverts. The precise location of these culverts is currently not known, except for one that would be installed directly northwest of the westerly bridge abutment. The culvert will convey flow from an infiltration trench previously graded on the original widening project. The culvert may be oversized and filled with creek bed material so it has a natural bottom throughout its length.
Driveway Impact
There are two existing driveways at one property on the northeast side of the bridge. One driveway opening would be accessible at all times during construction while the other opening would be closed. However, there would be grading work to connect the driveways leading to the one opening. The depth of excavation is expected to be two feet. After completion of the project, there would be grading work to conform the two driveway openings to the new roadway.

Tree Removal and Trimming
Trees in the clear recovery zone would be removed. Some may be removed or trimmed, as necessary, to provide space for construction activities and swing radius of the construction vehicles during construction.

Creek Diversion
A temporary water diversion system will be installed to allow for work in the creek during the dry season. This system would consist of a diversion pipe with temporary cofferdams located at the upstream and downstream ends. The cofferdams would be constructed across the existing creek channel with gravel-filled bags wrapped in impermeable plastic sheeting or a similar system. A cut-off wall would be provided at both upstream and downstream of the cofferdams to reduce seepage into the working area.

Utility Relocation
Five PG&E kilo volt utility poles on the south side are proposed to be relocated. The proposed locations have not been determined but it is anticipated they would be relocated along the south side just within the State ROW line.

Equipment
To grade temporary roads for access, dozers would be used. Cranes would be used for multiple parts of the construction from delivery of materials to setting precast slabs. Excavators would be used for excavation at the abutments. Concrete mixer trucks and pump trucks will be used to pump concrete for all cast-in-place structures. Other equipment may include a backhoe, pile driving rig, saw cutter, light-weight trucks, manlifts, generators, paver, and jackhammers.

Staging and Temporary Construction Easements
Equipment staging is proposed to take place within Caltrans ROW as well as within an open space on private property directly north of SR 121. Temporary construction easement (TCEs) may be required along the creek banks for slope reconstruction and bank restoration.

Alternatives Considered but Not Selected
Design alternatives considered but not selected varied from the preferred alternative in regard to traffic handling. Rejected alternatives included the use of one-way signaling and splitting traffic to flow in both directions with construction work in between lanes. It was determined that traffic volume is too high along this stretch of SR 121 for these alternatives to be viable, and so they were not selected. The preferred alternative would shift traffic lanes entirely to the south of the construction area.
Attachment B

*Area of Potential Effects Map*
Attachment C

Archaeological Treatment Plan for the Huichica Creek Bridge Replacement and Fish Passage Repair Project
Attachment D

Native American Consultation Log
<table>
<thead>
<tr>
<th>Name of Individual/Group</th>
<th>Date</th>
<th>Form of Notification</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kerner Flores</td>
<td>6/1/2015</td>
<td>Initial letter</td>
<td>No response</td>
</tr>
<tr>
<td></td>
<td>7/6/2015</td>
<td>Follow-up call</td>
<td>Left voicemail. No response</td>
</tr>
<tr>
<td>Scott Gabaldon, Chairperson Mishewal-Wapo Tribe of Alexander Valley</td>
<td>6/1/2015</td>
<td>Initial letter</td>
<td>No response</td>
</tr>
<tr>
<td></td>
<td>7/22/2015</td>
<td>Follow-up call</td>
<td>Requested email with project info, said it sounds like they’ll have concerns because of the creek. Emailed letter and map 7/22/15</td>
</tr>
<tr>
<td></td>
<td>10/26/2015</td>
<td>Follow-up call</td>
<td>Called/emailed Scott and called Vince requesting in-person meeting to discuss Caltrans projects including Huichica. Left voicemails. Did this again on 11/10/2015</td>
</tr>
<tr>
<td></td>
<td>11/18/2015</td>
<td>Meeting</td>
<td>Met in person at Wapo offices with Vince and relayed project info, basic plan for testing, and told him we’d keep him updated about schedule</td>
</tr>
<tr>
<td></td>
<td>8/19/2016</td>
<td>Letter sent informing tribe of Adverse Effect for project</td>
<td>No response</td>
</tr>
<tr>
<td></td>
<td>8/25/16</td>
<td>Email of the same</td>
<td>No response</td>
</tr>
<tr>
<td></td>
<td>1/25/17</td>
<td>Call</td>
<td>Call with Vince Satreto about another project – told me he’s leaving the Wapo cultural department. Will communicate with Scott from now on.</td>
</tr>
<tr>
<td></td>
<td>2/22/17</td>
<td>Call and Email</td>
<td>Tried to call Scott to update him but voicemail full. Sent email explaining Adverse Effect and project hold.</td>
</tr>
<tr>
<td></td>
<td>5/17/17</td>
<td>Call</td>
<td>Reviewed Adverse Effect finding with Scott and let him know the MOA and Treatment Plan are on the way. Asked him for typical treatment of</td>
</tr>
<tr>
<td>Date</td>
<td>Action</td>
<td>Response/Notes</td>
<td></td>
</tr>
<tr>
<td>-----------</td>
<td>---------------------------------</td>
<td>-------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>6/1/17</td>
<td>Sent Scott copies of MOA and Treatment Plan drafts.</td>
<td>No response</td>
<td></td>
</tr>
<tr>
<td>7/26/17</td>
<td>Call and email</td>
<td>Left voicemail and sent email to follow up on MOA and Treatment Plan. No response.</td>
<td></td>
</tr>
<tr>
<td>8/2/17</td>
<td>Call</td>
<td>Said he’s received the documents but hasn’t looked at them yet. I said I would check back in middle next week. He wanted to make sure we were planning to monitor, I confirmed.</td>
<td></td>
</tr>
<tr>
<td>8/10/17</td>
<td>Call</td>
<td>Tried again – he still hasn’t looked at documents.</td>
<td></td>
</tr>
<tr>
<td>8/14/17</td>
<td>Call and email</td>
<td>Left voicemail and sent email to follow up on MOA and Treatment Plan. No response.</td>
<td></td>
</tr>
<tr>
<td>8/25/17</td>
<td>Call and email</td>
<td>No response</td>
<td></td>
</tr>
<tr>
<td>8/25/17</td>
<td>Call and email</td>
<td>No response</td>
<td></td>
</tr>
<tr>
<td>James Kinter, THPO</td>
<td>6/1/2015</td>
<td>Initial letter</td>
<td>No response</td>
</tr>
<tr>
<td>Yocha Dehe Wintun Nation</td>
<td>7/6/2015</td>
<td>Follow-up call</td>
<td>Said that they’ll likely want someone on-site for testing. Requested email version of letter and map – I sent that over 7/6/15 and said we’d keep him updated. 7/23/15: Received letter dated 6/26/15 stating their interest in site visit and consultation etc.</td>
</tr>
<tr>
<td>8/5/2015</td>
<td>Follow-up call</td>
<td>No response</td>
<td></td>
</tr>
<tr>
<td>9/3/2015</td>
<td>Meeting</td>
<td>Provided tribe with maps and project info.</td>
<td></td>
</tr>
<tr>
<td>9/30/2015</td>
<td>Follow-up call</td>
<td>Left voicemail. No response</td>
<td></td>
</tr>
<tr>
<td>Date</td>
<td>Action</td>
<td>Result</td>
<td></td>
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<td>------------</td>
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<tr>
<td>11/2/2015</td>
<td>Follow-up call</td>
<td>Left voicemail. No response</td>
<td></td>
</tr>
<tr>
<td>6/1/2015</td>
<td>Initial letter</td>
<td>No response</td>
<td></td>
</tr>
<tr>
<td>7/6/2015</td>
<td>Follow-up call</td>
<td>Said he hadn't gotten to my letter yet and requested an email version. Sent email 7/6/2015.</td>
<td></td>
</tr>
<tr>
<td>8/5/2015</td>
<td>Follow-up call</td>
<td>No response</td>
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Appendix H – USFWS Biological Opinion

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
2800 Cottage Way, Suite W-2605
Sacramento, California 95825-1846

In Reply Refer to:
0855MPOG-2016-F-2295-1

NOV 16 2017

Ms. JoAnn Callom
California Department of Transportation
Environmental Division, MS 83
111 Grand Avenue
Oakland, California 94612

Subject: Formal Consultation on the State Route 121 Huichica Creek Bridge Replacement and Fish Passage Project, Napa County, California (Caltrans EA 04-4G210)

Dear Ms. Callom:

This letter is in response to the California Department of Transportation’s (Caltrans) September 29, 2017, request to initiate formal consultation with the U.S. Fish and Wildlife Service (Service) on the proposed State Route (SR) 121 Huichica Creek Bridge Replacement and Fish Passage Project in Napa County, California. Your request was received by the Service on September 29, 2017. At issue are the proposed project’s effects on the Federally endangered California freshwater shrimp (Synoecus pfefferi), and the Federally threatened California red-legged frog (Rana draytonii). Critical habitat has not been designated for the California freshwater shrimp. Critical habitat has been designated for the California red-legged frog but does not occur within the action area. This response is provided under the authority of the Endangered Species Act of 1973, as amended (16 U.S.C. § 1531 et seq.) (Act), and in accordance with the implementing regulations pertaining to interagency cooperation (50 CFR 402).

Fixing America’s Surface Transportation Act (FAST Act) was signed into law on December 4, 2015. Providing funding from 2016 to 2020, the FAST Act includes provisions to promote streamlined and accelerated project delivery. Caltrans is approved to participate in the FAST Act project delivery program through the National Environmental Policy Act (NEPA) Assignment Memorandum of Understanding (MOU). The MOU allows Caltrans to assume the Federal Highway Administration’s (FHWA) responsibilities under NEPA as well as FHWA’s consultation and coordination responsibilities under Federal environmental laws for most highway projects in California. Caltrans is exercising this authority as the Federal nexus for section 7 consultation on this project.

The Federal action we are consulting on includes the replacement of the existing culverted crossing on SR 121 of Huichica Creek with a single-span bridge, incorporation of fish-passage improvements within the creek, and restoration work along approximately 480 feet of Huichica Creek. Caltrans submitted a Biological Assessment (BA) for our review and requested concurrence with the findings presented therein. These findings conclude that the proposed project may affect, and is likely to adversely affect the California freshwater shrimp and California red-legged frog.

In considering your request, we based our evaluation on the following: (1) a September 23, 2016 field visit; (2) Caltrans’ September 29, 2017 request for consultation and accompanying
Ms. JoAnn Callan

September 2017 BA; (3) Caltrans' October 30, 2017, response to the Service's October 2, 2017, electronic mail (e-mail) message; and (4) other information available to the Service.

The remainder of this document provides our biological opinion on the effects of the proposed project on the California freshwater shrimp and California red-legged frog.

Consultation History

December 17, 2015: The Service received Caltrans' initial request for technical assistance.

July 18, 2016: The Service received a copy of Caltrans' draft fish passage design plan.

September 23, 2016: The Service attended a site visit with Caltrans and the National Marine Fisheries Service (NMFS).

September 29, 2017: The Service received copies of Caltrans' September 29, 2017 request to initiate consultation along with a September 2017 BA.

October 2, 2017: The Service sent Caltrans a request for additional project information after reviewing the September 2017 BA. The message was the equivalent of a 30-day letter.

October 30, 2017: Caltrans provided additional project information in response to our October 2, 2017 request.

BIOLOGICAL OPINION

Description of the Action

According to Caltrans, the purpose of the proposed project is to widen SR 121 over Huichica Creek to meet standard highway guidelines and to match recent widening of the roadway on both sides of the bridge. The proposed project will also include the replacement of the existing culverted bridge with a span structure and reengineering approximately 480 feet of the Huichica Creek to address fish passage issues.

The proposed project includes the following components:

1. Site Preparation.
   Project Footprint Delimitation. The designated work areas will be delineated with either high visibility fencing or staking.

   Vegetation Clearing. Vegetation clearing will include trimming and removal of woody vegetation as well as the grubbing of ground cover vegetation in areas needed for staging, access, construction, and workspace. Trimming will include trees within the clear recovery zones along SR 121. Where feasible in temporary work areas, native trees and shrubs will be cut to the base with roots intact to allow for potential regrowth. Non-native trees within the work area will be completely removed.

   Installation of Exclusion Fencing. California red-legged frog exclusion fencing will be installed around work areas needed for the culvert removal, bridge construction, and streambed restoration.
Staging and Access. The project will include one staging area and two access roads down to the Huichica Creek bed. The staging area will be located on the northwest side of the bridge and the access roads will be located on both ends of the western side of the bridge, extending down to the creek.

The proposed, approximately 0.41-acre, staging area is located directly adjacent to the bridge, the Huichica Creek riparian corridor, and access and staging used for adjacent vineyards. The proposed area is partially within the Caltrans right-of-way (ROW) and is characterized by areas of compact soils and ruderal vegetation subject to annual management.

Access to the creek channel will be needed to complete clearing and grubbing, installing creek diversion, culvert removal, bridge construction, and streambed restoration. Access to and from the work area in the creek channel will be via SR 121 and the creek bank. To do so, the two access roads will be created on the creek embankment adjacent to the north and south abutments down to the creek channel. Both roads will be approximately 100 feet long and 12 feet wide and will occupy approximately 0.05 acre. This access will be used over the two planned construction seasons. Disturbed portions of the creekbank will be recontoured to blend with the new topography and revegetated once construction is complete.

Utility Relocation. Five Pacific Gas and Electric 12 kilovolt utility poles on the south side will be relocated to new locations within the south side of the Caltrans ROW and within the described project footprint.

Temporary Creek Diversion System. Prior to the culvert removal and bridge construction, a temporary creek diversion system will be installed to dewater the work area and route continued flow of the creek through the work area in a protected and contained system. Work within the streambed is expected to occur from June 1 to October 15. A pump system will be used if dewatering of the work area is necessary.

The diversion system will be placed at the upper and lower ends of the construction easement, a minimum of 50 feet from the upper and lower extent of construction. The extent of the work area will change between the two construction seasons with work near the bridge during the first season and the second season involving 480 linear feet of Huichica Creek.

Cofferdams will be constructed up and downstream of the roadway to form the diversion. The dams will be up to 5 feet tall and will consist of stacked gravel bags wrapped in plastic sheeting to prevent seepage. A subsurface cutoff wall below the cofferdams may be needed to reduce water infiltration into the work area, which would require additional pumping. A pipe, up to 3 feet in diameter, would convey stream flow between the two cofferdams, thus creating a dry work area. Work necessary for removing the culvert, and reconstructing and regauging the channel to restore the creek to its natural setting would take place in the area between the cofferdams.

Cofferdams will be constructed of a non-erodible material that does not contain soil or fine-grained sediment. Cofferdams and the stream diversion system will remain in place and functional throughout the construction season. Reintroduction of stream flows will be gradual to the isolated work area to prevent stranding of aquatic wildlife, channel instability, or excessive scour. The Service-Approved Biological Monitor will monitor upstream and downstream reaches to ensure aquatic species are not stranded or in distress during
reintroduction of flows. If conditions causing or contributing to stress and/or injury to aquatic organisms are observed, Caltrans will take immediate remedial actions directed at lessening sources of stress. This may include a more gradual reintroduction of flows to avoid abrupt water surface elevation changes both downstream and upstream of the action area.

Cofferdams or stream diversions that fail for any reason will be repaired immediately along with the temporary creek diversion system adjacent to the cofferdams. Work necessary for removing the existing culvert and the backfill around it to revert the creek to its near-natural setting will take place in the dry environment created between the cofferdams. The diversion will be installed and removed manually if there is no dry access for equipment to operate.

Caltrans will submit the creek diversion plan to the Service for review 10 working days prior to its installation. The temporary dewatering system will be removed by October 15 at the end of the construction season.

2. Bridge Replacement.

The existing SR 121 Huichica Creek Bridge is 35 feet wide with two standard 12-foot lanes and shoulders that vary from 5 to 6 feet. Water flows under the bridge through three 78-inch diameter corrugated metal culverts. The culverts and the bridge's concrete headwalls will be removed. During the first construction season, the existing pavement and embankment material on top of the culverts will be removed while leaving the culverts in place. The culverts will be completely removed from underneath the new bridge during the second construction season.

The proposed single span bridge will be 45 feet long and 48 feet wide to accommodate standard 8-foot shoulders with bridge railings. The new abutments will be built on a concrete pile foundation.

Drainage improvements will be constructed along SR 121 and include the installation of a culvert northeast of the westerly bridge abutment that will discharge runoff flowing from an existing infiltration trench directly to Huichica Creek.

Grading will be done to conform two existing driveways to an opening on SR 121 on the northeast side of the bridge.


Several roadway sections of SR 121 will be resurfaced due to cracking and raveling. The existing roadway will be excavated out or milled, and the debris will be hauled to an approved landfill. The roadbed will then be re-surfaced with asphalt concrete.

4. Fish Passage.

Fish passage through the bridge zone will be corrected and enhanced by both removal of the restrictive culverts and engineering grade control structures within the creek to correct restrictive vertical drops. The fish passage elements will extend approximately 130 feet upstream and 350 feet downstream of the existing bridge. These limits are from slightly beyond the existing ROW line on the upstream end to the point in the creek where the slope stabilizes on the downstream end. Reconstructing this 480 foot stream reach at an average 2.5% slope will allow migration of adult fish upstream and juvenile fish downstream. Large, instream woody debris (roots wads and logs), intermittent large shadow rocks, and planting of willows and alder trees will be included throughout the channel to enhance habitat. Intermittent grade control cutoffs using bunched rock across the channel bottom will also be
incorporated to stabilize the installation and prohibit head cut from migrating upstream throughout the proposed improvements. The instream channel construction will extend slightly downstream of an existing private bridge. The channel design incorporates a low flow channel through the rock weir step-pools, large woody debris along the toe of creek banks, boulder outcrops to shade adjacent resting pools, and re-establishment of native vegetation on the slopes above ordinary high water to provide shading and reduce future scour.

Caltrans designed the fish passage remediation engineering of the creek based on their own Fish Passage Design Guidelines and the California Department of Fish and Wildlife's (CDFW) Habitat Restoration Manual. In consultation with CDFW, the remediation will target an approximately 480 foot long segment of Hoichica Creek, which includes the bridge structure. The design includes installation of a series of grade control steps to achieve a more stable and navigable 2.5% slope that conforms with the adjoining up and downstream topography.

The proposed remediation will include removing paved portions of the channel, grading approximately 480 feet of the channel to a longitudinal 2.5% slope, and constructing a roughened channel of natural streambed materials by incorporating half-ton rocks within a mix of native creek bed material, to reduce future scour along the creek banks. The slope grade will be controlled by constructing eight step-pools, each with a maximum 6.5-foot vertical drop from downstream rock weirs to the surface elevation of the next downstream step-pool. The width of the existing channel bottom is 14 feet. A maximum of 2 feet of cut and 6 feet of fill is proposed. Along the proposed channel bottom, the tranverse slope will be 1:4 (14 feet wide), then 2:1 (3 feet wide) then 4:1 where it intercepts with the existing bank slopes. Low benches along the channel bank width at 4:1 slope will support native riparian vegetation establishment on both sides of the channel, thereby reducing future scour along the creek banks. Rocks will be placed along the weirs of step-pools and keyled in along the toe of the channel side slopes. Exposure of the rock surface will be minimized to suit the habitat restoration.

The creekbed modification will include the addition of features to create California freshwater shrimp habitat. Areas of stream bank that are disturbed during project construction will be planted with vegetation in conjunction with the placement of rock slope protection. An instream habitat structure designed to shelter the California freshwater shrimp during increased winter flows in this confined channel will likely include a structured tunnel feature with a rock groin in the channel topped and framed with large wood and a complex of horizontal slider and willow plantings. A series of soil lifts in the channel bank which are incorporated in the vegetated rock slope protection will be used to support the logs.

The complexity of the structure is intended to provide velocity refuge for the listed shrimp and promote shoot and root development in the 'ceiling'. Intertidal woods created within the root mass and larger rocks are expected to provide shrimp habitat.

The final design will be determined following further studies completed by Caltrans Geotechnical Design and Erosion Control and will be provided to the Service, NMFS, and CDFW for approval prior to construction.
Site Clean-Up and Restoration

All construction-related materials including fencing will be removed after construction has been completed for each activity, at the end of the construction season and completion of project. Areas identified as temporary access and work areas will be restored at the completion of the project. These areas will be recontoured if appropriate and replacement native vegetation will be planted in areas where they will not affect roadway safety. Revegetation specifications will be provided later during the design phase of the project. Permanent erosion control, including soil stabilization measures such as hydro-seeding, coir netting and non-filament mesh, will be applied to all areas of ground disturbance to minimize erosion following each construction phase.

