

Troutdale Creek Bridge Replacement Project

NAPA COUNTY, CALIFORNIA
DISTRICT 4 – NAP – 29 (PM 47.0/47.2)
4A0900
SCH # 2012092011

Initial Study with Negative Declaration



Prepared by the
State of California Department of Transportation



June 2013

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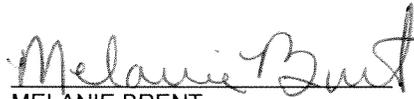
Replacement of the Troutdale Creek Bridge on Route 29 from Post Mile 47.0 to Post Mile 47.2 in Napa County

INITIAL STUDY with Negative Declaration

Submitted Pursuant to: (State) Division 13, California Public Resources Code

THE STATE OF CALIFORNIA
Department of Transportation

June 27, 2013
Date of Approval


MELANIE BRENT
Deputy District Director
District 4
California Department of Transportation
CEQA Lead Agency

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NEGATIVE DECLARATION

Pursuant to: Division 13, Public Resources Code

Project Description

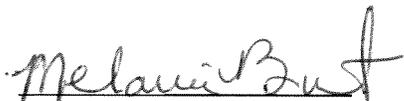
The California Department of Transportation (the Department) proposes to replace the Troutdale Creek Bridge on Route 29 in Napa County.

Determination

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 air quality; land use; community character and cohesion; consistency with state, regional, or local plans and programs; farmlands or timberlands; floodplains; growth; mineral resources; noise; parks and recreational land; or cultural resources.

In addition, the proposed project would have no significant effect on visual resources, biological resources, geology, real property, utilities and emergency services, traffic and transportation, water quality, paleontology, or hazardous waste and materials.



MELANIE BRENT
Deputy District Director
District 4
California Department of Transportation

June 27, 2013
Date

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SUMMARY

The project proposes to replace the Troutdale Creek Bridge (No. 21-0004) on Route 29 with a new single-span bridge from post mile 47.0 to post mile 47.2 in unincorporated Napa County.

This Negative Declaration represents the final environmental document. The Initial Study was approved in November 2010 and circulated for public review from September 7, 2012 to October 6, 2012. Changes to the previously circulated Initial Study reflect comments submitted during the public review period and editorial revisions to improve overall readability. Vertical lines in the margin denote the major changes.

Table of Contents

Chapter 1 – Proposed Project	1
1.1 Introduction	1
1.2 Purpose and Need	5
1.3 Project Description	6
1.4 Alternatives	6
1.5 Alternatives Considered But Eliminated from Further Discussion	12
1.6 Permits and Approvals Needed	13
Chapter 2 – Affected Environment, Environmental Consequences, and Avoidance, Minimization and/or Mitigation Measures	15
2.1 Relocations and Real Property Acquisition	17
2.2 Utilities/Emergency Services	19
2.3 Traffic and Transportation/Pedestrian and Bicycle Facilities	20
2.4 Visual/Aesthetics	22
2.5 Cultural Resources	32
2.6 Water Quality and Storm Water Runoff	35
2.7 Geology/Soils/Seismic/Topography	44
2.8 Paleontology	49
2.9 Hazardous Waste/Materials	52
2.10 Biological Environment	56
2.1.1 Natural Communities	56
2.1.2 Wetlands and other Waters	63
2.1.3 Animal Species	68
2.1.4 Threatened and Endangered Species	71
2.11 Construction Impacts	78
2.12 Climate Change	80
Chapter 3 – Comments and Coordination	91
Chapter 4 – List of Preparers	101
Chapter 5 – Distribution List	103
Appendix A – CEQA Checklist	A-1
Appendix B – Title VI Statement	B-1
Appendix C – U. S. Fish & Wildlife Service Biological Opinion	C-1
Appendix D – U. S. Fish & Wildlife Service Species List	D-1
Appendix E – California Natural Diversity Database	E-1
Appendix F – Avoidance and Minimization Summary	F-1
Appendix G – List of Technical Studies	G-1