Tree and shrub planting will occur as a separate revegetation project to follow the bridge/roadway construction project as needed. Disturbed areas within the riparian area will be revegetated with willow plantings, and non-native scrub will be replaced at 1:1 with native trees. Proposed work will likely include incorporating amendment of the soil; planting native trees, shrubs, and ground cover such as grasses or forbs species; casing for the planting to ensure healthy growing conditions for the 3-year plant establishment period; providing in-kind replacement of suitable plants; weeding; non-chemical rodent and other pest control; mowing; removing trash and debris; plant pruning and fertilizer application; plant basin mulching and installing foliage protectors as needed or as determined necessary during the 3-year plant establishment period. Hand or truck watering will be used to establish plant materials. A temporary above- or below-grade irrigation system may be installed.

Equipment

Clearing and grubbing will be completed by hand using small mechanical tools or by using backhoes and excavators. A backhoe or excavator with a demolition ram will be used for culvert removal, and a front loader will collect the debris to load into trucks for offsite disposal. After clearing and grubbing, an equipment access ramp will be constructed adjacent to the bridge at one or both abutments. Cast-in-drilled hole pile installation will require pile drivers to drive the abutment piles, drill rigs to remove soil from the piles, and cranes to set the rebar cage. Cranes will also be used for dropping/raising construction equipment to and from the creek bed, delivering materials, and setting of pre-stressed/precast girders. Excavators will also be used for abutment construction and other tasks as needed. Concrete trucks will be used to deliver concrete for the cast-in-place structures. Other machinery that may be used includes man-lifts, paver, hoe ram, excavator, jackhammers, and compaction equipment.

Schedule

Project construction is planned over two successive summer seasons (June 1 to October 15) starting in 2002. Woody vegetation removal and trimming will be conducted between September and February 15, the year prior to the first construction season.

Season 1 activities will include:

1. Vegetation removal.
2. Site preparation (including establishment of Huichica Creek access and installation of creek diversion).
4. Begin bridge installation.
5. Excavation of embankments within coffer dams.
7. Site cleanup.
8. Installation of erosion control.
Season 2 activities will include:

1. Site preparation.
2. Complete bridge installation.
3. Culvert removal.
4. Creekbed reconstruction, including installation of fish passage measures.
5. Site cleanup.
6. Revegetation.
7. Installation of erosion control.

Conservation Measures:
Caltrans proposes to reduce adverse effects to the California freshwater shrimp and California red-legged frog by implementing the following measures:

1. Service-Approved Biological Monitor. The names and qualifications of the proposed biological monitor(s) will be submitted to the Service for approval at least 30 calendar days prior to the start of construction. The Service-Approved Biological Monitor will keep a copy of this Biological Opinion in their possession when onsite. The Service-Approved Biological Monitor will be onsite during all work that could reasonably result in take of California freshwater shrimp or California red-legged frog. The Service-Approved Biological Monitor will have the authority to stop work that may result in the unauthorized take of special-status species through communication with the Resident Engineer. If the Service-Approved Biological Monitor exercises this authority, the Service will be notified by telephone and e-mail message within one (1) working day.

2. Worker Environmental Awareness Training. Construction personnel will attend a mandatory environmental education program delivered by the Service-Approved Biological Monitor prior to any ground disturbing activity, including vegetation clearing. The program will focus on the conservation measures and will include information as how to best avoid take of the California freshwater shrimp and California red-legged frog. At a minimum, the training will include a description of these two listed animals, how they might be encountered within the project area, their status and protection; and the relevant Conservation Measures and Terms and Conditions of the Biological Opinion. A fact sheet conveying this information will be prepared and distributed to all construction and project personnel. Distributed materials will include cards with distinctive photographs of the California freshwater shrimp and California red-legged frog, compliance reminders, and relevant contact information. Documentation of the training, including sign-in sheets, will be kept on file and made available to the Service upon request.

3. Preconstruction Shrimp Surveys. The Service-Approved Biological Monitor will conduct surveys for California freshwater shrimp in the action area within two weeks before the onset of construction activities within the Huichica Creek creekbed or riparian corridor, including any temporary dewatering and/or coffer dam installation. The survey will include investigating likely habitat extending at least 50 feet beyond the upstream and downstream limits of the work area. If California freshwater shrimp are found, the Service-Approved Biological Monitor will capture and relocate them to suitable habitat in the same drainage. Only the Service-Approved Biological Monitor will participate in activities associated with the capture, handling, and monitoring of California freshwater shrimp. Following installation of any creek diversion structures, and before the placement of fill, a Service-Approved Biological Monitor will perform surveys for and relocate any California freshwater shrimp, and other species, trapped in the action area. Aquatic non-native invasive species found will be
disposed of properly and will not be placed back into the stream where work is being conducted or any other drainages, creeks, or streams.

4. **Shrimp Discovery.** If the California freshwater shrimp is encountered in harm's way, the following procedures will be followed:

   a. Suitable habitat outside of the project footprint will be identified before capturing California freshwater shrimp to minimize holding time. Suitable habitat is defined as creek sections that will remain wet over the summer and where banks are structurally diverse with undercut banks, exposed fine root systems, overhanging woody debris, or overhanging vegetation.

   b. California freshwater shrimp will be captured by hand-held nets (e.g., heavy-duty aquatic dip nets [12-inch D-frame net] or small minnow dip nets) and relocated out of the work area in the net or placed in buckets containing stream water and then moved directly to the nearest suitable habitat in the same branch of the creek. California freshwater shrimp will not be placed in buckets containing other aquatic species.

   c. California freshwater shrimp will be relocated upstream a minimum of 100 feet from the site to an area that has appropriate overhanging vegetation and undercut banks. California freshwater shrimp will be released within suitable habitat acceptable to the Service.

   d. Once the Service-Approved Biological Monitor has determined that all California freshwater shrimp have been effectively relocated, barrier seines or exclusion fencing will be installed to prevent shrimp from moving back into the area of potential harm, as appropriate.

   e. The Service-Approved Biological Monitor will report California freshwater shrimp observations, captures, relocations, injuries, and mortalities to Service within one (1) working day.

5. **Pre-Construction Frog Surveys.** Pre-construction surveys for the California red-legged frog will be conducted by the Service-Approved Biological Monitor no more than 20 calendar days prior to any initial ground disturbance and immediately prior to ground-disturbing activities (including vegetation removal) beyond the existing pavement. These efforts will consist of walking surveys of the project limits and, if possible, accessible adjacent areas within at least 50 feet of the project limits. The Service-Approved Biological Monitor will investigate potential cover sites when it is feasible and safe to do so. This includes thorough investigation of mammal burrows, rocky outcrops, appropriately sized soil cracks, tree cavities, and debris. Native vertebrates found in the cover sites within the project limits will be documented and relocated to an adequate cover site in the vicinity. Safety permitting, the Service-Approved Biological Monitor(s) will investigate areas of disturbed soil for signs of California red-legged frogs within 30 minutes following initial disturbance of the given area.

6. **Frog Discovery.** If a California red-legged frog is discovered, the Resident Engineer and Service-Approved Biological Monitor will be immediately informed.

   a. If a California red-legged frog gains access to a construction zone, work will be halted immediately within 50 feet until the animal leaves the construction zone or is removed by the Service-Approved Biological Monitor.
b. The Service will be notified within one (1) working day if a California red-legged frog is discovered within the construction site.

c. The captured California red-legged frog will be released within appropriate habitat outside of the construction area within the creek riparian corridor. The release habitat will be determined by the Service-Approved Biological Monitor.

d. The Service-Approved Biological Monitor will take precautions to prevent introduction of amphibian diseases in accordance with the Revised Guidance on Site Assessments and Field Surveys for the California Red-legged Frog (Service 2005).

7. Cover Boards. The Service-Approved Biological Monitor will place cover boards in strategic locations throughout the project footprint during the pre-construction surveys. During construction, these cover boards will be checked on a daily basis for the California red-legged frog when the Service-Approved Biological Monitor is onsite.

8. Seasonal Avoidance. Except for limited vegetation cutting (necessary to minimize effects to nesting birds), ground-disturbing construction activities will occur during the dry season (June 1 to October 15) when California red-legged frogs are less likely to be moving between resource areas.

9. Work Window. Caltrans will complete work activities within the bed and bank of Huichica Creek between June 1 and October 15 to minimize work in inundated areas that may provide habitat for the California freshwater shrimp.

10. Night Work. Nighttime work will be avoided for activities that are practicable to complete during the day. For the nighttime work that needs to be conducted, all lighting will be directed downwards and towards the active construction work area.

11. Work Boundary. The work limits will be identified with high-visibility fencing, flagging, or other obvious means. Limits will also be defined near other environmentally sensitive locations, such as bird nests, as needed. The materials used to identify work boundaries will be removed at the end of construction.

12. Frog Exclusion Fencing. Before starting construction, California red-legged frog exclusion fencing will be installed along the project footprint perimeter in the areas where the listed frog could enter the project site. The final project plans will depict the locations where exclusion fencing will be installed and how it will be assembled/constructed. The special provisions in the bid solicitation package will clearly describe acceptable fencing material and proper installation and maintenance. The exclusion fencing will remain in place throughout the project duration, while construction activities are ongoing, and will be regularly inspected for stranded animals and fully maintained. Exclusion fencing will be in place during each construction phase and will be removed after each phase is completed.

13. Vegetation Removal. Vegetation removal will be limited to the designated work areas including areas designated for staging, access, and workspace. Where possible, vegetation removal in temporary work areas will be cut above soil level to promote revegetative growth of established plants following construction. Vegetation clearing will be conducted September 1 to February 15 to avoid impacts to birds and active nests. All nest avoidance requirements of the MBTA will be observed. In order to prevent the creation of animal cover, all cleared vegetation will be removed from the project area. The removal of creek
bank ground cover vegetation such as blackberry and riparian vegetation such as willows will be avoided, to the maximum extent practicable, to minimize the loss of overhanging vegetation that may provide cover for the California freshwater shrimp.

14. **Avoidance of Entrapment.** To prevent inadvertent entrapment of animals during construction, all excavated, steep-walled holes or trenches more than 1 foot deep will be covered at the close of each working day by plywood or similar materials. Before such holes or trenches are filled they must be thoroughly inspected for trapped animals. All replacement pipes, culverts, or similar structures stored in the project area overnight will be inspected before they are subsequently moved, capped and/or buried.

15. **Dewatering.** Dewatering and discharging activities will be conducted according to standard California requirements.

   a. The dewatering plan will be provided to the Service for review, comment, and approval in advance of its establishment.

   b. A Service-Approved Biological Monitor will be present during dewatering activities to relocate California freshwater shrimp and California red-legged frogs as needed.

   c. For dewatering systems that require pumping, all intakes will be completely screened with wire mesh not larger than 5 millimeters (0.2 inch) to prevent California red-legged frogs from entering the pump system.

   d. Upon completion of construction activities, any barriers to flow will be removed in a manner that would allow flow to resume with the least disturbance to the substrate.

16. **Stormwater Pollution Control.** Project will be consistent with the Regional Water Quality Control Board’s Water Pollution Control Plan requirements.

17. **Proper Use of Erosion Control Devices.** To avoid California red-legged frog from entanglement or entrapment, plastic monofilament netting (i.e., erosion control matting) or similar material will not be used within the action area. Acceptable substitutes will include coconut coir matting or tackified hydro seeding compounds.

18. **Implementation of Best Management Practices (BMPs).** In accordance with Regional Water Quality Control Board requirements, a Stormwater Pollution Prevention Plan (SWPPP) will be developed and erosion control BMPs implemented to minimize wind- or water-related erosion. The California BMP Guidance Handbook provides guidance for the inclusion of provisions in all construction contracts to protect sensitive areas and prevent and minimize stormwater and non-stormwater discharges. At a minimum, protective measures will include the following:

   a. Disallowing discharging of pollutants from vehicle and equipment cleaning into storm drains or watercourses.

   b. Keeping vehicle and equipment fueling and maintenance operations at least 50 feet away from watercourses, except at established commercial gas stations or an established vehicle maintenance facility.
c. Collecting and disposing of concrete wastes and water from curing operations in appropriate washouts, located at least 50 feet from watercourses.

d. Maintaining spill containment kits onsite at all times during construction operations and/or staging or fueling of equipment.

e. Using water trucks and dust palliatives to control dust in unvegetated areas and covering of temporary stockpiles when weather conditions require.

f. Installing coir rolls or straw wattles along or at the base of slopes during construction to capture sediment.

g. Protecting graded areas from erosion using a combination of silt fences, fiber rolls along toes of slopes or along edges of designated staging areas, and erosion control netting (jute or coir) as appropriate on sloped areas.

h. Establishing permanent erosion control measures such as bio-filtration strips and swales to receive stormwater discharges from the highway or other impervious surfaces to the maximum extent practicable.

19. **Construction Site Management Practices.** The following site restrictions will be implemented to avoid or minimize potential effects on listed species and their habitats:

a. Enforcing a speed limit of 15 miles per hour in the project footprint in unpaved and paved areas to reduce dust and excessive soil disturbance.

b. Locating construction access, staging, storage, and parking areas within the project ROW outside any designated Environmentally Sensitive Areas or outside the ROW in areas environmentally cleared and permitted by the contractor. The following areas will be limited to the minimum necessary to construct the proposed project: access routes, staging and storage areas, and contractor parking. Routes and boundaries of roadwork will be clearly marked before initiating construction or grading.

c. Certifying, to the maximum extent practicable, borrow material is non-toxic and weed free.

d. Enclosing food and food-related trash items in sealed trash containers and removing them from the site at the end of each day.

e. Prohibiting pets from entering the project footprint area during construction.

f. Prohibiting firearms within the project site, except for those carried by authorized security personnel or local, state, or Federal law enforcement officials.

g. Maintaining equipment to prevent the leakage of vehicle fluids such as gasoline, oils, or solvents and developing a Spill Response Plan. Hazardous materials such as fuels, oils, solvents, etc. will be stored in sealable containers in a designated location that is at least 50 feet from aquatic habitats.
h. Servicing vehicles and construction equipment including fueling, cleaning, and maintenance at least 50 feet from aquatic habitat unless separated by topographic or drainage barrier.

20. **Replant, Re seed, and Restore Disturbed Areas.** Caltrans will restore temporarily disturbed areas to the maximum extent practicable. Exposed slopes and bare ground will be reseeded with native grasses and shrubs to stabilize and prevent erosion. Where disturbance includes the removal of trees and woody shrubs, native species will be replanted, based on the local species composition.

21. **Reduce Spread of Invasive Species.** To reduce the spread of invasive, nonnative plant species and minimize the potential decrease of palatable vegetation for wildlife species, Caltrans will comply with Executive Order 13112. This order is provided to prevent the introduction of invasive species and provide for their control to minimize the economic, ecological, and human health effects. In the event that noxious weeds are disturbed or removed during construction-related activities, the contractor will be required to contain the plant material associated with these noxious weeds and dispose of them in a manner that will not promote the spread of the species. The contractor will be responsible for obtaining all permits, licenses, and environmental clearances for properly disposing of materials. Areas subject to noxious weed removal or disturbance will be replanted with fast-growing native grasses or a native erosion control seed mixture. Where seeding is not practical, the target areas within the action area will be covered to the extent practicable with heavy black plastic soil stabilization material until the end of the project.

22. **Service Access.** If requested, before, during, or upon completion of groundbreaking and construction activities, Caltrans will allow access by Service personnel into the project footprint to inspect the project and its activities.

**Action Area**

The action area is defined in 50 CFR § 402.02, as “all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action.” For the proposed project, the action area encompasses a 7.9-acre construction footprint plus a 300-foot habitat buffer to account for noise, vibration, visual disturbance, and barrier effects, and 500 feet or more downstream of the construction footprint relative to water quality.

**Analytical Framework for the Jeopardy Determinations**

Section 7(c)(2) of the Endangered Species Act requires that Federal agencies ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of listed species. “Jeopardize the continued existence of” means to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species (50 CFR § 402.02).

The jeopardy analysis in this biological opinion considers the effects of the proposed Federal action, and any cumulative effects, on the range-wide survival and recovery of the listed species. It relies on four components: (1) the Status of the Species, which describes the range-wide condition of the species, the factors responsible for that condition, and its survival and recovery needs; (2) the Environmental Baseline, which analyzes the condition of the species in the action area, the factors responsible for that condition, and the relationship of the action area to the survival and recovery of the species; (3)
the **Effects of the Action**, which determines the direct and indirect impacts of the proposed Federal action and the effects of any interrelated or interdependent activities on the species; and (4) the **Cumulative Effects**, which evaluates the effects of future, non-Federal activities in the action area on the species.

**Status of the Species**

**California freshwater shrimp**

Please refer to the *California Freshwater Shrimp (Synonemus paradoxus) 5-year Review: Summary and Evaluation* (Service 2011) [available at http://ecos.fws.gov/docs/five_year_review/doc3890.pdf] for the latest published status of the species. The referenced 5-year review does not include the threat, recovery, survey data, and other relevant updates for the species since its September 2011 issuance. Since that time, actions have been implemented that have resulted in additional adverse effects to the species. In association with those actions, conservation measures have been implemented for the purpose of minimizing those adverse effects and in some cases, restoring or enhancing California freshwater shrimp habitat. Environmental factors such as the recent cycle of below average annual rainfall may have influenced the distribution and quality of suitable habitat throughout its range. While the threats posed by habitat loss, degradation, non-native predators, and fragmentation are ongoing, to date no project has proposed a level of effects for which the Service has issued a biological opinion of jeopardy for the species.

**California Red-legged Frog**

**Listing Status:** The California red-legged frog was listed as a threatened species on May 23, 1996 (Service 1996). Critical habitat was designated for this species on April 13, 2006 (Service 2006) and revisions to the critical habitat designation were published on March 17, 2010 (Service 2010). At this time, the Service recognized the taxonomic change from *Rana aurora draytoni* to *Rana draytoni* (Shaftel et al. 2010). A recovery plan was published for the California red-legged frog on September 12, 2002 (Service 2002).

**Description:** The California red-legged frog is the largest native frog in the western United States (Wright and Wright 1949), ranging from 1.5 to 5.1 inches in length (Stebbins 2003). The abdomen and hind legs of adults are largely red, while the back is characterized by small black flecks and larger irregular dark blotches with indistinct outlines on a brown, gray, olive, or reddish background color. Dorsal spots usually have light centers (Stebbins 2003), and dorsolateral folds are prominent on the back. *Larvae* (tadpoles) range from 0.6 to 3.1 inches in length, and the background color of the body is dark brown and yellow with darker spots (Storer 1925).

**Distribution:** The historic range of the California red-legged frog extended from the vicinity of Elk Creek in Mendocino County, California, along the coast inland to the vicinity of Redding in Shasta County, California, and southward to northwestern Baja California, Mexico (Pellen 2005; Jennings and Hayes 1985; Hayes and Krenzpel 1986). The species was historically documented in 46 counties but the taxa now remains in 238 streams or drainages within 23 counties, representing a loss of 70 percent of its former range (Service 2002). California red-legged frogs are still locally abundant within portions of the San Francisco Bay area and the Central California Coast. Isolated populations have been documented in the Sierra Nevada, northern Coast, and northern Transverse Ranges. The species is believed to be extirpated from the southern Transverse and Peninsular Ranges, but is still present in Baja California, Mexico (CDFW 2017).

**Status and Natural History:** California red-legged frogs predominantly inhabit permanent water sources such as streams, lakes, marshes, natural and manmade ponds, and ephemeral drainages in valley bottoms and foothills up to 4,321 feet in elevation (Jennings and Hayes 1994, Bulges et al. 1994)
2003, Stebbins 2003). However, they also inhabit ephemeral creeks, drainages and ponds with minimal riparian and emergent vegetation. California red-legged frogs also can be found in disturbed areas such as channelized creeks and drainage ditches in urban and agricultural areas. For example, an adult California red-legged frog was observed in a shallow isolated pool on North Slough Creek in the American Canyon area of Napa County (C. Geber, PG&E, pers. comm., 2008). This frog location was surrounded by vineyard development. Another adult California red-legged frog was observed under debris in an unpaved parking lot in a heavily industrial area of Burlingame (P. Kobrman, Coast Ridge Ecology, pers. comm., 2006). This frog was likely utilizing a nearby drainage ditch. Caltrans also has discovered California red-legged frog adults, tadpoles, and egg masses within a storm drainage system within a major cloverleaf intersection of Millbase Avenue and SR 101 in a heavily developed area of San Mateo County (Caltrans 2007). California red-legged frog has the potential to persist in disturbed areas as long as those locations provide at least one or more of their life history requirements.

California red-legged frogs breed from November to April, although earlier breeding records have been reported in southern localities. Breeding generally occurs in still or slow-moving water often associated with emergent vegetation, such as cattails, reeds, or overhanging willows (Storey 1925, Hayes and Jennings 1998). Female frogs deposit egg masses on emergent vegetation so that the egg mass floats on or near the surface of the water (Hayes and Miyamoto 1964).