List of Figures

Figure 1	Vicinity Map	2
Figure 2	Location Map	3
Figure 3	Preliminary Layout	4
Figure 4	Troutdale Creek Bridge Side View	23
Figure 5	Troutdale Creek Bridge Northbound	23
Figure 6	View of existing condition northbound Route 29 at Troutdale Creek Bridge	26
Figure 7	Simulated view of northbound Route 29 at Troutdale Creek Bridge after construction	26
Figure 8	Simulated view of northbound Route 29 at Troutdale Creek Bridge 10 years after construction	27
Figure 9	View of existing condition southbound Route 29 at Troutdale Creek Bridge	27
Figure 10	Simulated view of southbound Route 29 at Troutdale Creek Bridge after construction	28
Figure 11	Simulated view of southbound Route 29 at Troutdale Creek Bridge 10 years after construction	28
Figure 12	California Greenhouse Gas Forecast	82

List of Tables

Table 1	Summary of Accident Data	5
Table 2	Permits and Approvals Needed	13
Table 3	Summary of Active Faults	46
Table 4	Trees to be Removed	57
Table 5	Climate Change/CO ₂ Reduction Strategies	87

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Chapter 1 - Proposed Project

1.1 Introduction

The Department of Transportation (Department or Caltrans) is the lead agency under the California Environmental Quality Act (CEQA). The Troutdale Creek Bridge Replacement Project is located on State Route 29 in unincorporated Napa County between Post Mile 47.0 and Post Mile 47.2. The project is located north of the city of Calistoga and south of Lake County.

The Department proposes to remove the existing 31-foot (feet) wide, 26-foot long, two-lane, single-span Troutdale Creek Bridge (Bridge # 21-0004) and replace it with a 54-foot 6-inch wide, 60-foot long, two-lane, single-span bridge. The proposed single span bridge would be built on a new alignment of Route 29, southeast of the existing bridge. The proposed bridge will be built on a new curve alignment with a radius of 165 feet across the creek, which is larger than the existing radius of 110 feet. The proposed roadway section will consist of two 16-foot lanes with standard 8-foot shoulders that will conform to the existing two 12-foot lanes with non-standard 2-foot shoulders. The project will not increase roadway capacity.

The project is programmed in the 2012 State Highway Operation and Protection Program (SHOPP) under the Bridge Scour Program HA-21 (20.10.201.111- Bridge Scour) for the 2013/2014 Fiscal Year. This project was originally programmed in the 2010 SHOPP, and later updated and rolled over to the 2012 SHOPP. The current capital project cost is estimated at \$10,902,000.

Construction is scheduled to begin in 2015 and last for up to two years. Construction in Troutdale Creek will be limited to the dry season of June 1 to October 15, to minimize effects to biological resources and soil hydrology. Since the project is located in a rural area, all construction activities are expected to be performed during daytime hours.

Figures 1 and 2 show the project vicinity and location. Figure 3 is a preliminary layout that shows the bridge realignment location.

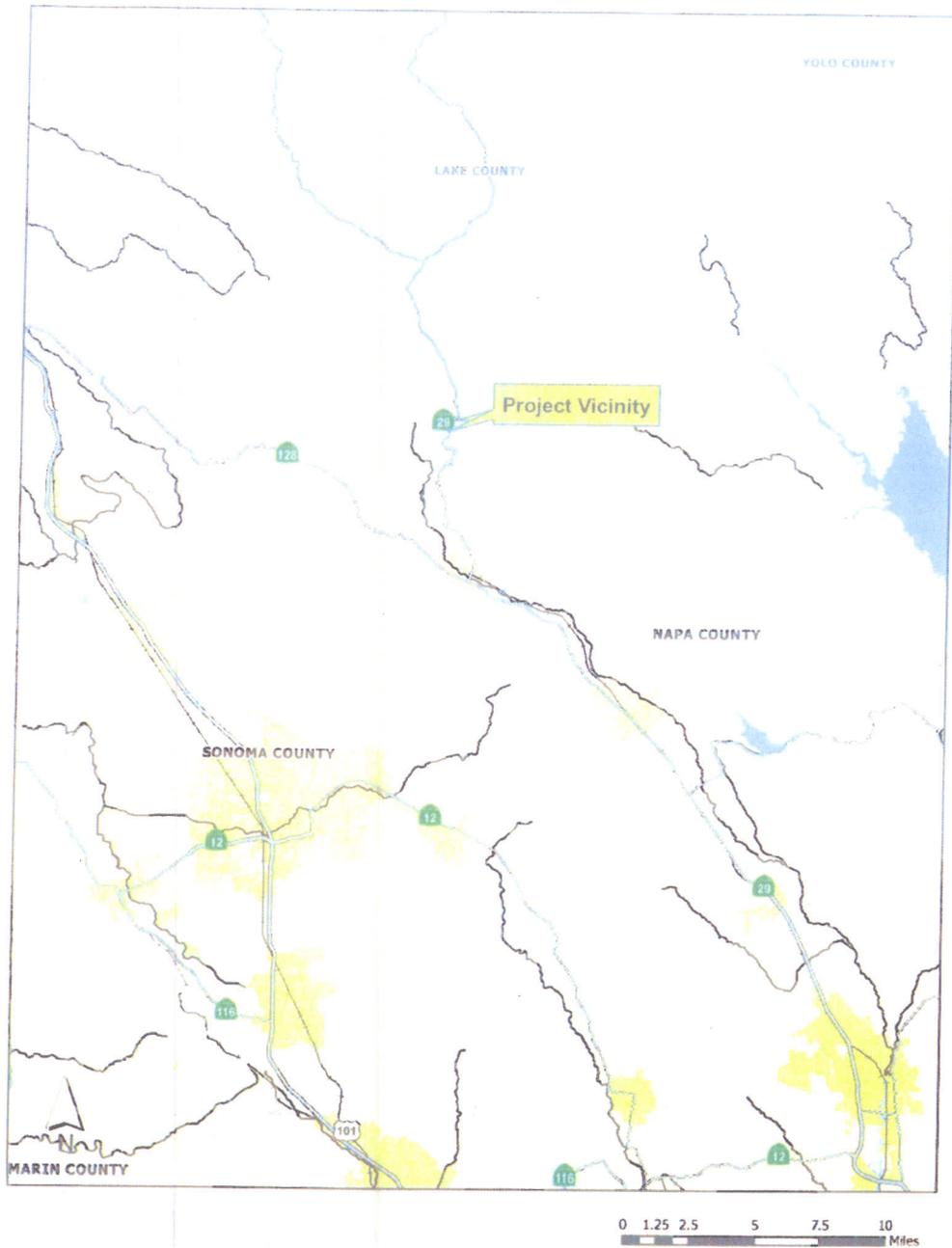


Figure 1 - Vicinity Map



Figure 2 – Location Map

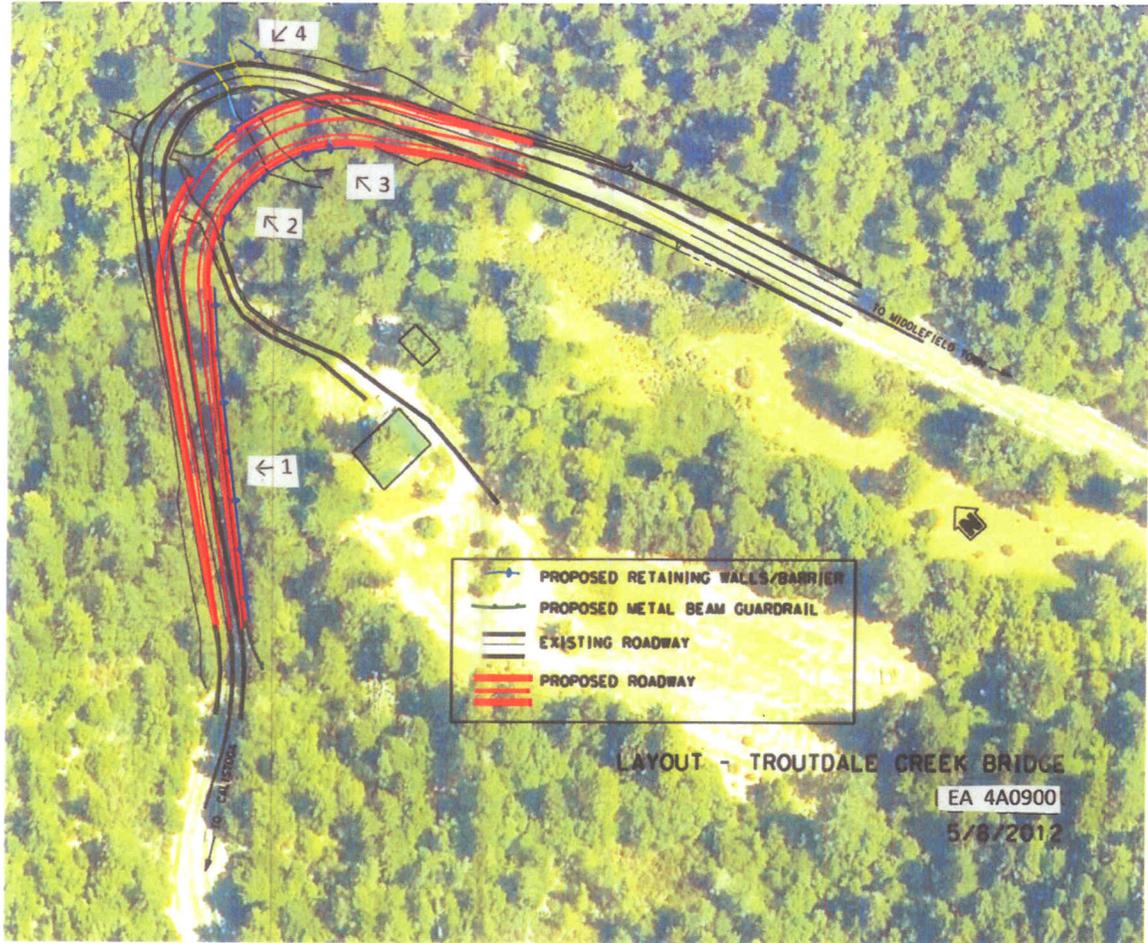


Figure 3 – Preliminary Layout

1.2 Purpose and Need

The purpose of this project is to correct the structural deterioration and non-standard design features of the Troutdale Creek Bridge.

The Troutdale Creek Bridge was constructed in 1923 and widened in 1950 to the current configuration consisting of single span slab with wing abutment on spread footings. The existing route is classified as a rural conventional highway.

The existing bridge is on a non-standard alignment and is located at a hairpin turn that has resulted in frequent vehicular impacts to the bridge railing and its metal beam guard rail (MBGR) approaches. Non-standard sight distance exists because of side slopes being very steep with densely populated trees. In addition, the angle of the creek flow has created hydraulic skew and resulted in scouring at the bridge abutment footing. High approaching velocity flow has degraded the subsurface structure to be classified as "Scour Critical".

The Troutdale Creek Bridge is identified in the Structure Replacement and Improvement Needs (STRAIN) Report as it is structurally deficient and functionally obsolete due to deterioration of the bridge foundation caused by erosion of the channel. The latest Bridge Inspection Records Information System (BIRIS) report, dated May 17, 2011, confirms that the Troutdale Creek Bridge is "Scour Critical". The BIRIS report also notes that bridge replacement had been previously recommended due to poor roadway alignment and low load capacity.