Habitat includes nearly any area within 1-2 miles of a breeding site that stays moist and cool through the summer including vegetated areas with coyote brush, California blackberry thickets, and root masses associated with willow and California bay trees (Fellers 2005). Sheltering habitat for California red-legged frogs potentially includes landscape features that provides cover, such as animal burrows, boulders or rocks, organic debris such as downed trees or logs, and industrial debris. Agricultural features such as ditches, watering troughs, spring boxes, abandoned sheds, or hay stacks may also be used. Incised stream channels with portions narrower and depths greater than 18 inches also may provide important summer sheltering habitat. Accessibility to sheltering habitat is essential for the survival of California red-legged frogs within a watershed, and can be a factor limiting frog population numbers and survival.

California red-legged frogs do not have a distinct breeding migration (Fellers 2005). Adults are often associated with permanent bodies of water. Some individuals remain at breeding sites year-round, while others disperse to neighboring water features. Dispersal distances are typically less than 0.5 mile, with a few individuals moving up to 1.2 miles (Fellers 2005). Movements are typically along riparian corridors, but some individuals, especially on rainy nights, move directly from one site to another through normally inhospitable habitats, such as heavily grazed pastures or oak-grassland savannas (Fellers 2005).

In a study of California red-legged frog terrestrial activity in a mosaic area of the Santa Cruz Mountains, Bulger et al. (2003) categorized terrestrial use as migratory and non-migratory. The latter occurred from one to several days and was associated with precipitation events. Migratory movements were characterized as the movement between aquatic sites and were most often associated with breeding activities. Bulger et al. (2003) reported that non-migrating frogs typically stayed within 200 feet of aquatic habitat 90 percent of the time and were most often associated with dense vegetative cover, i.e., California blackberry, poison oak and coyote brush. Dispersing frogs in northern Santa Cruz County traveled distances from 0.25 mile to more than 2 miles without apparent regard to topography, vegetation type, or riparian corridor (Bulger et al. 2003).
In a study of California red-legged frog terrestrial activity in a xeric environment in eastern Contra Costa County, Tatman (2008) noted that 57 percent of frogs fitted with radio transmitters in the Round Valley study area stayed at their breeding pools, whereas 43 percent moved into adjacent upland habitat or to other aquatic sites. Her study reported a peak seasonal terrestrial movement occurring in the fall months associated with the first 0.2 inch of precipitation and tapering off after spring. Upland movement activities ranged from 3 to 235 feet, averaging 80 feet, and were associated with a variety of refugia including grass thatch, crevices, cow hoof prints, ground squirrel burrows at the base of trees or rocks, logs, and under man-made structures; others were associated with upland sites lacking refugia (Tatman 2008). The majority of terrestrial movements lasted from 1 to 4 days; however, one adult female was reported to remain in upland habitat for 50 days (Tatman 2008). Upland refugia closer to aquatic sites were used more often and were more commonly associated with areas exhibiting higher object cover, e.g., woody debris, rocks, and vegetative cover. Subterranean cover was not significantly different between occupied upland habitat and non-occupied upland habitat.

California red-legged frogs are often prolific breeders, laying their eggs during, or shortly after, large rainfall events in late winter and early spring (Hayes and Miyamoto 1984). Egg masses containing 2,000 - 5,000 eggs are attached to vegetation below the surface and hatch after 6 - 14 days (Storer 1925, Jennings and Hayes 1994). In coastal lagoons, the most significant mortality factor in the pre-hatching stage is water salinity (Jennings et al. 1992). Eggs exposed to salinity levels greater than 4.5 parts per thousand resulted in 100 percent mortality (Jennings and Hayes 1990). Increased salinity during the breeding season can cause asphyxiation of eggs and small larvae. Larvae undergo metamorphosis 3.5 - 7 months following hatching and reach sexual maturity at 2 - 3 years of age (Storer 1925; Wright and Wright 1949; Jennings and Hayes 1985, 1990, 1994). Of the various life stages, larvae probably experience the highest mortality rates, with less than 1 percent of eggs laid reaching metamorphosis (Jennings et al. 1992). California red-legged frogs may live 8 to 10 years (Jennings et al. 1992). Populations can fluctuate from year to year; favorable conditions allow the species to have extremely high rates of reproduction and thus produce large numbers of dispersing young and a concomitant increase in the number of occupied sites. In contrast, the animal may temporarily disappear from an area when conditions are stressful (e.g., during periods of drought, disease, etc.).

The diet of California red-legged frogs is highly variable and changes with the life history stage. The diet of the larva is not well studied, but is likely similar to that of other tadpole frogs, which feed on algae, diatoms, and detritus by grazing on the surface of rocks and vegetation (Fellers 2005; Kupferberg 1996a, 1996b, 1997). Hayes and Tennant (1985) analyzed the diets of California red-legged frogs from California de la Gaviota in Santa Barbara County during the winter of 1981 and found invertebrates (comprising 42 taxa) to be the most common prey item consumed; however, they speculated that this was opportunistic and varied based on prey availability. They ascertained that larger frogs consumed larger prey and were recorded to have preyed on Pacific chorus frogs, three-spined stickleback, and, to a limited extent, California mice, which were abundant at the study site (Hayes and Tennant 1985, Fellers 2005). Although larger vertebrate prey was consumed less frequently, it represented over half of the prey mass eaten by larger frogs suggesting that such prey may play an energetically important role in their diet (Hayes and Tennant 1985). Juvenile and subadult/adult frogs varied in their feeding activity periods; juveniles fed for longer periods throughout the day and night, while subadult/adults fed nocturnally (Hayes and Tennant 1985). Juveniles were significantly less successful at capturing prey and all life history stages exhibited poor prey discrimination, feeding on several inanimate objects that moved through their field of view (Hayes and Tennant 1985).
Recovery Plan: The recovery plan for the California red-legged frog identifies eight recovery units (Service 2002). The establishment of these recovery units is based on the determination that various regional areas of the species' range are essential to its survival and recovery. The status of the California red-legged frog was considered within the small scale recovery units as opposed to their overall range. These recovery units are delineated by major watershed boundaries as defined by U.S. Geological Survey hydrologic units and the limits of its range. The goal of the recovery plan is to protect the long-term viability of all extant populations within each recovery unit. Within each recovery unit, core areas have been delineated and represent contiguous areas of moderate to high California red-legged frog densities that are relatively free of exotic species such as bullfrogs. The goal of designating core areas is to protect metapopulations. Thus when combined with suitable dispersal habitat, will allow for the long-term viability within existing populations. The management strategy identified within the Recovery Plan will allow for the recolonization of habitats within and adjacent to core areas that are naturally subjected to periodic localized extinctions, thus assuring the long-term survival and recovery of California red-legged frogs.

Threats: Habitat loss, non-native species introduction, and urban encroachment are the primary factors that have adversely affected the California red-legged frog throughout its range. Several researchers in central California have noted the decline and eventual local disappearance of California and northern red-legged frogs in systems supporting bullfrogs (Jennings and Hayes 1990, Tweedt 1993), red swamp crayfish, signal crayfish, and several species of warm water fish including sunfish, goldfish, common carp, and mosquitofish (Moyle 1976, Barry 1992, Hunt 1993, Fisher and Schaeffer 1996). This has been attributed to predation, competition, and reproduction interference. Tweedt (1993) documented bullfrog predation of juvenile northern red-legged frogs, and suggested that bullfrogs could prey on subadult California red-legged frogs as well. Bullfrogs may also have a competitive advantage over California red-legged frogs. For instance, bullfrogs are larger and possess more generalized food habits (Storv and Whelan 1984). In addition, bullfrogs have an extended breeding season (Storv 1933) during which an individual female can produce as many as 20,000 eggs (Emlen 1977). Furthermore, bullfrog larvae are unpalatable to predatory fish (Kause and Francis 1977). Bullfrogs also interfere with California red-legged frog reproduction by eating adult male California red-legged frogs. Both California and northern red-legged frogs have been observed in amplexus (mounted on) with both male and female bullfrogs (Jennings and Hayes 1990, Jennings 1993, Tweedt 1993). Thus bullfrogs are able to prey upon and out-compete California red-legged frogs, especially in sub-optimal habitats.

The urbanization of land within and adjacent to California red-legged frog habitat has also affected the threatened amphibian. These declines are attributed to channelization of riparian areas, enclosure of the channels by urban development that blocks dispersal, and the introduction of predatory fishes and bullfrogs. Diseases may also pose a significant threat, although the specific effects of disease on the California red-legged frog are not known. Pathogens are suspected of causing global amphibian declines (Davidson et al. 2003). Chytridiomycosis and ranavirus are a potential threat because these diseases have been found to adversely affect other amphibians, including the listed species (Davidson et al. 2003, Lips et al. 2006). Nau et al. (1999 cited in Fellows 2005) reported northern red-legged frogs infected with an iridovirus, which was also presented in sympatric threespine sticklebacks in northwestern California. Non-native species, such as bullfrogs and non-native tiger salamanders that live within the range of the California red-legged frog have been identified as potential carriers of these diseases (Carr et al. 2006). Human activities can facilitate the spread of disease by encouraging the further introduction of non-native carriers and by acting as carriers themselves (i.e., contaminated boots, waders or fishing equipment). Human activities can also introduce stress by other means, such as habitat fragmentation, that results in the listed species being more susceptible to the effects of disease.
Negative effects to wildlife populations from roads and pavement may extend some distance from the actual road. The phenomenon can result from any of the effects already described in this Biological Opinion, such as vehicle-related mortality, habitat degradation, and invasive exotic species. Forman and Deblinger (1998, 2000) described the area affected as the "road effect" zone. Along a four-lane road in Massachusetts, they determined that this zone extended for an average of approximately 980 feet to either side of the road for an average total zone width of approximately 1,570 feet. They described the boundaries of this zone as asymmetric and in some areas diminished wildlife use attributed to road effects was detected greater than 0.6 mile from Massachusetts Route 2. The "road-zone" effect can also be subtle. Van der Zaande et al. (1980) reported that lapwings and black-tailed godwits feeding at 1,575-6,560 feet from roads were disturbed by passing vehicles. The heart rate, metabolic rate and energy expenditure of feral bighorn sheep increase near roads (MacArthur et al. 1979). Tromboukis and Frissel (2000) described another type of "road-zone" effect due to contaminants. Heavy metal concentrations from vehicle exhaust were greatest within 66 feet of roads. Elevated levels of metals in both soil and plants were detected 660 feet of roads. The "road-zone" apparently varies with habitat type and traffic volume. Based on responses by birds, Forman (2000) estimated the effect zone along primary roads of 1,000 feet in woodlands, 1,197 feet in grasslands, and 2,657 feet in natural lands near urban areas. Along secondary roads with lower traffic volumes, the effect zone was 656 feet. The "road-zone" effect with regard to California red-legged frogs has not been adequately investigated.

The necessity of moving between multiple habitats and breeding ponds means that many amphibian species, such as the California red-legged frog, are especially vulnerable to roads and well-used large paved areas in the landscape. Van Gelder (1973) and Cooke (1995) have examined the effect of roads on amphibians and found that because of their activity patterns, population structure, and preferred habitats, aquatic breeding amphibians are more vulnerable to traffic mortality than some other species. Large, high-volume highways pose a nearly impenetrable barrier to amphibians and result in mortality to individual animals as well as significantly fragmenting habitat. Hels and Buchwald (2001) found that mortality rates for animals on high traffic roads are higher than on low traffic roads. Vos and Chardon (1998) found a significant negative effect of road density on the occupation probability of ponds by the moor frog (Rana arvalis) in the Netherlands. In addition, incidents of very large numbers of road-killed frogs are well documented (e.g., Ashley and Robinson 1996), and studies have shown strong population level effects of traffic density (Carr and Fahrig 2001) and high traffic roads on these amphibians (Van Gelder 1973, Vos and Chardon 1998). Most studies regularly count road kills from slow moving vehicles (Hasson 1982; Rosen and Lowes 1994; Drews 1995; Mallick et al. 1998) or by foot (Munguira and Thomas 1992). These studies assume that every victim is observed, which may be true for large conspicuous mammals, but it certainly is not true for small animals, such as the California red-legged frog. Amphibians appear especially vulnerable to traffic mortality because they readily attempt to cross roads, are slow-moving and small, and thus cannot easily be avoided by drivers (Carr and Fahrig 2001).

Environmental Baseline

Huichicha Creek is an approximately 8-mile long channel that flows south from its headwaters in Lowell Valley to Hudeman Slough and Napa Slough. The upper reaches of the creek pass through rolling oak covered grasslands but the southern half, including the project area, is narrowly confined by agricultural development. There is little residential or industrial development along the corridor and road crossings are primarily limited to private roads, a few county road crossings, and the bridges crossing of SR 121.

The adjacent vineyard, row crop, and grazing land use and road crossings have significantly affected Huichicha Creek. The channel is confined with dramatically steep banks and is incised in areas.
eliminating flood plains. Livestock and other practices have eliminated or diminished the riparian vegetative cover in various areas. The majority of the watershed land cover is occupied by agricultural uses. This likely results in the inadvertent introduction of herbicides, pesticides, sediment, and other materials into the creek. In return, water is also diverted from the creek for agricultural uses.

As stated in the California freshwater shrimp recovery plan, in the Huichica Creek watershed, the Napa County Resource Conservation District (RCD) created the Huichica Creek Land Stewardship group consisting of watershed landowners, local, State, and Federal agencies (including the Service), to develop and implement a long-term conservation plan for the watershed (Service 1998). A major benefit of this effort has been the willingness of winery operations to participate in this program and their increased awareness of the need to protect aquatic resources, including the shrimp. The plan includes measures recommended by the Service to reduce the risk of pesticides entering streams and a standard screen design for water intake structures to prevent take of shrimp. In addition, the Resource Protection and Enhancement Plan (Napa County RCD 1993) developed for the watershed recommends use of cover crops to minimize soil erosion and water conservation measures.

Bridges constructed for agricultural service roads, county roads, and highways along Huichica Creek have changed the dynamics of the creek. High winter flows back up at crossings and are forced through undersized culverts creating flooding upstream and downstream scour, changing the creek elevation. With time this has resulted in the accumulation of sediment and other materials upstream of these barriers and scouring out plunge pools and bank erosion downstream. Outside the winter rainy season and during drought years, these crossings exhibit a steep drop on the downstream end, interrupting flow and the ability of aquatic-bound animals to move to upstream resources. This is especially true at the SR 121 Huichica Creek crossing where the outlets for the three culverts are elevated from the creekbed on the downstream side of the bridge. The creekbed on the downstream segment has been armored with a layer of concrete from the base of the bridge and extending downstream. A headcut has developed at the downstream end of this concrete apron, cutting under the concrete creating a vertical ledge and plunge pool.

Runoff from road surfaces also transport oil and other toxins into Huichica Creek.

In terms of natural resource management, the primary focus in Huichica Creek has been in the conservation and enhancement of the waterway for anadromous fishes. Multiple agencies have worked in the past to develop pesticide use guidelines for the agricultural practices within the watershed (Service 1998) and the Napa County RCD has established a Huichica Creek Demonstration Vineyard adjacent to the lower reaches of the creek to highlight and encourage "green" agricultural practices.

Although confined, the action area has a dense riparian cover and enough stream habitat diversity to harbor wildlife such as salmonids, western pond turtles, and California freshwater shrimp. The creek is also occupied by non-native species, including introduced predatory fish. California freshwater shrimp expert and CDFW biologist, Larry Serpa summarised that artificial barriers within Huichica Creek may also be effective in hampering the movement of these non-native fishes throughout the system (Service 2011).

California Freshwater Shrimp
The action area is located within the range of the California freshwater shrimp. A map depicting the species’ range is included in the Service’s online profile for the species at http://ecos.fws.gov/speciesProfile/profile/speciesProfile/speciescode=K01W.
Huichica Creek is listed in the species' recovery plan as hosting a California freshwater shrimp population and characterizes the habitat within the creek as excellent for the species (Service 1998). As stated in the recovery plan, the Huichica Creek shrimp populations was likely once connected to those within the Napa River and Sonoma Creek systems but is now isolated due to rising sea levels and subsidence of river channels. Drought conditions and barriers such as the SR 121 culverted bridge have likely resulted in more discontinuous population connectivity within Huichica Creek (Service 1998). Of the 11 creeks Larry Serpa monitored in the mid-1980's and the early 1990's, Huichica Creek had the greatest abundance of California freshwater shrimp (Service 1998). The Service's recovery criteria for the California freshwater shrimp includes management and success goals for the population within Huichica Creek.

The California Natural Diversity Database (CNDDB) includes an approximately 2.05-mile long shapefile along Huichica Creek for a California freshwater shrimp record saddling the SR 121 Huichica Creek Bridge (CNDDB California freshwater shrimp occurrence #5, CDFW 2017). The mapping for the occurrence also includes a tributary that enters Huichica Creek approximately 0.25 mile south of the bridge. The record is in reference to survey work conducted by Larry Serpa in 1988/89 and 1990. During the 1990 survey effort, Serpa discovered 123 shrimp approximately 0.5 mile upstream of the bridge and 280 shrimp approximately 1.2 miles downstream (CDFW 2017).

The recovery plan discusses how barriers to shrimp movement, such as the existing SR 121 bridge and others along the creek, may result in future extirpation given the inability of shrimp to move to sufficient habitat during summer drawdowns and drought years. Segmenting the populations within Huichica Creek results in isolation and restricts gene flow, decreasing resiliency. They also may preclude expansion of shrimp into areas with suitable habitat, hampering recovery potential.

The Napa County RCD was contracted to conduct a California freshwater shrimp habitat assessment in support of Caltrans' September 2017 BA. The assessment was conducted by Jonathan Koehler, who holds a 10[e]1(A) Federal Recovery Permit for the listed shrimp. Koehler concluded that there was a high likelihood that the California freshwater shrimp was present within the action area due to the presence of excellent winter habitat (undercut banks) and good to excellent summer habitat (low flow and overhanging vegetation). Shelter and forage habitat for the listed shrimp was identified throughout the in-creek work area, though their occupation of the existing culverts and downstream concrete apron would likely be limited to movement. The available habitat and how the shrimp use it, is seasonally dependent. Huichica Creek flows diminish through the summer and early fall, transitioning aquatic conditions to shallow running riffles and various sized pools or pockets of slow to standing water. When the Service visited the proposed project footprint on September 23, 2016, flow through the culverts was minimal but the plunge pool beyond the apron jetties was large and deep enough to harbor an observed western pond turtle.

The Service believes that it is reasonable to conclude that the California freshwater shrimp may occur within the action area because: (1) the project is located within the species' range and current distribution; (2) the species has been documented within the action area; (3) there are habitat features within the construction footprint and the action area that provide unique microhabitat associated with the species' life history; (4) potential presence was supported by a biologist with California freshwater shrimp expertise; and (5) the biology and ecology of the animal.

California Red-Legged Frog

The action area is located with the range of the California red-legged frog. A map depicting the species' range is included in the Service's online profile for the species at http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=TD02D. The proposed
project is also within California red-legged frog Recovery Unit 3 (North Coast and North San Francisco Bay) (Service 2002).

Protocol California red-legged frog surveys were not conducted by Caltrans and to our knowledge, previous protocol surveys for the listed frog have not been conducted in the general vicinity. There are no CNDDB records for the California red-legged frog within 5 miles of the project footprint. Caltrans concluded that the species was likely present due to the location within its range and the presence of appropriate aquatic and upland habitats within the action area.

As described in the preceding baseline summary for the California freshwater shrimp, the creek provides habitat features, such as pools and vegetative cover that are also suitable for California red-legged frog presence. The riparian vegetation provides refuge, cover, favorable conditions for thermoregulation, and hosts potential prey. The creek provides much of the same with the addition of potential breeding habitat in years where hydrological conditions are favorable. The uplands within the action area include a narrow riparian corridor and extensive vineyard development with the potential to provide forage, refuge (mammal burrows and debris), and movement corridors between resource areas. There are other aquatic resources within 2 miles of the project footprint, including tributaries, wetlands, and agricultural water basins. Based on aerial photography, there are at least three agricultural basins, a stock pond, and ponded wetlands within 0.5 mile of the project footprint, the closest being within 0.25 mile.

The agricultural-related concerns discussed in the California freshwater shrimp section are also relevant for the California red-legged frog in terms of water quality, contamination of upland soils, and its adverse effects on development and prey availability.

Adult California red-legged frogs are highly mobile and have been documented to move more than 2 miles over upland habitat. The frog habitat within the action area has direct connectivity with suitable habitat adjacent to the project site and is well within the feasible movement distance to potential breeding and other resources vital to its life history.

The land adjacent to the proposed project is influenced by the use of the SR 121 transportation corridor. The ROW includes several associated features such as vehicle pullouts, overhead utilities, road signs, and a road shoulder that is subject to vegetation maintenance. These physical features along with traffic volume, traffic noise, exhaust, fluid leaks, invasive vegetation, and the threat of animal-vehicle collision have an adverse effect on the function of the neighboring habitat for both common and listed wildlife. This parallel band of disturbance is referred to as a "road effects zone."

The outward extent of this zone can vary with factors such as topography and the sensitivity of a given species to those effects. A spectrum of typical road effects are likely to negatively influence the suitability of the California red-legged frog habitat in and adjacent to the project footprint as well as the behavior of the species within their respective road effects zone.

The road effects zone applies to the California red-legged frog and in this case, road mortality is a likely for frogs that attempt to cross SR 121 or surrounding local roads. These baseline conditions likely create a risk for California red-legged frog that diminishes with distance from these roadways.

The Service believes that the California red-legged frog is reasonably certain to occur within the action area due to: (1) the project footprint being located within the species' range and current distribution; (2) the presence of suitable upland and aquatic habitat within the project footprint; (3) all the elements needed to support the species' life history are located within 0.25-mile of the project footprint; (4) the frog's ability to move long distances; and (5) the biology and ecology of the animal.
Effects of the Action

The direct effects of the proposed project are those effects occurring within the action area during construction of the proposed project. For this project much of the direct effects are associated with the loss of habitat for the two listed animals and construction-related disturbance. The effects of habitat loss were analyzed based on the term of the loss, restoration potential, and the associated changes to functional value. As a result, habitat loss was characterized as permanent, temporary, or prolonged temporary.

Permanent habitat loss was defined as those areas that will be converted to hardscape as a result of the project. Hardscape can retain some functional use. For instance, California red-legged frogs may still be able to move across these areas. Other hardscape features, such as the addition of vertical walls, can have a more drastic adverse effect to wildlife. However, conversion of landscape to hardscape is dramatic; there will be no restoration to baseline, and is therefore considered permanent.

Temporary habitat loss was considered for any landscape cover that will be restored to baseline habitat values (for the given species) within one year following the initial disturbance. Based on the link to the successful restoration timeline, the temporary habitat loss category typically applies to habitat types that are dominated by annual plant species or other situations that can become quickly established. For this project this includes ruderal, riparian, and riverine land cover. Despite when the restoration efforts begin relative to the initial disturbance, habitat types dominated by woody vegetation, such as riparian, woodland, and scrub land cover typically cannot be successfully restored to baseline values within one year.

Areas that will be subject to restoration efforts but will take greater than one year to be successfully restored to baseline ecological values are described as being affected by prolonged temporary habitat loss. This includes riparian habitat within the construction footprint that will not reach baseline ecological values for five or more years into the restoration effort. Despite the length of time needed to reach baseline, in many cases, areas subject to restoration can provide functional habitat for subject species. For instance, riparian areas may be occupied by annual plant growth, willow cuttings, and young plantings during the initial phase of restoration. This condition would likely provide some functional ecological value in terms of refugia and forage for the California freshwater shrimp, and the same plus moisture regulation for the California red-legged frog.

Indirect effects are the effects of the proposed project generally occurring later in time after construction has been completed (e.g., degradation of habitat due to the spread of invasive plant species; barriers to dispersal due to the installation of retaining walls). An interrelated activity is an activity that is part of the proposed project and depends on the proposed project for its justification. An interdependent activity is an activity that has no independent utility apart from the action under consideration.

Caltrans proposes to minimize construction-related effects by implementing the Conservation Measures included in the project description section of this Biological Opinion. Effective implementation of Conservation Measures will likely minimize effects to the California freshwater shrimp and California red-legged frog during construction but incidental take is still likely to occur. Therefore, the proposed project has the potential to result in a variety of adverse effects to these two listed species.

California Freshwater Shrimp
The proposed project activities have the potential to adversely affect California freshwater shrimp and their habitat due to the removal of riparian vegetation, dewatering, creek diversion, streambed destabilization, streambed reconstruction, and altering water quality. It has been noted in its recovery
plan that shrimp do not have life history characteristics that favor quick recovery following disturbances (Service 1998).

The project includes major reconstruction of 480 linear feet of Huichica Creek. Caltrans estimated that this will include approximately 0.72 acre within the creek (from the top of its outer bank). Instream construction activities will be limited to the summer season when California freshwater shrimp occupation of the streambed will be limited to those areas with remaining water. This seasonal work will limit the amount of available aquatic habitat within the work area, limiting the number of shrimp that may be directly affected by dewatering and ground activities, and make those in the work area less difficult to contain, capture, and relocate.

Dewatering of the project footprint has the greatest potential to strand, kill, or injure California freshwater shrimp. Caltrans will survey the area with the goal of capturing and relocating shrimp prior to dewatering. California freshwater shrimp are small, inconspicuous, and can take cover in areas that are difficult to fully inspect. They may also evade capture by retreating to inaccessible areas or moving throughout the large dewatering zone. Based on their small size and cryptic appearance, it is doubtful that all individuals will be located and successfully captured. Shrimp could also be entrained by water pump system and be injured or die during the dewatering process. Stranded shrimp will die due to exposure or predation during dewatering.

Shrimp are relatively delicate animals that can become injured during the capture and relocation effort. The likelihood of injury will be fairly dependent upon the experience and technique of the Service-Approved Biological Monitor. The Service-Approved Biological Monitor will select an appropriate release site prior to capture based on the hydrological conditions and other habitat suitability factors and perceived persistence of such through the remainder of the “dry” season. Successful relocation will depend on the appropriateness of the relocation location.

The 480 foot segment of river will be largely reconstructed resulting in an intentional redesign that will vary greatly from the baseline condition. The primary purpose of the redesign is to correct grade issues within the creek and reestablish fish passage. In the process, the work area will be dewatered, eliminating shrimp occupation or use of the aquatic habitat within the project footprint during two consecutive summer seasons. The species will not be able to use would-be summer habitat in the work zone during this time for shelter and foraging. It is unlikely that these actions would affect upstream and downstream movement during construction given the baseline barrier challenge posed by the existing bridge.

Major creek construction will occur during the second summer. The existing creek substrate (natural and artificial) will be replaced with variable sized rock, filling in steep grade changes, providing enhanced streambed stability, and creating a series of step pools. The inclusion of large boulders, fixed logs, and boulders is likely to create shrimp sheltering habitat that was not prevalent at baseline. The newly constructed shoreline will be planted and within 5 years, it is likely that overhanging vegetation and roots will grow and extend into the water, providing habitat for the shrimp.

The new spanning bridge structure will open up the creek to bank full width and replace the concrete apron and culverted bridge infrastructure with native substrate and riparian cover. This will allow for greater connectivity for the shrimp population up and downstream of SR 121 and restore habitat lost due to construction of the original bridge and subsequent scour control measures. Due to the channel construction, the build-up of sediment on the upstream side of the bridge will be removed or redistributed, minimizing the release of excess sediment downstream after flows are reestablished in the less impeded channel. Overall, the completed project should have benefit for the California freshwater shrimp, though there may be some adverse effects such as allowing movement of non-
native fish and other animals that would prey upon the listed shrimp and the step pool fish passage design may not be ideal for shrimp occupation and movement.

Removal of riparian vegetation with branches that overhang into the creek or trees that extend into creek would result in the loss of a micro-habitat feature that the listed shrimp depend on. There is a potential for trimmed overhanging parts to regrow and provide in-water refugia a year or more following the second and final year of construction. The effects of this action will depend on how far back vegetation is trimmed from the water's edge and the amount of edge vegetation that is trimmed. Removal of overhanging vegetation will result in a long-term loss of habitat. In time, other vegetation, including re-vegetation plantings can grow to fill these gaps and extend into the water, but multi-year loss of micro-habitat features can be significant for species such as the California freshwater shrimp that are limited in their distribution based on the availability of specific habitat elements. Loss of riparian vegetation can also cause water temperatures to rise and dissolved oxygen levels to fall, resulting in conditions that may not be optimal for their growth and reproduction.

The extent of the needed vegetation removal will not be determined until project construction has begun but Caltrans is committed to limiting trimming and removal to the minimum necessary to complete the project. Effective communication and oversight by the Service-Approved Biological Monitor will be critical in implementing this commitment.

The California freshwater shrimp also depend on the in-stream exposure of the roots of upland vegetation. Trimming and removal of riparian vines, understory, and trees are likely to adversely affect associated roots that emerge in the creek. Again, effective communication and oversight by the Service-Approved Biological Monitor during vegetation removal will be critical in preserving this micro-habitat element for the California freshwater shrimp.

It will take time to introduce organic matter into the newly constructed creekbed, however, material will wash down and enter from the bank and overhead. In the short term this can also result in less availability of aquatic food sources until this key primary production component of the river ecosystem is established.

The discharge of sediment laden water into the creek due to equipment and operation leaks and spills, erosion caused sedimentation; or uncontaminated material released during bridge demolition would likely degrade water quality and result in the contamination of shrimp habitat, and the death of California freshwater shrimp and their prey. Containment and stabilization of soil may be especially difficult for areas within the bed and bank of the creek where old structures, such as the culverts and concrete apron, will be excavated and removed and where new structures will be installed. Successful implementation of standard BMPs and a SWPPP will minimize the potential for such discharge and will provide a quick response strategy for containing and cleaning up a discharge.

*California Red-Legged Frog*

Construction activities could result in the killing, injuring, and disrupting juvenile and adult frogs in the action area. The project footprint includes riparian, wetland, riparian, and riparian land cover in which the frog could be encountered during construction.

Clearing or vegetation within the riparian corridor will daylight previously shaded areas, likely changing the micro climate below with increased exposure and decreased moisture. This could affect the movement and available cover sites for the frog. Removal of understory vegetation will result in the loss of foraging habitat and cover from predators and the elements. The ground disturbance associated with vegetation removal may result in exposure, straining, crushing, maiming, or
otherwise disturbing the California red-legged frog. The noise and vibration associated with the vegetation removal will be disruptive and may result in California red-legged frogs avoiding the action area, therefore modifying their behavior and creating a barrier to resource areas. Noise and vibration may also result in California red-legged frogs taking cover in conspicuous areas rather than fleeing potential harm. This will make them more difficult to find, avoid, and rescue from harm's way.

Educating project personnel will encourage compliance with the conservation measures and increase the possibility that California red-legged frogs in the work area will be identified and addressed appropriately for avoidance. Worker education is limited by the effectiveness of the presentation and the willingness of the construction personnel to participate in compliance.

Pre-construction surveys by a Service-Approved Biological Monitor will assist in clearing California red-legged frogs from the work areas prior to the introduction of a potential construction-related threat. Biological clearance of work areas prior to the start of each day's work and during construction will increase the chances of identifying frogs in the work area that would be susceptible to injury. Biological clearance of work areas is limited by the experience of the biologist, the complexity and abundance of potential cover sites, the small size and inconspicuous nature of the species, and the challenges of completing a thorough clearance given the construction schedule.

Despite being "cleared" prior to construction, California red-legged frogs can continue to move into the work site undetected. The project is within a creek and riparian corridor in which frogs would routinely move through as well as back and forth from the adjacent upland. Frogs may be actively moving around, though, or within the work area during the evening as well as when work is taking place. This places greater emphasis on thorough biological clearance of work areas and under staged equipment, under the plastic sheeting and gravel bags used in the coffer dam, and materials prior to the start of each day's activities.

Placement of cover boards may provide a relatively safer refuge option for California red-legged frogs that otherwise would have taken cover under equipment or project-related materials. The boards may increase the potential for the Service-Approved Biological Monitor to discover these frogs and other wildlife that are within active work areas, thereby decreasing the chance of injury.

Monitoring covering steep-walled excavations should minimize the potential for the California red-legged frog to be affected by predation, desiccation, entombment, or starvation. Proper trash disposal is often difficult to enforce and is a common non-compliance issue. Improperly disposed edible trash could attract predators, such as raccoons, crows, and ravens, to the site, which could subsequently prey on the listed frog.

If unrestricted, biologists and construction workers traveling to the action area from other project sites may transmit diseases by introducing contaminated equipment. The chance of a disease being introduced into a new area is greater today than in the past due to the increasing occurrences of disease throughout amphibian populations in California and the United States. It is possible that chytridiomycosis, caused by chytrid fungus, may exacerbate the effects of other diseases on amphibians or increase the sensitivity of the amphibian to environmental changes (e.g., water pH) that reduce normal immune response capabilities (Bosch et al. 2001, Weldon et al. 2004).

Discovery, capture, and relocation of individual California red-legged frogs may avoid injury or mortality due to construction activities; however, capturing and handling animals may result in stress and/or inadvertent injury during handling, containment, and transport.
California red-legged frogs and their prey could also be affected by contamination due to chemical or sediment discharge. Exposure pathways could include inhalation, dermal contact, direct ingestion, or secondary ingestion of contaminated soil, plants or prey species. Exposure to contaminants could cause short- or long-term morbidity, possibly resulting in reduced productivity or mortality. However, Caltrans proposes to reduce these risks by limiting the equipment used in the streambed to hand tools, implementing BMPs and the SWPPP that consist of refueling, oiling, or cleaning of vehicles and equipment a minimum of 50 feet from riparian and aquatic areas; installing oil rolls, straw waffles and/or silt fencing to capture sediment and prevent runoff or other harmful chemicals from entering the aquatic habitat; and locating staging, storage and parking areas away from aquatic habitat.

Caltrans' commitment to use erosion control devices other than mono-filament should be effective in avoiding the associated risk of entrapment that can result in death by predation, starvation, or desiccation (Stuart et al 2001).

The completed project is unlikely to increase the local risk of California red-legged frog mortality from vehicle collision. The culvert replacement is not likely to result in significant increases in traffic volume or speed. The completed project will not provide the California red-legged frog with greater access to the roadway or result in the addition of structures such as barriers that may result in greater risk of being stranded in the roadway increasing their risk of being killed. Likewise, the road effects zone described in the baseline section is unlikely to expand. Baseline conditions were restrictive to movement through the Huichica Creek riparian corridor. Replacement of the pipe culvert bridge with a span structure and natural-bottom crossing will increase the potential for California red-legged frogs to move up and down stream between resources within and adjacent to the Huichica Creek corridor and reduce the likelihood that frogs would cross SR 121 in order to make that move.

The completed project will likely improve baseline conditions by allowing less impeded hydrological conditions and increase connectivity for safe movement under SR 121 and of the riparian system. Restoration of the creekbed, including removal of concrete substrate, correcting scour and headcutting, riparian and riparian restoration, erosion control, and revegetation of the areas needed for access and work space is expected to improve the baseline upland and aquatic habitat values for the California red-legged frog within each year beyond project completion. Installed of riparian vegetation, various sized boulders, and drowned logs may begin providing some functional habitat component for the frog within a year of project completion but baseline habitat function is unlikely to be achieved until 5 to 20 years following construction.

Cumulative Effects

Cumulative effects include the effects of future State, Tribal, local or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the SR 121 Huichica Creek Bridge Replacement and Fish Passage Project are not considered in this section because they require separate consultation pursuant to section 7 of the Act. During this consultation, the Service did not identify any future non-Federal action that are reasonably certain to occur in the action area of the proposed project.

Conclusion

After reviewing the current status of the California freshwater shrimp and California red-legged frog, the environmental baseline for the action area, the effects of the proposed SR 121 Huichica Creek Bridge Replacement and Fish Passage Project, and the cumulative effects, it is the Service's biological opinion that SR 121 Huichica Creek Bridge Replacement and Fish Passage Project, as
proposed, is not likely to jeopardize the continued existence of these two species. The Service reached this conclusion because the project-related effects to the species, when added to the environmental baseline and analyzed in consideration of all potential cumulative effects, will not rise to the level of precluding recovery or reducing the likelihood of survival of the species based on the following: (1) successful implementation of the described Conservation Measures is likely to reduce the potential for proposed project activities to result in the disruption of normal California freshwater shrimp and California red-legged frog behavior or risk of injury; (2) habitat disturbed for access and work space will be restored to baseline levels; (3) the ground disturbing activities and new infrastructure will be located within and adjacent to the existing roadway; and (4) the culvert removal may provide long-term benefits for the species by enabling more natural hydrologic action and greater habitat connectivity.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harass is defined by Service regulations at 50 CFR 17.3 as an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering. Harm is defined by the same regulations as an act which actually kills or injures wildlife. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavior patterns, including breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(a)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

The measures described below are non-discretionary, and must be undertaken by the Caltrans so that they become binding conditions of any grant or permit issued to the applicant, as appropriate, for the exemption in section 7(a)(2) to apply. The Caltrans has a continuing duty to regulate the activity covered by this incidental take statement. If the Caltrans (1) fails to assume and implement the terms and conditions or (2) fails to require the applicant to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(a)(2) may lapse. In order to monitor the impact of incidental take, Caltrans must report the progress of the action and its impact on the species to the Service as specified in the incidental take statement (50 CFR §402.14(c)(3)).

Amount or Extent of Take

**California Freshwater Shrimp**

The Service anticipates that incidental take of the California freshwater shrimp will be difficult to detect because of its cryptic appearance and behavior, and the finding of an injured or dead individual is unlikely because of its relatively small body size and likelihood the carcass will be washed down stream. Losses of this species also may be difficult to quantify due to seasonal fluctuations in numbers, random environmental events, or additional environmental disturbances. There is a risk of harm, harassment, injury and mortality as a result of the proposed dewatering, bridge demolition and construction, degradation of suitable habitat, and capture and relocation efforts; therefore, the Service is authorizing take incidental to the proposed action as: (1) the capture and relocation of all California freshwater shrimp inhabiting the 480 linear foot dewatering zone; (2)
the harassment of all California freshwater shrimp within 500 feet up or downstream of the 480 foot long creek construction zone; and (3) the injury or mortality of one California freshwater shrimp within the action area.

*California Red-Legged Frog*

The Service anticipates that incidental take of the California red-legged frog will be difficult to detect due to their small size, wariness, and cryptic nature. The project footprint includes vegetative cover, rocks, and debris which provide cover for the California red-legged frog. Finding an injured or dead California red-legged frog is unlikely due to their relatively small body size, rapid carcass detection, and likelihood that the remains will be removed by scavenger or indistinguishable amongst the disturbed soil and debris. Losses of the California red-legged frog may also be difficult to quantify due to a lack of baseline survey data and seasonal/annual fluctuations in their numbers due to environmental or human-caused disturbances. There is a risk of harm, harassment, injury and mortality as a result of the proposed construction activities, the permanent loss/degredation of suitable habitat, and capture and relocation efforts; therefore, the Service is authorizing take incidental to the proposed action as: (1) the harassment of all California red-legged frogs within the action area; (2) the capture of all California red-legged frogs within the construction footprint; and (3) the injury or mortality of one adult or juvenile California red-legged frog.

Upon implementation of the following *Reasonable and Prudent Measures*, the incidental take of the California freshwater shrimp and California red-legged frog associated with the proposed project in proportion to the amount and type of take outlined above will become exempt from the prohibitions described under section 9 of the Act. No other forms of take are exempted under this opinion.

*Effect of the Take*

In the accompanying biological opinion, the Service determined that this level of anticipated take for the California freshwater shrimp and California red-legged frog are not likely to result in jeopardy to the species.

*Reasonable and Prudent Measure*

The Service has determined that the following reasonable and prudent measure is necessary and appropriate to minimize the effect of the action on the California freshwater shrimp and California red-legged frog. Caltrans will be responsible for the implementation and compliance with this measure:

1. Minimize the adverse effects to the California freshwater shrimp and California red-legged frog and its habitat in the action area by implementing their proposed project, including the conservation measures as described, with the following terms and conditions.

*Terms and Conditions*

In order to be exempt from the prohibitions of section 9 of the Act, Caltrans must ensure compliance with the following terms and conditions, which implement the reasonable and prudent measure described above. These terms and conditions are nondiscretionary:

1. The following *Terms and Conditions* implement *Reasonable and Prudent Measure* one (1):
a. Caltrans shall include a copy of the all relevant permits within the construction bid package of the proposed project. The Resident Engineer or their designee shall be responsible for implementing the Conservation Measures and Terms and Conditions of the Biological Opinion.

b. Approval request for Service Approved Biological Monitor shall include, at a minimum: (1) relevant education; (2) relevant training concerning California freshwater shrimp and California red-legged frog identification, survey techniques, handling individuals of different age classes, and handling of different life stages by a permitted biologist or recognized species expert authorized for such activities by the Service; (3) a summary of field experience conducting requested activities (to include project/research information); (4) a summary of Biological Opinions under which they were authorized to work with the California freshwater shrimp and California red-legged frog and at what level (such as construction monitoring versus handling), this will also include the names and qualifications of persons under which the work was supervised as well as the amount of work experience on the actual project; (5) a list of Federal Recovery Permits 10(a)(1)(A)) held or under which they are authorized to work with the species (to include permit number, authorized activities, and name of permit holder); and (6) any relevant professional references with contact information. No project construction will begin until Caltrans has received written Service approval for biologists to conduct specified activities.

c. The Service Approved Biological Monitor(s) shall permanently move, from the project site, any aquatic exotic wildlife species, such as non-native fish, bullfrogs, and crayfish, to the extent possible.

d. Rodenticides shall not be used at the project site. Herbicides shall only be used if needed to control noxious weeds.

e. Each California red-legged frog encounter shall be treated on a case-by-case basis in coordination with the Service but general guidance is as follows: (1) leave the non-injured animal if it is not in danger or (2) move the animal to a nearby location if it is in danger.