The proposed project with standard lanes and standard shoulders on the bridge should help reduce the number of accidents experienced within the project limits. The table below shows a summary of accident data retrieved from the Traffic Accident Surveillance and Analysis System (TASAS) in the project vicinity from October 1, 2007 to September 30, 2010:

Table 1 – Summary of Accident Data

	Actual Rates (accidents/million vehicle miles)			Average Rates (accidents/million vehicle miles)		
	F	F+I	Total	F	F+I	Total
PM 47.0/47.2	0.00	1.33	4.9	0.04	0.84	1.65

Note: F=Fatal; I=Injury; F+I = Fatal + Injury.

The following information was taken from TASAS Selective Record Retrieval:

Among the 22 accidents that occurred within the project limits in the three-year period:

Types of collision: hit object (10), head-on (6), sideswipe (3), broadside (2), and overturn(1).

Primary Collision Factor: Speeding (16), improper turn (3), and other violations (3).

1.3 Project Description

The Department proposes to replace the Troutdale Creek Bridge (Bridge # 21-0004), which is located on Route 29 from Post Mile 47.0 and 47.2 in unincorporated Napa County between the city of Calistoga to the south, and Lake County to the north.

This project proposes to replace the Troutdale Creek Bridge (No. 21-0004, Post Mile 47.11) on a new alignment, southeast of the existing bridge. The existing bridge will be open to traffic while the new bridge is constructed. Once the new bridge is built and open for traffic, the existing bridge will be demolished. The new bridge, like the existing bridge, will have one lane in each direction.