These two options are further described as follows:

1) When a California red-legged frog is encountered in the action area the first priority is to stop all activities in the surrounding area that have the potential to result in the harm, harassment, injury, or death of the individual. Then the monitor needs to assess the situation in order to select a course of action that will minimize adverse effects to the individual. Contact the Service once the site is secure. The contacts for this situation are Ryan Olah (ryan_olah@fws.gov) or John Cleckler (john_cleckler@fws.gov). They can also be reached at (916) 414-6623 and (916) 414-6639, respectively. Contact the Service prior to the start of construction to confirm the status of this contact information.

The first priority is to avoid contact with the animal and allow it to move out of the project footprint and hazardous situation on its own to a safe location. The animal should not be picked up and moved because it is not moving fast enough or it is inconvenient for the construction schedule. This guidance only applies to situations where an animal is encountered on the move during conditions that:
make their upland travel feasible. This does not apply to animals that are uncovered or otherwise exposed or in areas where there is not sufficient adjacent habitat to support the life history of the California red-legged frog should they move outside the construction footprint.

Avoidance is the preferred option if the animal is not moving and is using aquatic habitat or is within some sort of burrow or other refuge. The area should be well masked for avoidance by construction and a Service-Approved Biological Monitor should be assigned to the area when work is taking place nearby.

2) The animal should be captured and moved when it is the only option to prevent its death or injury.

If appropriate habitat is located immediately adjacent to the capture location then the preferred option is short distance relocation to that habitat. This must be coordinated with the Service but the general guidance is the frog should not be moved outside of the area it would have traveled on its own. Captured frogs should be released within the creek riparian corridor or as close to their capture location as feasible possible for their continued safety. Under no circumstances should a frog be relocated to another property without the owner's written permission. It is Caltrans' responsibility to arrange for that permission.

The release must be coordinated with the Service and will depend on where the individual was found and the opportunities for nearby release. In most situations the release location is likely to be into the mouth of a small burrow or other suitable refugia and in certain circumstances pools without non-native predators may be suitable.

Only Service-approved biologists for the project can capture California red-legged frogs. Nets or bare hands may be used to capture California red-legged frogs. Soaps, oils, creams, lotions, repellents, or solvents of any sort cannot be used on hands within 2 hours before and during periods when they are capturing and relocating California red-legged frogs. To avoid transferring disease or pathogens between sites during the course of surveys or handling of amphibians, Service-approved biologists must use the following guidance for disinfecting equipment and clothing. These recommendations are adapted from the Declining Amphibian Population Task Force's Code (http://www.open.ac.uk/dapf/).

i. All dirt and debris, including mud, silt, plant material (including fruits and seeds), and algae, must be removed from nets, traps, boots, vehicle tires and all other surfaces that have come into contact with water and/or an amphibian. Cleaned items should be rinsed with fresh water before leaving each site.

ii. Boots, nets, traps, etc., must then be scrubbed with either a 70 percent ethanol solution, a bleach solution (0.5 to 1.0 cup of bleach to 1.0 gallon of water), QUAT 128 (quaternary ammonium, use 1:60 dilution), or a 6 percent sodium hypochlorite 3 solution and rinsed clean with water between sites. Avoid cleaning equipment in the immediate vicinity of a pond or wetland. All traces of the disinfectant must be removed before entering the next aquatic habitat.
iii. Used cleaning materials (liquids, etc.) must be disposed of safely, and if necessary, taken back to the lab for proper disposal.

iv. Service-approved biologists must limit the duration of handling and captivity. While in captivity, California red-legged frogs shall be kept in a cool, dark, moist, aerated environment, such as a clean and disinfected bucket or plastic container with a damp sponge. Containers used for holding or transporting should not contain any standing water.

f. Caltrans shall provide a restoration and revegetation plan for the project to be reviewed and approved by the Service no later than sixty (60) calendar days prior to the initial groundbreaking at the project site. The plan will include, but will not be limited to: schedule, methodology, a list of the seed mixes and container plants, plant material source, irrigation, maintenance schedule, monitoring program, success criteria, control of invasive, noxious weeds, reestablishment of overhanging vegetation, and remediation and adaptive management. The planting assemblage will include native trees, shrubs, and vines appropriate for the riparian corridor. A revegetation status and success report will be submitted on or before December 31 of each year monitoring is conducted.

The revegetation plan will include a photo monitoring plan. The plan will include, but is not limited to, the following:

1) An adequate number of photo monitoring stations will be established to provide representative views of project restoration and construction activities. Each station will provide a representative panoramic view of the restoration footprint. Caltrans will ensure that photo monitoring stations numbers and locations are sufficient to document temporary effects restoration success.

2) Establishment and operation of photo monitoring at all stations will occur prior to vegetation clearing. Baseline photographs will be taken during the spring growing season prior to construction. Following the completion of ground disturbance, photo documentation will be conducted quarterly to document restoration relative to four seasons. Photo documentation will conclude when the Service has agreed that success criteria have been met.

3) Photo monitoring station locations will be provided to the Service in an acceptable geographic format with the coordinate system identified.

4) If the Service or the biological monitor(s) determines that additional monitoring stations are necessary, the locations will be added to the inventory of photo monitoring stations prior to the date of the next photo documentation.

5) During each photo monitoring cycle all stations will be visited within a 2 day period.

6) At the conclusion of restoration, the acreage of restored areas will be tabulated and provided to the Service. The extent of restoration will be delineated with a handheld GPS device and a trackfile provided to the Service Representative.

**Reporting Requirements:**

In order to monitor whether the amount or extent of incidental take anticipated from implementation of the project is approached or exceeded, Caltrans shall adhere to the following
reporting requirements. Should this anticipated amount or extent of incidental take be exceeded, Caltrans must reinstitute formal consultation as per 30 CFR 402.16.

1. Notification of injured or dead listed species will be made to the Coast-Bay Division Chief of the Endangered Species Program at the Sacramento Fish and Wildlife Office (SFWO) at (916) 414-6623. When an injured or dead individual of the listed species is found, Caltrans shall follow the steps outlined in the following Disposition of Individuals Taken section.

2. Sightings of any listed or sensitive animal species should be reported to the CNDDDB (http://www.dfg.ca.gov/biogeodata/cnddb/).

3. Construction compliance reports will be addressed to the Coast-Bay Division Chief of the Endangered Species Program at the SFWO.

4. Caltrans shall submit post-construction compliance reports prepared by the Service-approved biologist to the Service within 60 calendar days following completion of each construction season or within 60 calendar days of any break in construction activity lasting more than 60 calendar days. This report shall detail (1) dates that relevant project activities occurred; (2) pertinent information concerning the success of the project in implementing avoidance and minimization measures; (3) an explanation of failure to meet such measures, if any; (4) known project effects on the California freshwater shrimp and California red-legged frog; (5) occurrences of incidental take of any listed species; (6) documentation of employee environmental education; and (7) other pertinent information.

Disposition of Individuals Taken
Injured listed species must be cared for by a licensed veterinarian or other qualified person(s), such as the Service-approved biologist. Dead individuals must be sealed in a resealable plastic bag containing a paper with the date and time when the animal was found, the location where it was found, and the name of the person who found it, and the bag containing the specimen frozen in a freezer located in a secure site, until instructions are received from the Service regarding the disposition of the dead specimen. The Service contact person is the Coast-Bay Division Chief of the Endangered Species Program at the SFWO at (916) 414-6623.

CONSERVATION RECOMMENDATIONS
Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information. The Service recommends the following actions:

1. Caltrans District 4 should work with the Service to develop a conservation strategy that would identify the current safe passage potential along Bay Area highways and the areas where safe passage for wildlife could be enhanced or established.

2. Caltrans should assist the Service in implementing recovery actions identified in the California Freshwater Shrimp Recovery Plan (Service 1998) and the Recovery Plan for the California Red-legged Frog (Service 2002).
Ms. Joan Callon

3. Caltrans should consider participating in the planning for a regional habitat conservation plan for the California freshwater shrimp and California red-legged frog, other listed species, and at-risk species.

4. Caltrans should consider establishing functioning preservation and creation conservation banking systems to further the conservation of the California freshwater shrimp and California red-legged frog. Such banking systems also could be utilized for other required mitigation (i.e., seasonal wetlands, riparian habitats, etc.) where appropriate. Efforts should be made to preserve habitat along roadways in association with wildlife crossings.

In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or benefiting listed species or their habitats, the Service requests notification of the implementation of any conservation recommendations.

REINITIATION--CLOSING STATEMENT

This concludes formal consultation on the SR 121 Huichica Creek Bridge Replacement and Fish Passage Project. As provided in 50 CFR §402.16, reinitiation of formal consultation is required and shall be requested by the Federal agency or by the Service where discretionary Federal agency involvement or control over the action has been retained or is authorized by law and: (a) if the amount or extent of taking specified in the incidental take statement is exceeded; (b) if new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered; (c) if the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the biological opinion; or (d) if a new species is listed or critical habitat designated that may be affected by the identified action.

If you have questions concerning this consultation or implementation of its measures, please contact John Cleckler, Caltrans Liaison, john_cleckler@fws.gov, (916) 414-6639 or Ryan Olah, Coast-Bay Division Chief, ryan_olah@fws.gov, (916) 414-6623, at the letterhead address, by telephone, or by e-mail.

Sincerely,

[Signature]

Jennifer M. Norris, Ph.D
Field Supervisor

cc:
Robert Stanley, California Department of Fish and Wildlife, Napa, California
John Yeakel and Nicholas Torres, Caltrans District 4, Oakland, California
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Ms. JoAnn Cullom


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Personal Communication


Appendix I – NMFS Biological Opinion
Jo Ann Cullum, Chief  
Office of Biological Sciences and Permits  
California Department of Transportation  
P.O. Box 23660, MS-8E  
Oakland, California 94623

Re: Endangered Species Act Section 7(a)(2) Biological Opinion for the State Route 121 Huichica Creek Bridge Replacement Project

Dear Ms. Cullum:

Thank you for the California Department of Transportation's (Caltrans) letter of September 29, 2017, requesting initiation of consultation with NOAA's National Marine Fisheries Service (NMFS) pursuant to section 7 of the Endangered Species Act of 1973 (ESA) (16 U.S.C. 1531 et seq.) for the State Route 121 Huichica Creek Bridge Replacement Project in Napa County, California.

The enclosed biological opinion is based on our review of Caltrans' proposed project and describes NMFS' analysis of potential effects on Central California Coast (CCC) steelhead (Oncorhynchus mykiss) and designated critical habitat in accordance with section 7 of the ESA. In the enclosed biological opinion, NMFS concludes that the project is not likely to jeopardize the continued existence of this species; nor is it likely to adversely modify critical habitat. However, NMFS anticipates that take of CCC steelhead may occur. An incidental take statement which applies to this project with non-discretionary terms and conditions is included with the enclosed biological opinion.

Thank you, also, for your request for consultation pursuant to the essential fish habitat (EFH) provisions in Section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA) (16 U.S.C. 1855(b)) for this action. However, after reviewing the proposed action, we concluded that it would not adversely affect EFH, therefore, no EFH consultation is required.

1 Pursuant to 23 USC 327, and through a series of Memorandum of Understandings beginning June 7, 2007, the Federal Highway Administration (FHWA) assigned and Caltrans assumed responsibility for compliance with Section 7 of the federal Endangered Species Act (ESA) and the Magnuson-Stevens Fishery Conservation and Management Act (MSA) for federally-funded highway projects in California. Therefore, Caltrans is considered the federal action agency for consultations with NMFS for federally funded projects involving FHWA. Caltrans proposes to administer federal funds for the implementation of the proposed project. Thus, per the aforementioned MOU, Caltrans is considered the federal action agency for this project.
We completed pre-dissemination review of this biological opinion using standards for utility, integrity, and objectivity in compliance with applicable guidelines issued under the Data Quality Act (section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001, Public Law 106-554). The biological opinion will be available through NMFS' Public Consultation Tracking System [https://pets.nmfs.noaa.gov/pets-web/homepage.pets]. A complete record of this consultation is on file at the NMFS North-Central Coast Office in Santa Rosa, California.

Please contact Darren Howe at (707) 575-3152 or via e-mail at Darren.Howe@noaa.gov if you have any questions concerning this section 7 consultation, or if you require additional information.

Sincerely,

[signature]

Barry A. Thom
Regional Administrator

Enclosure

cc: Copy to file ARN 151422WCR2018SR00006
    Copy to Chron File

\footnote{Once on the PCTS homepage, use the following PCTS tracking number within the Quick Search column: WCR 2018-8643.}
Endangered Species Act (ESA) Section 7(a)(2) Biological Opinion for the
State Route 121 Huichica Creek Bridge Replacement Project

NMFS Consultation Number: WCR-2018-8643

Action Agency: California Department of Transportation (Caltrans)

Affected Species and NMFS' Determinations:

<table>
<thead>
<tr>
<th>ESA-Listed Species</th>
<th>Status</th>
<th>Is Action Likely to Adversely Affect Species or Critical Habitat?</th>
<th>Is Action Likely To Jeopardize the Species?</th>
<th>Is Action Likely To Destroy or Adversely Modify Critical Habitat?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central California Coast steelhead distinct population segment (DPS) (O. mykiss)</td>
<td>Threatened</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

Consultation Conducted By: National Marine Fisheries Service, West Coast Region

Issued By: Barry A. Thom
Regional Administrator

Date: MAR 15 2018

1
I. INTRODUCTION

This Introduction section provides information relevant to the other sections of this document and is incorporated by reference into Sections 2 and 3 below.

1.1 Background

NOAA’s National Marine Fisheries Service (NMFS) prepared the biological opinion (opinion) and incidental take statement (ITS) portions of this document in accordance with section 7(b) of the Endangered Species Act (ESA) of 1973 (16 USC 1531 et seq.), and implementing regulations at 50 CFR 402.

We completed pre-dissemination review of this document using standards for utility, integrity, and objectivity in compliance with applicable guidelines issued under the Data Quality Act (DQA) (section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001, Public Law 106-554). The document will be available through NMFS’ Public Consultation Tracking System (PCTS) (https://pcts.nmfs.noaa.gov/pcts-web/homepage.pcts). A complete record of this consultation is on file at the NMFS North-Central Coast Office in Santa Rosa, California.

1.2 Consultation History

By letter dated September 29, 2017, California Department of Transportation (Caltrans) requested initiation of formal consultation with NMFS for the State Route 121 Hulichia Creek Bridge Replacement Project in Napa County, California (Project). Caltrans’ September 29, 2017, letter transmitted Caltrans’ Biological Assessment for the Project and conveyed Caltrans’ determination that the Project was likely to adversely affect threatened Central California Coast (CCC) steelhead (Oncorhynchus mykiss) and their critical habitat. NMFS reviewed the information, and determined that sufficient information to initiate consultation had been provided via Caltrans’ September 29, 2017, letter to NMFS. NMFS notified Caltrans of this September 29, 2017, consultation initiation date via email on December 1, 2017. In January 2018, via email and telephone communications, Caltrans provided additional information to NMFS, clarifying details of Caltrans’ proposed action. During these communications, NMFS reaffirmed December 1, 2017, as the consultation initiation date.

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1 Once on the PCTS homepage, use the following PCTS tracking number within the Quick Search column: WCR-2018-864.

2 Pursuant to 23 USC 327, and through a series of Memorandum of Understandings beginning June 7, 2007, the Federal Highway Administration (FHWA) assigned and Caltrans assumed responsibility for compliance with Section 7 of the Endangered Species Act (ESA) and the Magnuson-Stevens Fishery Conservation and Management Act (MSA) for federally-funded highway projects in California. Therefore, Caltrans is considered the federal action agency for consultations with NMFS for federally funded projects involving FHWA. Caltrans proposes to administer federal funds for the implementation of the proposed project. Thus, per the aforementioned MOU, Caltrans is considered the federal action agency for this project.
1.3 Proposed Federal Action

"Action" means all activities or programs of any kind authorized, funded, or carried out, in whole or in part, by Federal agencies (50 CFR 402.02).

Caltrans proposes to implement the Project to replace an existing culverted crossing with a single-span bridge and enhance 480 feet of creek channel with improved fish passage and instream habitat at the SR 121 crossing of the mainstem of Huichica Creek (identified hereafter as mainstem Huichica Creek) at latitude/longitude 38.255875°/122.367156° (WGS 84). The existing condition includes three culverts occupying approximately 36 feet of channel and a steep concrete lined apron downstream of the culverts that occupies approximately 75 feet of channel (approximately 111 feet combined) and includes an approximately 6-8-foot-high vertical step in the bed profile which is a significant barrier to steelhead migration. All structures occupy the entire channel width. The proposed project will remove the culverts and apron and replace these with an approximately 45-foot-wide free-span bridge and approximately 480 feet of natural-bottomed channel enhanced with boulders, large woody debris, coir logs, and riparian plantings to provide a stable channel that meets NMFS' fish passage guidelines (NMFS 2001) and provides complex habitat. This 480 feet of enhanced channel will occupy approximately 350 feet of channel downstream of the bridge and 130 feet of channel upstream of the bridge (both distances as measured from the centerline of the new bridge).

The proposed bridge is a precast bridge that will span the creek and will be supported on abutments that will be installed within the streambanks on either side of the creek (one abutment on each side of the creek). In order to maintain traffic flow, construction will occur in phases with one half of the bridge (an upstream half and a downstream half) being constructed at a time above the existing culverts. Once the new bridge is in place, concrete and asphalt will be placed on the new road surface, the existing culverts and apron will be removed, and channel enhancements will be constructed. These actions will occur over two years, between June 15 and October 15 in 2020 and 2021. Heavy equipment and in-channel work will be required for project construction. Equipment and materials will be staged within upland areas along the creek and temporary access ramps will be graded into the bank and adjacent upland areas to provide access to the channel bed. Surface streamflow is likely to be present during construction and dewatering and fish handling are proposed. Dewatering will be achieved by constructing temporary cofferdams and directing flows into one or more bypass pipes. The dewatering systems will be removed at the end of the first construction season and reinstalled at the beginning of the second construction season.

The project includes avoidance and minimization measures that will be implemented before, during, and after construction to prevent and minimize project-related impacts to CCC steelhead, and their habitat. These include measures to: ensure proper handling and relocation of CCC steelhead during dewatering; limit the extent of the work area; implement erosion control best management practices (BMPs); prevent introduction of contaminants (including construction debris and materials) into the stream; ensure the complete removal and proper disposal of all construction materials and waste; and monitoring and reporting to ensure establishment of instream and riparian habitat.3

3 More detailed descriptions of these measures can be found in Caltrans' Biological Assessment for the Project which was transmitted to NMFS with Caltrans' September 29, 2017, consultation request letter.
“Interrelated actions” are those that are part of a larger action and depend on the larger action for their justification. “Interdependent actions” are those that have no independent utility apart from the action under consideration (50 CFR 402.02). NMFS does not anticipate any interrelated or interdependent actions associated with the proposed action.

2. ENDANGERED SPECIES ACT: BIOLOGICAL OPINION AND INCIDENTAL TAKE STATEMENT

The ESA establishes a national program for conserving threatened and endangered species of fish, wildlife, plants, and the habitat upon which they depend. As required by section 7(a)(2) of the ESA, each Federal agency must ensure that its actions are not likely to jeopardize the continued existence of endangered or threatened species, or adversely modify or destroy their designated critical habitat. Per the requirements of the ESA, Federal action agencies consult with NMFS and section 7(b)(3) requires that, at the conclusion of consultation, NMFS provides an opinion stating how the agency’s actions would affect listed species and their critical habitats. If incidental take is reasonably certain to occur, section 7(b)(4) requires NMFS to provide an ITS that specifies the impact of any incidental taking and includes non-discretionary reasonable and prudent measures (RPMs) and terms and conditions to minimize such impacts.

2.1 Analytical Approach

This biological opinion includes both a jeopardy analysis and an adverse modification analysis. The jeopardy analysis relies upon the regulatory definition of “to jeopardize the continued existence of” a listed species, which is “to engage in an action that would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species” (50 CFR 402.02). Therefore, the jeopardy analysis considers both survival and recovery of the species.

The adverse modification analysis considers the impacts of the Federal action on the conservation value of designated critical habitat. This biological opinion relies on the definition of “destruction or adverse modification”, which “means a direct or indirect alteration that appreciably diminishes the value of critical habitat for the conservation of a listed species”. Such alterations may include, but are not limited to, those that alter the physical or biological features essential to the conservation of a species or that preclude or significantly delay development of such features” (50 CFR 402.02).

We use the following approach to determine whether a proposed action is likely to jeopardize listed species or destroy or adversely modify critical habitat:

- Identify the rangewide status of the species and critical habitat expected to be adversely affected by the proposed action.
- Describe the environmental baseline in the action area.
• Analyze the effects of the proposed action on both species and their habitat using an "exposure-response-risk" approach.
• Describe any cumulative effects in the action area.
• Integrate and synthesize the above factors by: (1) Reviewing the status of the species and critical habitat; and (2) adding the effects of the action, the environmental baseline, and cumulative effects to assess the risk that the proposed action poses to species and critical habitat.
• Reach a conclusion about whether species are jeopardized or critical habitat is adversely modified.
• If necessary, suggest a RPA to the proposed action.

For critical habitat, NMFS determines the range-wide status of critical habitat by examining the condition of its physical or biological features (also called "primary constituent elements" or PCEs) - which were identified when critical habitat was designated. The new critical habitat regulations (81 FR 7214, Feb. 11, 2016, codified at 50 CFR 402.02) replace this term with physical or biological features (PBFs). The shift in terminology does not change the approach used in conducting a "destruction or adverse modification" analysis, which is the same regardless of whether the original designation identified primary constituent elements, physical or biological features, or essential features. In this biological opinion, we use the term PBF to mean PCE or essential feature, as appropriate for the specific critical habitat. Species and critical habitat status are discussed in section 2.2 Rangewide Status of the Species and Critical Habitat.

To conduct the assessment, NMFS examined an extensive amount of information from a variety of sources. Detailed background information on the biology and status of listed species and critical habitat has been published in a number of documents including peer reviewed scientific journals, primary reference materials, and governmental and non-governmental reports. Additional information regarding the effects of the project’s actions on the listed species in question, their anticipated response to those actions, and the environmental consequences of the actions as a whole was formulated from the aforementioned resources, and from information acquired via email messages, telephone conversations, and a site visit (see 1.2 Consultation History). For information that has been taken directly from published, citable documents, those citations have been referenced in the text and listed at the end of this document.

2.2 Rangewide Status of the Species and Critical Habitat

This opinion examines the status of CCC steelhead, likely to be adversely affected by the proposed action. The status is determined by the level of extinction risk that CCC steelhead face, based on parameters considered in documents such as recovery plans, status reviews, and listing decisions. This informs the description of the species’ likelihood of both survival and recovery. The species status section also helps to inform the description of the species’ current "reproduction, numbers, or distribution" as described in 50 CFR 402.02. The opinion also examines the condition of critical habitat throughout the designated area, evaluates the conservation value of the various watersheds and coastal and marine environments that make up the designated area, and discusses the current function of the essential PBFs that help to form that conservation value.
2.2.1 Species Description, Life History, and Status

This biological opinion analyzes the effects of the federal action on the following Federally-listed species (Distinct Population Segment [DPS]) and designated critical habitat:

**CCC steelhead DPS**  
Threatened (January 5, 2006; 71 FR 834)  
Critical habitat (September 2, 2005; 70 FR 52488).

The CCC steelhead DPS includes steelhead in coastal California streams from the Russian River to Aptos Creek, and the drainages of Suisun Bay, San Pablo Bay, and San Francisco Bay. CCC steelhead occur in Hurlchica Creek and are expected to be present in the action area during construction. The action area includes critical habitat for CCC steelhead (70 FR 52488; September 2, 2005).

2.2.1.1 CCC Steelhead General Life History

Steelhead are anadromous fish, spending time in both fresh- and saltwater. The maximum lifespan of a steelhead is approximately nine years (Moyle 2002). Steelhead possess a complex life history requiring successful completion and transition through various life stages in marine and freshwater environments (e.g., spawning and outmigration, egg-to-fry emergence, juvenile rearing, smolt outmigration [emigration] and ocean survival). Spawning typically occurs during the winter and spring, smolt emigration typically occurs late winter through spring, and rearing of juveniles may take place throughout the year if sufficient rainfall provides adequate streamflow and habitat in the summer months.

Steelhead may spawn one to four times over their life. Eggs (laid in gravel nests called redds), alevins (gravel dwelling hatchlings), fry (juveniles newly emerged from stream gravels), and young juveniles all rear in freshwater until they become large enough to emigrate to the ocean to finish rearing and maturing to adults. Eggs incubate and emerge in about three weeks (depending on water temperature), and the alevins remain in small spaces between gravels before entering the stream water column. Although variability occurs in coastal California, juveniles usually spend one to two years in freshwater, then smolt and emigrate to the ocean, using an estuary for acclimation to saltwater and as a migration corridor. They usually spend one to three years in the ocean (usually two years in the Pacific Southwest) (Barnhart 1986), where they mature into adults before returning to their natal stream to spawn.

Steelhead fry rear in edgewater habitats and move gradually into pools and riffles as they grow larger. Cover is an important habitat component for juvenile steelhead, both as a velocity refuge and as a means of avoiding predation (Mechan and Bjornn 1991, Shrivell 1994). Steelhead, however, tend to use riffles and other habitats not typically associated with instream cover during summer rearing more than other salmonids. Young steelhead feed on a wide variety of aquatic and terrestrial insects, and emerging fry are sometimes preyed upon by older juveniles.

Water temperature influences juvenile steelhead population density, swimming ability, oxygen consumption, feeding success, metabolism, growth, and habitat use (NMFS 2016 citing Everest
and Chapman 1972; Hokanson et al. 1977; Wurstbaugh and Davis 1977; Moore 1980; Smith and Li 1983; Barnhart 1986; Balz et al. 1987; Cech et al. 1990; Sommer et al. 2001; Myrick and Cech 2002; Myrick and Cech 2005; Bell et al. 2011). Optimal temperatures for steelhead growth range between 12 and 19 degrees (°) Celsius (°C) and suitable temperatures for steelhead parr to smolt transformation and out-migration range between 10 and 17°C with temperatures less than 15°C considered most optimal (NMFS 2016 citing Hokanson et al. 1977; Wurstbaugh and Davis 1977; Zedonis and Newcomb 1997; Moyle 2002; Myrick and Cech 2005). Seasonal and diurnal temperature fluctuations are important for steelhead growth and survival—prolonged exposure to warm temperatures with low flows typically results in reduced growth and survival, and prolonged exposure to temperatures exceeding 25°C is usually lethal (NMFS 2016 citing Hokanson et al. 1977; Busby et al. 1996; Moyle 2002; McCarthy et al. 2009). However, steelhead are more tolerant of warm water than other salmonid species, are capable of successful growth in warm but productive dry season flows, and can survive short periods up to 29°C with saturated dissolved oxygen concentrations and abundant food (NMFS 2016; Moore 1980; Smith and Li 1983; Boughton et al. 2007; Spina 2007; Beakes et al. 2010; Casagrande 2010; Bell et al. 2011; Slout and Osterhak 2013).

2.2.2 Status of CCC Steelhead DPS

In this opinion, NMFS assesses four population viability parameters to help us understand the status of CCC steelhead DPS and the population’s ability to survive and recover. These population viability parameters are: abundance, population growth rate, spatial structure, and diversity (McElhaney et al. 2000). While there is insufficient information to evaluate these population viability parameters in a thorough quantitative sense, NMFS has used existing information to determine the general condition of the CCC steelhead DPS and factors responsible for the current status of the CCC steelhead DPS.

We use these population viability parameters as surrogates for numbers, reproduction, and distribution, the criteria found within the regulatory definition of jeopardy (50 CFR 402.20). For example, the first three parameters are used as surrogates for numbers, reproduction, and distribution. We relate the fourth parameter, diversity, to all three regulatory criteria. Numbers, reproduction, and distribution are all affected when genetic or life history variability is lost or constrained, resulting in reduced population resilience to environmental variation at local or landscape-level scales.

Historically, approximately 70 populations of steelhead existed in the CCC steelhead DPS (Spence et al. 2008, Spence et al. 2012). Many of these populations (about 37) were independent, or potentially independent, meaning they had a high likelihood of surviving for 100 years absent anthropogenic impacts (Bjorkstedt et al. 2005). The remaining populations were dependent upon immigration from nearby CCC steelhead DPS populations to ensure their viability (McElhaney et al. 2000, Bjorkstedt et al. 2005).

* Population as defined by Bjorkstedt et al. 2005 and McElhaney et al. 2000 as, in brief summary, a group of fish of the same species that spawn in a particular locality at a particular season and does not interbreed substantially with fish from any other group. Such fish groups may include more than one stream. These authors use this definition as a starting point from which they define four types of populations (not all of which are mentioned here).
While historical and present data on abundance are limited, CCC steelhead numbers are substantially reduced from historical levels. A total of 94,000 adult steelhead were estimated to spawn in the rivers of this DPS in the mid-1960s, including 50,000 fish in the Russian River - the largest population within the DPS (Busby et al. 1996). Abundance estimates for smaller coastal streams in the DPS indicate low but stable levels with recent estimates for several streams (Lagunitas, Waddell, Scott, San Vicente, Pudding, Caspar, creeks) of individual run sizes of 500 fish or less (62 FR 43937). Some loss of genetic diversity has been documented and attributed to previous among-basin transfers of stock and local hatchery production in interior populations in the Russian River (Bjorkstedt et al. 2005). In San Francisco Bay streams, reduced population sizes and fragmentation of habitat likely also led to loss of genetic diversity in these populations. 


CCC steelhead have experienced serious declines in abundance and long-term population trends suggest a negative growth rate. This indicates the DPS may not be viable in the long-term. DPS populations that historically provided enough steelhead immigrants to support dependent populations may no longer be able to do so, placing dependent populations at increased risk of extinction. Recent status reviews and return data indicate an ongoing potential for the DPS to become endangered in the future. The 2005 status review concluded that steelhead in the CCC steelhead DPS remain “likely to become endangered in the foreseeable future” (Good et al. 2005). In 2006 NMFS issued a final determination that the CCC steelhead DPS is a threatened species, as previously listed (71 FR 834). A CCC steelhead viability assessment completed in 2008 concluded that populations in watersheds that drain to San Francisco Bay are highly unlikely to be unviable, and that the limited information available did not indicate that any other CCC steelhead populations could be demonstrated to be viable (Spence et al. 2008). Adult CCC steelhead migrant return data for the 2007/08, 2008/09, and 2009/10 years showed a decline in returning adults across their range compared to the previous ten years (Jeffrey Jahn, personal communication, 2010). NMFS determined in 2011 that available information available since the 2005 status review did not indicate a change in extinction risk (Williams et al. 2011, Harrison 2011), and the most recent status update completed in 2016 (Howe 2016) concludes that the CCC steelhead DPS remains “likely to become endangered in the foreseeable future”, as new and additional information available since the 2011 review does not appear to suggest a change in extinction risk.

2.2.3 Status of CCC Steelhead Critical Habitat

In designating critical habitat, NMFS considers the following requirements of the species: 1) space for individual and population growth, and for normal behavior; 2) food, water, air, light, minerals, or other nutritional or physiological requirements; 3) cover or shelter; 4) sites for spawning, reproduction, and rearing offspring; and, generally, 5) habitats that are protected from disturbance or are representative of the historic geographical and ecological distributions of this species (50 CFR 424.12(b)). In addition to these factors, NMFS also focuses on Physical or

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1 Visible populations have a high probability of long-term persistence (~ 100 years).
Biological Features (PBF)\(^9\) and/or essential habitat types within the designated area that are essential to the conservation of the species and that may require special management considerations or protection (81 FR 7214).

PBF's for CCC steelhead critical habitat, and their associated essential features within freshwater include:

1. freshwater spawning sites with water quantity and quality conditions and substrate supporting spawning, incubation and larval development;
2. freshwater rearing sites with:
   a. water quantity and floodplain connectivity to form and maintain physical habitat conditions and support juvenile growth and mobility;
   b. water quality and forage supporting juvenile development; and
   c. natural cover such as shade, submerged and overhanging large wood, log jams and beaver dams, aquatic vegetation, large rocks and boulders, side channels, and undercut banks;
3. freshwater migration corridors free of obstruction and excessive predation with water quantity and quality conditions and natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, side channels, and undercut banks supporting juvenile and adult mobility and survival.

The condition of CCC steelhead critical habitat, specifically its ability to provide for their conservation, has been degraded from conditions known to support viable salmonid populations. NMFS has determined that currently depressed population conditions are, in part, the result of the following human-induced factors affecting critical habitat:\(^a\) logging, agriculture, mining, urbanization, stream channelization and bank stabilization, dams, wetland loss, and water withdrawals (including unscreened diversions for irrigation). Habitat impacts of concern include altered stream bank and channel morphology, elevated water temperature, lost spawning and rearing habitat, habitat fragmentation, impaired gravel and wood recruitment from upstream sources, degraded water quality/quantity, lost riparian vegetation, and increased sediment delivery into streams from upland erosion (Busby et al. 1996: 70 FR 52488). Widespread diverting of rivers and streams, as well as the pumping of groundwater hydraulically connected to stream flow, has dramatically altered the natural hydrologic cycle in many of the streams within the CCC steelhead DPS, which can delay or preclude migration and dewater aquatic habitat.

\(^a\) NMFS previously used the term “Primary Constituent Elements”, but has now shifted to using “Physical or Biological Features. The shift in terminology does not change the approach used in conducting a ‘determination or adverse modification’ analysis, which is the same regardless of whether the original designation identified primary constituent elements, physical or biological features, or both.”

\(^b\) Other factors, such as over fishing and artificial propagation have also contributed to the current population status of these species. All these human induced factors have exacerbated the adverse effects of natural environmental variability from such factors as drought and poor ocean productivity.
2.2.4 Additional Threats to the CCC Steelhead DPS and Critical Habitat

Global climate change presents an additional potential threat to salmonids and their critical habitats. Impacts from global climate change are already occurring in California. For example, average annual air temperatures, heat extremes, and sea level have all increased in California over the last century (Kadir et al. 2013). Snow melt from the Sierra Nevada has declined (Kadir et al. 2013). However, total annual precipitation amounts have shown no discernable change (Kadir et al. 2013). Listed salmonids may have already experienced some detrimental impacts from climate change. NMFS believes the impacts on listed salmonids to date are likely fairly minor because natural and local, climate factors likely still drive most of the climatic conditions CCC steelhead experience, and many of these factors have much less influence on steelhead abundance and distribution than human disturbance across the landscape.

The threat to salmonids from global climate change will increase in the future. Modeling of climate change impacts in California suggests that average summer air temperatures are expected to continue to increase (Lindley et al. 2007; Moser et al. 2012). Heat waves are expected to occur more often, and heat wave temperatures are likely to be higher (Hayhoe et al. 2004, Moser et al. 2012; Kadir et al. 2013). Total precipitation in California may decline; critically dry years may increase (Lindley et al. 2007; Schneider 2007; Moser et al. 2012). Wildfires are expected to increase in frequency and magnitude (Westerling et al. 2011, Moser et al. 2012).

For Northern California, most models project heavier and warmer precipitation. Extreme wet and dry periods are projected, increasing the risk of both flooding and droughts (DWR 2013). Estimates show that snowmelt contribution to runoff in the Sacramento/San Joaquin Delta may decrease by about 20 percent per decade over the next century (Choern et al. 2011). Many of these changes are likely to further degrade CCC steelhead habitat by, for example, reducing streamflows during the summer and raising summer water temperatures. Estuaries may also experience changes detrimental to salmonids. Estuarine productivity is likely to change based on changes in freshwater flows, nutrient cycling, and sediment amounts (Seavine et al. 2002, Ruggiero et al. 2010). In marine environments, ecosystems and habitats important to juvenile and adult salmonids are likely to experience changes in temperatures, circulation, water chemistry, and food supplies (Brewer and Barry 2008; Fedly 2004; Osgood 2008; Turley 2008; Abdul-Aziz et al. 2011; Doney et al. 2012). The projections described above are for the mid to late 21st Century. In shorter time frames, natural climate conditions, albeit likely already influenced by the human addition of carbon dioxide to the atmosphere, are more likely to predominate (Cox and Stephenson 2007; Santer et al. 2011).

2.3 Action Area

"Action area" means all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action (50 CFR 402.02). The action area is located in southern Napa County, California, extends along approximately 580 feet of mainstem Huichica Creek at the SR 121 crossing. The action area includes areas that may be affected by stream diversion, fish capture and relocation, and construction activities; including the bed, left and right banks, riparian corridor, and adjacent staging and storage areas above top of bank immediately

10 Left and right as oriented when facing downstream.
adjacent to the creek channel. Specifically, the approximately 580-foot-long action area includes approximately 480 feet of mainstem Huichica Creek that will be dewatered for construction purposes, and approximately 100 feet of the mainstem Huichica Creek channel immediately downstream of the dewatered area where temporary construction effects may occur.

2.4 Environmental Baseline

The "environmental baseline" includes the past and present impacts of all Federal, state, or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or early section 7 consultation, and the impact of state or private actions which are contemporaneous with the consultation in process (50 CFR 402.02).

The following sub-sections provide information on watershed-wide conditions affecting the action area, and conditions specific to the action area.

2.4.1 General Watershed Description

As described in 2.3 Action Area, the action area is located on mainstem Huichica Creek, in Southern Napa County, California. Huichica Creek flows in a generally southerly direction to Hudeman Slough, which flows to Napa Slough, and then the Napa River which discharges to San Francisco Bay. The climate in the region is Mediterranean, with over 90 percent of annual precipitation occurring between November and April. Cool, moist coastal fog generally alternates with clear, warm weather during the months of May through September. Flows within Huichica Creek, including the action area, are highly variable and can go quickly from low base flow conditions to high flows and then quickly recede again. Adult migration typically occurs January through May, with the majority of spawning occurring between February and March, although spawning may occur from December to April. Smolts typically migrate downstream in the spring with peaks in April and May. Keels also migrate downstream from February through mid-April.

Huichica Creek lies within the Napa River CCC steelhead population (NMFS 2016). Threats to the Napa River Population include: water diversion and impoundment, agricultural development, and channel modification (NMFS 2016). These threats impair habitat conditions within the Napa River Population area, including Huichica Creek, resulting in impaired passage (physical conditions and flow conditions), baseflows, substrate quantity and quality, habitat complexity, riparian condition, velocity refuge, and estuary conditions. Recovery actions prescribed by NMFS (2016) to address impairments in Huichica Creek include improving passage at the SR 121 crossing, improving habitat complexity by adding large woody debris, improving substrate quality, and improving summer rearing water temperatures.11

In the vicinity of the action area, the threats most affecting Huichica creek are those associated with channel modification and agricultural development. Some efforts have been implemented in recent years in the vicinity of the action area to address passage and habitat impairments associated with these threats. For example, a bank repair and habitat enhancement project was

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implemented in 2014 to address channel erosion and bank scour approximately 800 feet upstream of the SR 121 mainstem Huichica Creek crossing (Reck 2013, NMFS 2012), and in 2010 a passage and habitat improvement project was implemented on the SR 121 east branch Huichica Creek crossing, located approximately 1,000 feet east of the SR 121 mainstem Huichica Creek crossing (Blizard 2018, NMFS 2005). These efforts have helped to improve conditions in the vicinity of the action area. However, because these impairments are present at the watershed and population scales, further efforts throughout the watershed and population will be needed to address these persistent threats.

In addition to the aforementioned threats, in the Huichica Creek watershed (including the action area), the threat to CCC steelhead from climate change is likely going to mirror what is expected for the rest of Central California (see 2.2.4 Additional Threats to the CCC Steelhead DPS and Critical Habitat). NMFS expects that average summer air temperatures in the watershed would continue to increase, heat waves would become more extreme, and droughts and wildfire would occur more often (Lindley et al. 2007; Moser et al. 2012, Hayhoe et al. 2004, Moser et al. 2012; Kadir et al. 2013, Schmeidler 2007, Westerling et al. 2011). In future years and decades many of these changes are likely to further degrade CCC steelhead habitat throughout the watershed by, for example, reducing streamflow during the summer and raising summer water temperatures.

2.4.2 Status of Listed Species and Habitat in Action Area

The action area is designated critical habitat for CCC steelhead and supports migration of CCC steelhead. Essential features of these sites include substrate, water quality, water quantity, water temperature, water velocity, cover/shelter, food, space, and safe passage conditions.

The following sub-sections describe expected steelhead use of the action area, and previous ESA section 7 consultations and section 10 permits in the action area.

2.4.2.1 Habitat Conditions and Steelhead in the Action Area

The condition of instream habitat in the action area for steelhead is impaired by the culverts and apron, historic actions, surrounding land use, and limited surface water during summer months. Significant channel incision has resulted from channel confinement and a long history of agricultural development in the area, which has altered runoff regimes that affect the timing, duration, and severity of flows. As a result of channel confinement, floodplain disconnection, adjacent development, and the culverts and apron, habitat conditions in the action area are very poor for steelhead—fish passage is poor, habitat complexity is lacking, substrate complexity is poor, channel instability is present (indicated by bank scours), and cover and resting areas are lacking. Water quantity and quality (including temperature) is also limiting during low flow periods. Surface flows may be perennial within the action area in wet years, and likely flow through the action area during early summer, but typically disconnect from upstream or downstream natural flows, and may lack suitable water quality and quality to support year round use by steelhead. Due to these habitat impairments, and water quality and quantity limitations, the action area is not expected to be used for steelhead spawning or egg incubation. However, the action area is likely to be used for adult immigration and emigration, smolt emigration, and could
also be used during the summer for juvenile rearing in wet years. Because the project will occur in June, there is the potential for dewatering and fish handling operations to encounter juvenile steelhead.