The proposed bridge will be built on a new curve alignment with a radius of 165 feet across the creek larger than the existing radius of 110 feet. The proposed roadway section will consist of two 16-foot lanes with standard 8-foot shoulders that will conform to the existing two 12-foot lanes and nonstandard 2-foot shoulders. This adjustment will require realignment as well as widening of the existing roadway. Four retaining walls are proposed to be built on soldier piles to reduce additional right-of-way requirements and environmental effects. These walls, along with four wingwalls, will also retain the roadway embankment after demolishing the existing bridge. This project is part of the scour mitigation program included in the Department's Ten-Year SHOPP Plan under Program Code 201.111.

The purpose of this project is to correct the structural deterioration and non-standard design features of the Troutdale Creek Bridge. This bridge replacement project does not study, propose, include or address any improvements to highway capacity, highway operation deficiencies, transportation demand, system linkages or air quality.

1.4 Alternatives

Severe scour and inadequate sight distance conditions cannot be remedied without structural replacement. The alternatives studied in this Initial Study are the Build Alternative and the No Build Alternative.

Build Alternative

This proposed project, the Build Alternative, would include the following sequence of construction elements:

- Relocate utilities prior to the beginning of construction;
- Install construction area signs;
- Build temporary creek flow diversion system;
- Build Access Road downstream;
- Excavate abutment areas and build foundation spread footing or CIDH piles;
- Construct retaining walls;
- Build foundation, abutments and wing walls;
- False work form work and pour soffit and girders or erect pre-cast girders then pour deck;
- Drill holes for the piles, insert piles and backfill with concrete;
- Install lagging, backfill and pack the space behind the lagging;
- Finalize roadway widening;
- Place MBGR (southbound);
- Remove all temp traffic control devices/K-rail/barricade and open the new roadway for traffic;
- Demolish/remove old bridge abutments, wing walls and foundations;
- Implement Permanent erosion control and site cleanup.

All necessary erosion control measures will be implemented on each and every stage of the construction. Existing two-way traffic would be maintained as much as possible during construction. However, one-way traffic control may be employed, possibly when trees are being removed, when portion of retaining wall 1 (discussed further in this section) is built, and the girders are being set.

Details of construction activities are discussed below:

Temporary Creek Diversion System

A temporary creek diversion system will be employed to ensure that there is no water within the creek bed during the construction window which is proposed from June 1 to October 15. The temporary creek 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 bags wrapped in impermeable plastic sheeting. A cut-off wall will be provided at the bottom of the cofferdams in order to reduce water seepage into the working area. The temporary creek diversion system will be removed at the end of each construction season by October 15. The cofferdams would be assembled and removed in each of the two construction seasons.

Roadway Widening/Retaining Walls

The roadway will be widened on the outside to conform to the new bridge, shifting the alignment primarily to the right side of the existing centerline. The existing junction of the roadway with the bridge is 31 feet that will be widened to 48 feet and then it will be tapered down to 32 feet to conform to the existing roadway. The existing asphalt concrete pavement will be removed for possible planting, water quality treatment and drainage system. The existing pavements to the bridge approach will be removed and replaced with new pavement to the adjusted profile. All existing metal beam guard rails (MBGR) will be removed and replaced in-kind with a current design standard.

The roadway profile will be adjusted to conform to the new bridge. Thus, all suitable excavated material will be used as fill. Any unused excavated materials will be disposed of properly to a certified landfill. Due to the relatively low traffic volume of this route, the amount of Aerially Deposited Lead (ADL) is not expected to be significant. However, ADL tests will be conducted during the design phase of the project.

There are four retaining walls proposed – three “fill” walls and one “cut” wall. All of the walls are soldier pile retaining walls and are shown on Figure 3. Wall 1 is about 358 feet long with a maximum height of approximately 8 feet. Wall 2 is about 47 feet long with a maximum height of approx. 12 feet. Wall 3 is about 38 feet long with a maximum height of approximately 6 feet. Concrete barrier (Type 736) will be on a 1.5 feet thick and 4 feet wide concrete cap at the top of walls 1 to 3. Wall 4, the only “cut” wall is about 32 feet long with a maximum height of approximately 8 feet, and is

proposed to minimize the ground disturbance for the existing abutment. The retaining walls will have cast-in-drilled-hole (CIDH) footing foundation. The actual depth of the CIDH piles will be determined during the design phase but will not exceed 40 feet in length below finished grade.