Recent information on abundance of juvenile steelhead in the action area is unavailable. However, information on summertime juvenile abundance within Huichica Creek at or very near the action area is provided in Leidy et al. (2005) for the years 1981, 1983, 1985, and 1988. Per Leidy et al. (2005):

- 2 O. mykiss were collected from a 10-meter reach at the SR 121 Huichica Creek crossing in September 1981 (approximately 6 fish per 100 feet of stream);
- electrofishing surveys at the SR 121 Huichica Creek crossing encountered 3 O. mykiss in 30 meters of stream in April 1983 and September 1985 (approximately 3 fish per 100 feet of stream); and
- electrofishing surveys at the SR 121 Huichica Creek crossing caught 19 O. mykiss within an unspecified length of stream in July 1988.

Applying the information in Leidy et al. (2005), we determine that juvenile steelhead may be encountered in the action area at densities up to approximately 6 fish per 100 feet of stream.

Information on abundance of steelhead adults or smolts in the action area is unavailable and migration rate data is similarly unavailable for portions of Huichica Creek outside that action area. Because the action area is located downstream of all spawning and rearing habitat in mainstem Huichica Creek, we expect that all migrating adults and smolts in mainstem Huichica Creek in any given year will pass through the site during the winter-spring migration period. Also, any adult steelhead in mainstem Huichica Creek that both immigrate and then return to the ocean (i.e., emigrate) in the same year will pass through the action area twice. However, due to the significant passage barrier located within the action area, low densities of migrating adults and smolts are expected.

Considering the above, we estimate that juvenile steelhead may be encountered in the action area during construction at densities up to 6 fish per 100 feet of stream, and all migrating adults and smolts in mainstem Huichica Creek will pass through the action area during the winter-spring migration period (i.e., outside the proposed work window).

2.A.2.2 Previous Section 7 Consultations and Section 10 Permits in the Action Area

NMFS has previously conducted one interagency consultation pursuant to section 7 of the ESA that has included the action area of this project. On August 18, 2005, NMFS issued a biological opinion\(^1\) to the Federal Highway Administration (FHWA) for FHWA's proposal to provide oversight and funding to Caltrans for a roadway widening project along SR 121 that would affect the SR 121 crossings of mainstem Huichica Creek and east branch Huichica Creek, located approximately 1,000 feet east of the SR 121 mainstem Huichica Creek crossing. However,
Caltrans subsequently revised the project description such that no work was proposed at the SR mainstem Huichica Creek crossing. No work associated with this earlier consultation was performed at the SR 121 mainstem Huichica Creek crossing.¹¹

In addition to the above consultation, stream restoration under programmatic consultations and salmonid monitoring actions may take place in the action area. These programmatic consultations include the NOAA Restoration Center’s (RC) restoration program, and the Regional General Permit programmatic consultation with the California Department of Fish and Wildlife (CDFW). These consultations anticipate a limited amount of take for juvenile salmonids during instream work conducted in the summer months. NMFS determined these restoration actions are likely to improve habitat conditions for listed species and that the limited amount of take anticipated is unlikely to affect future adult returns. NMFS’ Section 10(a)(1)(A) research and enhancement permits and section 4(d) limits or exceptions could also potentially occur in the watershed, including the reach of Huichica Creek within the action area. Salmonid monitoring approved under these programs includes carcass surveys, smolt outmigration trapping, and juvenile density surveys. In general, these activities are closely monitored and require measures to minimize take during the research activities. NMFS determined these research projects are unlikely to affect future adult returns.

2.5 Effects of the Action

Under the ESA, “effects of the action” means the direct and indirect effects of an action on the species or critical habitat, together with the effects of other activities that are interrelated or interdependent with that action, that will be added to the environmental baseline (50 CFR 402.02). Indirect effects are those that are caused by the proposed action and are later in time, but still are reasonably certain to occur.

In this biological opinion, our approach to determine the effects of the action was based on institutional knowledge and a review of the ecological literature and other relevant materials. We used this information to gauge the likely effects of the proposed project via an exposure and response framework that focuses on the stressors (physical, chemical, or biotic), directly or indirectly caused by the proposed action, to which CCC steelhead are likely to be exposed. Next, we evaluate the likely response of the above listed fish to these stressors in terms of changes to survival, growth, and reproduction, and changes to the ability of PBFs to support the value of critical habitat in the action area. PBFs include sites essential to support one or more life stages of the species. These sites for migration, spawning, and rearing in turn contain physical and biological features that are essential to the conservation of the species. Where data to quantitatively determine the effects of the proposed action on listed fish and their critical habitat

¹¹ Between 2005 and 2008 Caltrans worked to developed plans for the mainstem Huichica Creek crossing that would meet NMFS fish passage guidelines (NMFS 2001), a requirement of the 2005 biological opinion. However, by letter dated June 17, 2008, from Caltrans to NMFS, Caltrans notified NMFS that Caltrans was unable to address fish passage guidelines (NMFS 2001) with the project resources available and the project description had been revised so that work at the SR 121 mainstem Huichica Creek crossing was no longer proposed as part of the project that was reviewed in 2005. In 2014, work was completed at the SR 121 east branch Huichica Creek crossing, located approximately 1,000 feet east of the SR 121 mainstem Huichica Creek crossing. No work was performed at the SR 121 mainstem Huichica Creek crossing.
were limited or not available, our assessment of effects focused mostly on qualitative identification of likely stressors and responses.

Construction activities associated with the project may affect CCC steelhead and critical habitat. The effects of the proposed action are reasonably likely to include: adverse effects to CCC steelhead from fish collection and relocation; adverse effects to CCC steelhead from dewatering; insignificant effects to steelhead and habitat from temporary reductions in riparian vegetation; insignificant effects to steelhead and habitat from temporary increases in suspended sediment concentrations; a discountable potential for fish and habitat to be exposed to construction debris and materials; and permanent improvements to habitat and fish passage. These effects are presented in detail below.

2.5.1 Fish Collection and Relocation

To facilitate construction of the Project, approximately 480 feet of the mainstem Huichica Creek streambed may be dewatered. The project proposes to collect and relocate fish in the work area prior to and during dewatering to avoid fish standing and exposure to construction activities. Before and during dewatering of the construction site, CCC steelhead and other fish will be captured by qualified fisheries biologists using one or more of the following methods: electrofishing, dip net, seine, throw net, block net, minnow trap. Collected fish will be immediately returned to the stream at suitable locations in Huichica Creek downstream of the dewatered area.

Because dewatering activities will be limited to the summertime construction window (June 15-October 15), capture and relocation of listed steelhead will be limited to juveniles. As described above in the Environmental Baseline, we expect an average density estimate of 6 steelhead per 100 feet of channel. Because the proposed total amount of dewatering length for the project is 480 feet (see 1.3 Proposed Action), NMFS estimates that no more than 29 CCC juvenile steelhead will be handled and relocated annually during the two-year implementation of the project. Because construction is expected to take two construction seasons (i.e., two years of construction, with in-channel work occurring between June 15 and October 15 each year) we expect that fish handling and relocation may happen twice. Therefore, we expect that up to 29 juvenile CCC steelhead may be handled and relocated annually, and up to 58 juvenile CCC steelhead may be handled over the two-year course of project construction.

Fish relocation activities pose a risk of injury or mortality to rearing juvenile salmonids. Any fish collecting gear, whether passive (Hubert 1996) or active (Hayes et al. 1996) has some associated risk to fish, including stress, disease transmission, injury, or death. The amount of unintentional injury and mortality attributable to fish capture varies widely, depending on the method used, the ambient conditions, and the expertise and experience of the field crew. Since fish relocation activities will be conducted by qualified fisheries biologists following NMFS electrofishing guidelines (NMFS 2000), injury and mortality of juvenile salmonids during capture and relocation will be minimized. Data on fish relocation efforts between 2002 and 2009 show most mortality...
rates are below 3 percent (2 percent) for steelhead (Collins 2004; CDFG 2005, 2006, 2007, 2008, 2009, 2010). Based on this information, NMFS estimates injury and mortalities will be two percent of the steelhead that are relocated. If injury and mortality rates reach maximum levels, up to 1 steelhead is expected to be killed as a result of injury or mortality during relocation efforts annually during the two-year implementation of the project. Because there is expected to be one dewatering event in each of the two construction seasons, we expect that fish handling and relocation may happen twice. Therefore, we expect that up to 1 juvenile CCC steelhead may be killed annually, and up to 2 juvenile CCC steelhead may be killed over the two-year course of project construction.

Relocated fish may also have to compete with other fish causing increased competition for available resources such as food and habitat. Responses to crowding by salmonids include self-thinning, resulting in emigration and reduced salmonid abundance with increased individual body size within the group and/or increased competition (Keeley 2003). Some of the fish released at the relocation sites may choose not to remain in these areas and move either upstream or downstream to areas that have more vacant habitat and a lower density of fish. As each fish moves, competition remains either localized to a small area or quickly diminishes as fish disperse. In some instances, relocated fish may endure short-term stress from crowding at the relocation sites. Such stress is not likely to be sufficient to reduce their individual performance.

Fish that avoid capture during relocation efforts may be exposed to risks described in the following section on dewatering (see 2.5.3 Project Site Dewatering).

2.5.2 Project Site Dewatering

As described above, the project will require dewatering of approximately 480 feet of mainstem Huichica Creek. Dewatering is expected to last between June 15 and October 15 for both years of construction. Cofferdams constructed of sand and/or gravel bags will be used to isolate work areas and these work areas will be dewatered with pumps. NMFS anticipates temporary changes to in-stream flow within the work areas. Isolation and dewatering of these work areas is expected to cause temporary loss, alteration, and reduction of aquatic habitat, and may result in mortality of any salmonids that avoid capture during fish relocation activities. Steelhead juveniles within these work areas may be injured or killed by concentrating or stranding them in residual wetted areas, or entrapping them within the interstices of channel substrate where they may not be seen by fish relocation personnel. Steelhead juveniles that avoid capture in the project work area will likely die due to desiccation, thermal stress, or crushing. However, fish relocation efforts (described above) are expected to be effective at removing fish in the work areas. Because of this, NMFS expects that the number of juvenile steelhead that may be missed and have the potential to be left within the dewatered area will be very low; less than one percent of the fish within the action area prior to dewatering. Based on this, NMFS estimates that up to 1 steelhead juvenile may be killed during each of the channel dewatering events. Because there is expected to be one dewatering event in each of the two construction seasons, we expect that fish handling and relocation may happen

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1. (29 steelhead estimated to be present within the area to be dewatered x 2% mortality rate) = 0.58 steelhead mortalities during fish handling and relocation activities. Rounding this yields an estimate of 1 steelhead mortality.

2. (49 x 0.29 steelhead expected to be within the area to be dewatered x 2% steelhead mortality = 1 steelhead mortality x 100 steelhead) = 0.29 steelhead mortalities. Rounding this yields an estimate of 1 steelhead mortality.
twice. Therefore, we expect that up to 1 juvenile CCC steelhead may be killed during dewatering operations, annually, and up to 2 juvenile CCC steelhead may be killed during dewatering operations over the two-year course of project construction.

Dewatering operations may also affect aquatic food sources that CCC steelhead feed on. Benthic (bottom dwelling) aquatic macroinvertebrates, an important food source for salmonids, may be killed or their abundance reduced when creek habitat is dewatered (Cushman 1985). However, effects to aquatic macroinvertebrates resulting from stream flow diversions and dewatering will be temporary because construction activities will be relatively short-lived. Rapid recolonization, typically within one to two months, of disturbed areas by macroinvertebrates is expected following rewatering (Cushman 1985; Thomas 1985; Harvey 1986). In addition, the effect of macroinvertebrate loss on juvenile salmonids is likely to be negligible because food from upstream sources (via drift) would be available downstream of the dewatered areas since stream flow, if present, will be bypassed around the project work site. The temporary loss of 480 linear feet of instream habitat for the construction period is not expected to permanently impair designated critical habitat because aquatic and riparian habitat at the site would be returned to pre-project conditions after the water diversion system is removed. The temporary cofferdams and water diversion structure in the action area are not expected to impact steelhead outside the dewatered area because effects will be limited to the action area, dewatering will occur for a limited duration and the dewatered area will be relatively small compared to the available habitat within the Hoh Creek watershed and near the action area. Fish will be able to find food and cover outside of the action area as needed to maintain their fitness during project construction. Based on the foregoing, steelhead are not anticipated to be exposed to a reduction in food sources from the minor and temporary reduction in aquatic macroinvertebrates as a result of dewatering activities.

2.5.3 Increased Suspended Sediment Concentrations

Instream and near-stream construction activities have been shown to result in temporary increases in suspended sediment concentrations (reviewed in Furniss et al. 1991, Reeves et al. 1991, Spence et al. 1996). High suspended sediment concentrations can reduce dissolved oxygen in the water column, result in reduced respiratory functions, reduce tolerance to diseases, and can also cause fish mortality (Sigler et al. 1984, Berg and Northcote 1985, Gregory and Northcote 1993, Velagic 1995, Waters 1995). For fish exposed to high concentrations of suspended sediment, normal feeding behavior and feeding efficiency may be disrupted (Cordone and Kelby 1961, Berg and Northcote 1985), growth rates may be reduced (Crouse et al. 1981), and plasma cortisol levels may be increased (Servizi and Martens 1992); indicating the potential for increased stress and impaired physiological condition. Increased sediment concentrations can result in increased sediment deposition, which can fill pools, reduce the amount of cover and habitat available, and smother coarse substrate particles which can impair macroinvertebrate composition and abundance (Sigler et al. 1984, Alexander and Hansen 1986).

NMFS anticipates the project will affect water quality and critical habitat in the action area in the form of small, short-term increases in suspended sediment concentrations during re-watering and subsequent higher flow events during winter storms between the two construction years and the first winter storms post-construction. Based on the relatively small area and the use of methods to
control sediment, NMFS expects any sediment generated by the project would not extend more than 100 feet downstream of the work. Although chronic elevated suspended sediment levels may affect steelhead and critical habitat, sedimentation and turbidity levels associated with the project are not expected to rise to the levels discussed in the previous paragraph. For this project, minimal amounts of stream bed and bank will be disturbed and measures to stabilize sediment during and after construction are expected to effectively minimize the effects of suspended sediment concentrations on fish and habitat. During construction, erosion control prevention and control measures will be used to hold soil and sediment in place on the bank. Post-construction, disturbed areas would be stabilized with geotextile fabric and/or vegetative plantings, as appropriate. Those measures will be in place between construction seasons and installed following the second (final) year of construction, and are expected to minimize the discharge of sediment during and after construction to levels insufficient to injure or kill fish, or degrade habitat. Thus, it is unlikely that any meaningful amount of suspended sediment effects will result from this project, and any project-related suspended sediment effects that do result will be temporary and will likely have an insignificant impact on CCC steelhead and their critical habitat.

2.5.4 Toxic Chemicals

Construction operations in, over, and near surface water have the potential to release contaminants into surface waters. Projects of this type have the potential to introduce oils and hydrocarbons from construction equipment into surface waters. Oils and hydrocarbons can contain a wide variety of polynuclear aromatic hydrocarbons (PAHs), and metals. PAHs can alter salmonid egg hatching rates and reduce egg survival as well as harm the benthic organisms that are a salmonid food source (Eisler 2000). Some of the effects that metals can have on salmonids are immobilization and impaired locomotion, reduced growth, reduced reproduction, genotoxic damage, tumors and lesions, developmental abnormalities, behavior changes (avoidance), and impairment of olfactory and brain functions (Eisler 2000). These effects have the potential to harm exposed fish and temporarily degrade habitat. However, the project includes BMPs to address spills and prevent the introduction of contaminants into mainstem Hiuchica Creek. The work areas will be isolated; project limits will be clearly delineated; no equipment is proposed to be operated, fueled, or otherwise serviced within the stream bed; spill containment materials will be present on site; and proper handling and disposal of all construction waste will occur. Due to these measures, conveyance of toxic chemicals into mainstem Hiuchica Creek during project implementation is not expected, and the potential for the project to degrade water quality and harm CCC steelhead and their critical habitat is considered to be discountable.

2.5.5 Removal of Riparian Vegetation

Riparian vegetation helps maintain stream habitat conditions necessary for steelhead. Riparian zones serve important functions in stream ecosystems such as providing shade (Poole and Berman 2001), sediment storage and filtering (Cooper et al. 1987, Mitsch and Gosselink 2000), nutrient inputs (Murphy and Meehan 1991), water quality improvements (Mitsch and Gosselink 2000), channel and stream bank stability (Platts 1991), source of woody debris that creates fish habitat diversity (Bryant 1983, Lisle 1986, Shirvell 1990), and both cover and shelter for fish (Bustard and Narver 1975, Wesche et al. 1987, Murphy and Meehan 1991). Riparian vegetation disturbance and removal can degrade these ecosystem functions and impair stream habitat. Where riparian vegetation is impaired, steelhead may be exposed to poor shade, substrate, water quality,
habitat diversity, cover, and shelter. These habitat impairments have the potential to limit or preclude successful spawning and rearing, reduce adult migration success, and expose juveniles and smolts to increased predation.

This project will result in temporary reductions in riparian vegetation due to the removal and replanting of riparian vegetation that will occur throughout the approximately 480-foot-long project area. Because riparian vegetation typically begins to provide habitat benefits relatively rapidly during reestablishment, usually within the first one to two years following planting, these impacts will be temporary. However, during the approximately one- to two-year-long duration while the riparian vegetation is beginning to reestablish, steelhead in the action area will be exposed to reduced riparian cover; potentially exposing them to habitat limitations described in the preceding paragraph. During this period, rearing juveniles may seek alternative areas where suitable cover exists nearby, and migrating adults and smolts may encounter instream habitat within the action area that lacks complexity, cover and velocity refuge. Temporary displacement of the densities of juveniles expected to occur in the action area (up to 29 juvenile steelhead per year — see 2.5.1 Fish Collection and Relocation) is not expected to reduce individual performance because available cover nearby is expected to accommodate additional displaced juveniles without resulting in overcrowding. Reduced riparian cover could expose migrating adults and smolts to impaired migration or increased predation. Depending on the severity of exposure, injury or mortality of individuals could result. For this project, CCC steelhead smolts and adults will be transiting through the action area quickly and will experience the effects for a short period of time only. This level of exposure is not expected to increase injury or mortality, decrease fitness, or impair migrations. Further, these conditions are expected to be relatively short-lived (approximately one- to two-years in duration) because riparian vegetation is expected to rapidly recolonize the affected areas following revegetation of the site, and temporary impacts to riparian habitat will likely have an insignificant impact on the function and ability of that habitat to meet the short-term and long-term needs of steelhead in Huichica Creek. Also, because removed native riparian trees will be replaced with new trees, and areas presently impaired by concrete will be restored and revegetated (see 1.3 Proposed Federal Action), temporarily reduced riparian function will be restored and a long-term increase in riparian cover within the action area will occur; resulting in permanent restoration and enhancement of riparian condition throughout the project area. Thus, although effects to riparian habitat are expected to affect critical habitat and S-CCC steelhead, the level of effects associated with this project are expected to be insignificant.

2.5.6 Fish Passage and Habitat Complexity

Fish passage at the project site is currently impaired. Under the current condition, channel degradation immediately downstream of the bridge apron has resulted in a vertical jump for fish approaching the bridge during their upstream migration. High stream gradient along the apron, and poor velocity refuge throughout both the apron and the culverts likely results in water velocities that are too high for migrating adults. Shallow water across the apron during low stream flows likely impedes both immigrating adults and emigrating adults and juveniles. Thus, the current condition likely impairs both adult and juvenile passage. The proposed project will remedy this condition by removing the existing apron and culverts and replacing the existing
system with an open-bottom bridge and natural-bottomed channel stabilized with large woody debris, rock weirs, cob logs, and riparian vegetation, resulting in improved critical habitat and improved fish passage for adult and smolt CCC steelhead.

2.6 Cumulative Effects

"Cumulative effects" are those effects of future state or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation (30 CFR 403.02). Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the ESA.

NMFS does not anticipate any cumulative effects in the action area other than those ongoing actions already described in the Environmental Baseline above, and resulting from climate change. Given current baseline conditions and trends, NMFS does not expect to see significant improvement in habitat conditions in the near future due to existing land and water development in the watershed.

Some continuing non-Federal activities are reasonably certain to contribute to climate effects within the action area. However, it is difficult if not impossible to distinguish between the action area's future environmental conditions caused by global climate change that are properly part of the environmental baseline vs. cumulative effects. Therefore, all relevant future climate-related environmental conditions in the action area are described in the environmental baseline (Section 2.4).

2.7 Integration and Synthesis

The Integration and Synthesis section is the final step in our assessment of the risk posed to species and critical habitat as a result of implementing the proposed action. In this section, we add the effects of the action (Section 2.5) to the environmental baseline (Section 2.4) and the cumulative effects (Section 2.6), taking into account the status of the species and critical habitat (Section 2.2), to formulate the agency's biological opinion as to whether the proposed action is likely to: (1) Reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing its numbers, reproduction, or distribution; or (2) appreciably diminishes the value of designated or proposed critical habitat for the conservation of the species. In this section we also consider the potential for climate change to alter conditions in the action area beyond the scope considered in this opinion, and the potential effects of the project on the population's ability to achieve recovery criteria.

Juvenile CCC steelhead are expected to be present in the action area during project implementation. Also, because construction is expected to take two construction seasons (June 15-October 15 over two consecutive years) migrating CCC steelhead adults and smolts are expected to transit the action area between construction seasons. As described in 2.5 Effects of the Action, NMFS identifies the following effects as having the potential to result from the project: adverse effects to CCC steelhead from fish collection and relocation; adverse effects to CCC steelhead from dewatering; insignificant effects to steelhead and habitat from temporary
reductions in riparian vegetation; insignificant effects to steelhead and habitat from temporary increases in suspended sediment concentrations; a discountable potential for fish and habitat to be exposed to construction debris and materials; and permanent improvements to fish passage (see 2.5 Effects Analysis). NMFS expects the aforementioned insignificant and discountable effects (e.g., temporary reductions in riparian vegetation, temporary increases in suspended sediment concentrations, and exposure to construction debris and materials) will not occur simultaneously with other effects in any significant way, or will not occur when steelhead are likely to be present in the action area. Thus, we do not consider these effects further. Effects that are expected to occur are discussed further below.

Adverse effects associated with fish collection and relocation, and dewatering, include the potential for injury and mortality of CCC steelhead juveniles. However, as described in 2.4.2 Status of Listed Species and Habitat in Action Area, NMFS expects that low numbers of CCC steelhead juveniles will be present in the action area to be exposed to this effect, and that few, if any, CCC steelhead juveniles may be injured or killed by these activities. Anticipated mortality from relocation is expected to be less than three percent (2 percent) of the fish relocated, and mortality expected from dewatering is expected to be less than one percent of the fish in the area prior to dewatering. Because no more than 29 CCC steelhead juveniles are expected to be present within the dewatered reach in any one year, and no more than two dewatering events will occur in two years, NMFS expects no more than 4 steelhead juveniles will be harmed or killed during fish collection and relocation, and site dewatering (see 2.5.1 Fish Collection and Relocation, and 2.5.2 Project Site Dewatering). Any CCC steelhead present would likely make up a very small proportion of the steelhead in the Huichica Creek watershed. Also, due to the relatively large number of juveniles produced by each spawning pair, spawning in the Huichica Creek watershed in future years would be expected to produce enough juveniles to replace any juveniles that may be lost at the project site due to relocation and dewatering. It is unlikely that the small potential loss of juveniles by this project would impact future adult returns. Therefore, the project is unlikely to appreciably reduce the likelihood of survival and recovery of CCC steelhead.

As described in 2.4.2.1 Habitat Conditions and Steelhead in the Action Area, habitat conditions in the action area are currently very poor for steelhead. Fish passage is poor, habitat complexity is lacking, substrate complexity is poor, channel instability is present, and cover and resting areas are lacking. Effects to CCC steelhead critical habitat from the proposed project are expected to include temporary impacts due to project construction, and permanent benefits due to habitat enhancement. The temporary impacts are expected to be associated with disturbances to the stream bed, bank, riparian corridor, and surface flow. As discussed above, these temporary impacts are not expected to adversely affect PHUs of CCC steelhead critical habitat because aquatic habitat at the site would be restored after the water diversion system is removed. The permanent improvements to riparian condition, instream habitat, and passage are expected to result in benefits to critical habitat within the action area. Further, the project will help to address recovery actions prescribed by NMFS for this site and the broader Huichica Creek watershed - improving passage at the SR 121 mainstem Huichica Creek crossing will address a site-specific recovery action, and adding large woody debris and improving substrate quality will contribute to basin-wide recovery needs (see 2.4.1 General Watershed Description and NMFS 2016).
Climate change could affect habitat conditions in the action area in the relatively near term, potentially within the time frame we are considering for this consultation (the duration between mid-2020 when construction begins, and late 2021 when the project is completed), and ongoing anthropogenic impairments common throughout the watershed (e.g., agricultural development and adverse channel modification; see 2.4.1 General Watershed Description) are also likely to persist within this timeframe. However, we do not expect conditions to worsen beyond those currently occurring in the action area and considered in this opinion. For example, regarding climate change: extreme storms, higher average summer air temperatures and lower total precipitation levels can already occur; potentially resulting in warmer stream temperatures, and reduced stream flow in the summers. Similarly, regarding anthropogenic impairments affecting recovery: agricultural development and adverse channel modification are already prevalent. While short term climate change effects could exacerbate these conditions, the effects of climate change are not expected to significantly worsen existing conditions over the time frame considered in this biological opinion. Additionally, the project will implement actions that support recovery by improving passage and habitat conditions within the action area. Considering the above, we do not expect climate change to alter conditions in the action area beyond the scope considered in this opinion, and we expect the project to contribute to recovery.

2.8 Conclusion

After reviewing and analyzing the current status of the listed species and critical habitat, the environmental baseline within the action area, the effects of the proposed action, any effects of interrelated and interdependent activities, and cumulative effects, it is NMFS' biological opinion that the proposed action is not likely to jeopardize the continued existence of CCC steelhead or destroy or adversely modify designated critical habitat for this species.

2.9 Incidental Take Statement

Section 9 of the ESA and Federal regulations pursuant to section 4(d) of the ESA prohibit the take of endangered and threatened species, respectively, without a special exemption. “Take” is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. “Harm” is further defined by regulation to include significant habitat modification or degradation that actually kills or injures fish or wildlife by significantly impairing essential behavioral patterns, including breeding, spawning, rearing, migrating, feeding, or sheltering (50 CFR 222.102). “Incidental take” is defined by regulation as takings that result from, but are not the purpose of, carrying out an otherwise lawful activity conducted by the Federal agency or applicant (50 CFR 402.02). Section 7(b)(4) and section 7(c)(2) provide that taking that is incidental to an otherwise lawful agency action is not considered to be prohibited taking under the ESA if that action is performed in compliance with the terms and conditions of this ITS.

2.9.1 Amount or Extent of Take

In the biological opinion, NMFS determined that incidental take is reasonably certain to occur as follows:
Take of listed CCC steelhead may occur during fish relocation and dewatering within the 480-foot reach at the project site between June 15 and October 15 in 2020 and 2021. Dewatering is expected to occur once in each year of construction, up to two times in the two years proposed for construction. The number of threatened CCC steelhead that may be incidentally taken during project activities is expected to be small, and limited to summer rearing juvenile steelhead. NMFS expects that no more than 2 percent of the fish within the combined 480 feet of dewatered area will be injured, harmed or killed during fish relocation. NMFS also expects that no more than 1 percent of the fish within the 480 feet of dewatered area will be injured, harmed or killed during dewatering activities. Because no more than 29 steelhead juveniles are expected to be present within the 480-foot dewatering reach in any one of the two construction years, and dewatering is expected to occur no more than two times in two years, NMFS expects no more than 4 CCC steelhead will be harmed or killed by the project (see 2.7 Integration and Synthesis). If more than 29 steelhead are captured in any one of the two years, or more than 2 steelhead juvenile are harmed or killed in any one of the two years, incidental take will have been exceeded.

2.9.2 Effect of the Take

In the biological opinion, NMFS determined that the amount or extent of anticipated take, coupled with other effects of the proposed action, is not likely to result in jeopardy to the species or destruction or adverse modification of critical habitat.

2.9.3 Reasonable and Prudent Measures

"Reasonable and prudent measures" are nondiscretionary measures that are necessary or appropriate to minimize the impact of the amount or extent of incidental take (50 CFR 402.02).

NMFS believes the following reasonable and prudent measures are necessary and appropriate to minimize take of CCC steelhead:

1. Undertake measures to ensure that injury and mortality to steelhead resulting from fish relocation and dewatering activities is low.

2. Undertake measures to minimize harm to steelhead from construction of the project and degradation of aquatic habitat.

3. Prepare and submit plans and reports regarding the effects of fish relocation, construction and post-construction site performance.

2.9.4 Terms and Conditions

The terms and conditions described below are non-discretionary, and Caltrans must comply with them in order to implement the reasonable and prudent measures (50 CFR 402.14). Caltrans has a continuing duty to monitor the impacts of incidental take and must report the progress of the action and its impact on the species as specified in this incidental take statement (50 CFR 402.14).
If a term and condition is directed does not comply with the following terms and conditions, protective coverage for the proposed action would likely lapse.

1. The following terms and conditions implement reasonable and prudent measure 1:
   a. Caltrans will retain qualified biological with expertise in the areas of anadromous salmonid biology, including handling, collecting, and relocating salmonids; salmonid/habitat relationships; and biological monitoring of salmonids. Caltrans will ensure that all biologists working on the project are qualified to conduct fish collections in a manner which minimizes all potential risks to steelhead. Electrofishing, if used, will be performed by a qualified biologist and conducted according to the NMFS Guidelines for Electrofishing Waters Containing Salmons Listed under the Endangered Species Act, June 2000. See: http://www.nwr.noaa.gov/ESA-Salmon-Regulations-Permits/4d-Rules/upload/electro2000.pdf.
   b. The biologists will monitor the construction site during placement and removal of cofferdams, and channel diversions to ensure that any adverse effects to salmonids are minimized. The biologists will be on site during all dewatering events to capture, handle, and safely relocate steelhead. Caltrans or the biologist will notify NMFS biologist Darren Howe at (707) 575-3152 or Darren.Howe@noaa.gov one week prior to capture activities in order to provide an opportunity for NMFS staff to observe the activities.
   c. Steelhead will be handled with extreme care and kept in water to the maximum extent possible during rescue activities. All captured fish will be kept in cool, shaded, aerated water protected from excessive noise, jostling, or overcrowding any time they are not in the stream, and fish will not be removed from this water except when released. To avoid predation, the biologists will have at least two containers and segregate young-of-year fish from larger age-classes and other potential aquatic predators. Captured steelhead will be relocated, as soon as possible, to a suitable in-stream location in which suitable habitat conditions are present to allow for adequate survival of transported fish and fish already present.
   d. If any salmonids are found dead or injured, the biological monitor will contact NMFS biologist, Darren Howe, by phone immediately at (707) 575-3152 or the NMFS North Central Coast Office (Santa Rosa, California) at 707-575-6050. The purpose of the contact is to review the activities resulting in take, determine if additional protective measures are required, and to ensure appropriate collection and transfer of salmonid mortalities and tissue samples. All salmonid mortalities will be retained. Tissue samples are to be acquired from each salmonid mortality, per the methods identified in the NMFS Southwest Fisheries Science Center Genetic Repository protocols (contact the above NMFS staff for directions) and sent to: NOAA Coastal California Genetic Repository; Southwest Fisheries Science Center; 110 McAllister Way; Santa Cruz CA 95060.
2. The following terms and conditions implement reasonable and prudent measure 2:

a. Caltrans will allow any NMFS employee(s) or any other person(s) designated by NMFS, to accompany field personnel to visit the project site during activities described in this opinion.

b. To ensure that projects are built as designed and contractors adhere to construction best management practices, monitoring will be performed during construction by skilled individuals. Monitors will be knowledgeable in the project designs, construction minimization measures, in-stream restoration plans, and the needs of native fish, including salmon and steelhead. Monitoring will be performed daily. The monitor(s) will work in close coordination with project management personnel, the project design (engineering) team, and the construction crew, to ensure that the project is built as designed and, for restoration projects, the intended habitat benefits are achieved.

c. Fill material for cofferdams will be fully confined with the use of plastic sheeting, sandbags, or with other non-porous containment methods, such that sediment does not come in contact with stream flow or in direct contact with the natural streambed. All loose fill material for cofferdams or access ramps will be completely removed from the channel by October 15.

d. Any pumps used to divert live stream flow, outside the dewatered work area, will be screened and maintained throughout the construction period to comply with NMFS' Fish Screening Criteria for Anadromous Salmonids. See: http://wwr.nmfs.noaa.gov/ced/fishscrn.pdf.

e. Treated wood may not be used in any temporary platforms or scaffolds in the creek channel. Lumber used for temporary construction operations must be unfinished and untreated wood. All materials used for temporary platforms or scaffolds must be completely removed from the channel no later than October 15.

f. In areas where concrete is used, a dry work area must be maintained to prevent conveyance of runoff from curing concrete to the surface waters of the adjacent stream at all times. Water that inadvertently contacts uncured concrete must not be discharged into surface waters.

g. Construction equipment used within the creek channel will be checked each day prior to work within the creek channel (top of bank to top of bank) and, if necessary, action will be taken to prevent fluid leaks. If leaks occur during work in the channel (top of bank to top of bank), Caltrans or their contractor will contain the spill and remove the affected soils.

h. Once construction is completed, all project-introduced material (pipe, gravel, cofferdam, etc.) must be removed, leaving the creek as it was before construction. Excess materials will be disposed of at an appropriate disposal site.
3. The following term and condition implements reasonable and prudent measure 3:

a. Caltrans must provide a written report to NMFS by January 15 of the year following construction of the project. The report must be submitted to NMFS North Central Coast Office, Attention: Supervisor of Protected Resources Division, 777 Sonoma Avenue, Room 325, Santa Rosa, California, 95404-6528. The report must contain, at a minimum, the following information:

i. **Project Construction and Fish Relocation Report** — The report must include the following contents:

   1. **Construction related activities** — The report(s) must include the dates construction began and was completed; a discussion of design compliance including; vegetation installation, and post-construction longitudinal profile and cross sections; a discussion of any unanticipated effects or unanticipated levels of effects on salmonids, including a description of any and all measures taken to minimize those unanticipated effects and a statement as to whether or not the unanticipated effects had any effect on ESA-listed fish; the number of salmonids killed or injured during the project action; and photographs taken before, during, and after the activity from photo reference points.

   2. **Fish Relocation** — The report must include a description of the location from which fish were removed and the release site including photographs; the date and time of the relocation effort; a description of the equipment and methods used to collect, hold, and transport salmonids; if an electrofisher was used for fish collection, a copy of the logbook must be included; the number of fish relocated by species, the number of fish injured or killed by species and a brief narrative of the circumstances surrounding ESA-listed fish injuries or mortalities; and a description of any problems which may have arisen during the relocation activities and a statement as to whether or not the activities had any unforeseen effects.

b. **Post-Project Annual Monitoring Reports** — Project annual reports will be sent to the address above in 3a. and must include the following contents:

i. **Post-Construction Physical Monitoring and Reporting** — Caltrans must develop a monitoring plan to assess the post-construction physical conditions throughout the project reach. A draft of this plan must be submitted to NMFS (address specified in 3a above) for review and approval prior to the beginning of the 2020 in-stream work season (June 15, 2020). Information collected and reported must include: photos; longitudinal profiles; information on stability of rock weirs and depth/persistence of pools; evaluation of whether or not the project continues to
meet NMFS Fish Passage Guidelines; and recommendations to address any performance issues, if any arise. Annual monitoring and reporting of physical conditions throughout the project reach must be provided for at least 5 years, and monitoring data following a 5-year recurrence interval flow and 10-year recurrence interval flow must be collected. If these recurrence interval flows occur within the first 5 years, and the site is demonstrated to be performing well, monitoring and reporting requirements will be met. If these recurrence interval flows do not occur within the first 5 years of monitoring, monitoring requirements will continue through the next 5-year period (i.e., years 9-10 post-construction). Within years 9 through 10 post-construction monitoring events will be triggered by the occurrence of 5-year and 10-year recurrence interval flows. If these recurrence interval flows are not encountered in any of the 10 years, a final monitoring report will be provided documenting site conditions at year 10. If the site is documented to be performing poorly, then monitoring requirements will be extended.

ii. Post-Construction Vegetation Monitoring and Reporting -- Caltrans must develop and submit to NMFS' review a plan to assess the success of revegetation of the site. A draft of the revegetation monitoring plan must be submitted to NMFS (address specified in 3a above) for review and approval prior to the beginning of the 2020 in-stream work season (June 15, 2020). Reports documenting post-project conditions of vegetation installed at the site will be prepared and submitted annually for the first five years following project completion, unless the site is documented to be performing poorly, then monitoring requirements will be extended. Reports will document vegetation health and survivorship and percent cover, natural recruitment of native vegetation (if any), and any maintenance or replanting needs. Photographs must be included. If poor establishment is documented, the report must include recommendations to address the source of the performance problems.

2.10 Conservation Recommendations

Section 7(a)(1) of the ESA directs Federal agencies to use their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of the threatened and endangered species. Specifically, conservation recommendations are suggestions regarding discretionary measures to minimize or avoid adverse effects of a proposed action on listed species or critical habitat or regarding the development of information (50 CFR 402.02).

(1) Caltrans implements programs and leads fish passage advisory committees, partnering with stakeholders throughout California to identify, remediate, and remove fish passage barriers within the California highway system. NMFS values these efforts, notes their ongoing success, and recommends that Caltrans continue this work with NMFS and other partners to remedy fish passage impediments and improve instream access for anadromous salmonids throughout California.

Section 7(a)(1) of the ESA directs Federal agencies to use their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of the threatened and endangered species. Specifically, conservation recommendations are suggestions regarding
discretionary measures to minimize or avoid adverse effects of a proposed action on listed species or critical habitat or regarding the development of information (50 CFR 402.02).

2.11 Reinitiation of Consultation

This concludes formal consultation for the State Route 121 Huichica Creek Bridge Replacement Project.

As 50 CFR 402.16 states, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained or is authorized by law and if: (1) the amount or extent of incidental taking specified in the incidental take statement is exceeded, (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion, (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this opinion, or (4) a new species is listed or critical habitat designated that may be affected by the action.

3. DATA QUALITY ACT DOCUMENTATION AND PRE-DISSEMINATION REVIEW

The Data Quality Act (DQA) specifies three components contributing to the quality of a document. They are utility, integrity, and objectivity. This section of the opinion addresses these DQA components, documents compliance with the DQA, and certifies that this opinion has undergone pre-dissemination review.

3.1 Utility

Utility principally refers to ensuring that the information contained in this consultation is helpful, serviceable, and beneficial to the intended users. The intended user of this opinion is Caltrans. Other interested users could include citizens of affected areas, or others interested in the conservation of CCC steelhead. Individual copies of this opinion were provided to Caltrans.

This opinion will be posted on the Public Consultation Tracking System website (https://pets.nmfs.noaa.gov/pets-web/homepage.pets). The format and naming adheres to conventional standards for style.

3.2 Integrity

This consultation was completed on a computer system managed by NMFS in accordance with relevant information technology security policies and standards set out in Appendix III, “Security of Automated Information Resources,” Office of Management and Budget Circular A-130, the Computer Security Act, and the Government Information Security Reform Act.
3.3 Objectivity

Information Product Category: Natural Resource Plan

Standards: This consultation and supporting documents are clear, concise, complete, and unbiased; and were developed using commonly accepted scientific research methods. They adhere to published standards including the NMFS ESA Consultation Handbook, ESA regulations, 50 CFR 402.01 et seq.

Best Available Information: This consultation and supporting documents use the best available information, as referenced in the References section. The analyses in this opinion contain more background on information sources and quality.

Referencing: All supporting materials, information, data and analyses are properly referenced, consistent with standard scientific referencing style.

Review Process: This consultation was drafted by NMFS staff with training in ESA, and reviewed in accordance with West Coast Region ESA quality control and assurance processes.
4. REFERENCES


California Department of Fish and Game (CDFG) (2007). Annual Report to the National Marine Fisheries Service for Fisheries Restoration Grant Program Projects Conducted under the Department of the Army Regional General Permit No. 12 (Corps File No. 27922N) within the U.S. Army Corps of Engineers, San Francisco District January 1, 2006 through December 31, 2006. C. R. 1, Fortuna, CA.


Casagrande, J. M. 2010. Distribution, abundance, growth, and habitat use of steelhead in Uvas Creek, CA. Master's Thesis, San Jose State University, San Jose, CA.


Collins, B. W. (2004). Section 10 annual report for permit 1067. Fortuna, California Department of Fish and Game, CDFG.


Kadir, T., et al. (2013). Indicators of Climate Change in California, California Environmental Protection Agency, Office of Environmental Health Hazard Assessment: 258.


Appendix J – Flood Insurance Rate Map
Appendix K – Preliminary Plans and Cross Sections