The soldier pile retaining walls are constructed of vertical structural members consisting of partially embedded piles. Piles are typically constructed with steel piles placed in drilled holes and backfilled with concrete or cast-in-place reinforced concrete. Soldier piles are then braced with horizontal members, lagging, of treated timber, reinforced concrete, and reinforced cast-in place concrete, precast concrete or metal elements. In addition to the above, for Wall 4, ground anchors and horizontal concrete walers are proposed if needed. Ground anchors are small diameter drilled elements of steel strands or bar that are grouted in place and tensioned to provide a preloaded condition in the ground, providing additional lateral support. Aesthetic treatment can potentially be applied to the finish surface.

The basic construction sequence for this type of excavation support involves installing the soldier piles at regular intervals, excavating in small stages and installing the lagging, then backfilling and compacting the void space behind the lagging. Equipment such as back hoes, hand operated augers and crane will be used for construction of the retaining walls.

Utility Relocation and Drainage Improvement

Based on topographic information, there are 2-inch water and electrical lines across the highway near the bridge. An existing polyvinyl chloride (PVC) pipe traverses the western bank of Troutdale Creek, and cables are suspended over the bank. These may supply utilities to the nearby residence. Where avoidance of these utilities is not feasible, relocation may be required.

The existing drainage system will be removed and replaced by a new system. The average depth of excavation to remove and relocate the drainage line will be approximately 4 feet. Light equipment such as back hoes, hand operated augers and trenchers will be used for utility relocation and drainage adjustment. Other scoped works like shoulder widenings, MBGR, and drainage improvements may take place simultaneously with the bridge construction work or during the non-dry season.

Bridge Demolition

Access to the creek bed for demolition will be via the construction access roads. A falsework platform will be suspended beneath the existing bridge to capture any

construction debris from the demolition work. The existing bridge will be demolished beginning in the middle of the bridge span and working outwards.

To grade temporary roads for access, dozers would be used. For demolition work, a backhoe or excavator with fitted ram would be used to break up the roadway deck and abutments. Then a loader would be used to collect the debris to be hauled away by trucks. Some kind of ground cover where the debris can fall would be included to protect the creek.

Bridge Construction

After temporary Type K rails and all the traffic control devices are in place, the construction would commence with clearing and grubbing of existing vegetation. Roads would then be graded for access of equipment.

The foundations for the two abutments will be built first. The type of foundation has not been determined but there are three viable options spreadfooting, Cast-In-Drilled-Hole (CIDH) or driven piles. The final choice will depend on information provided in forthcoming hydraulic and geotech reports with respect to environmental issues. For CIDH piles, after the holes are drilled into the ground, they would be filled with steel reinforcement cage and concrete would be poured into each hole, forming a pile. Approximately 30 piles at each abutment would be installed. The other options is to drive the either concrete or steel piles which would have approximately 15 piles at each abutment. The piles will be approximately 40 feet in length and 24 inches in diameter. The group of piles at each abutment would be capped off with a pile cap.

Next, the seat abutments would be built with reinforced concrete. Wingwalls would be constructed from reinforced concrete on each side of the abutment. They would basically act as retaining walls to the dirt embankment around the abutment.

For one superstructure alternative, cranes would be needed to set eleven precast/prestress (PC/PS) I-girders onto the seats at both abutments. Next, timber formwork will be placed between the girders. Concrete would be poured onto this formwork to form the 7 inch thick bridge deck with steel reinforcement.

To prepare for the CIDH piles, drill augers would be used to drill a cylindrical hole into the ground. For driven piles, excavator and diesel power hammers will be used. Cranes will be used for multiple parts of the construction from delivery of material.

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 manlifts, paver, hoe ram, jackhammers and compaction equipment.

Temporary Construction Access Roads and Staging Areas

Two on-site unpaved temporary construction access roads, approximately 30 feet in width for both, 60 feet in length on the north side and 130 feet on the south side of the bridge, will be established inside the project footprint. Contractor equipment will access the creek through these temporary construction access roads. Temporary disturbed areas will be revegetated after construction.

Staging areas for equipment storage and maintenance, construction materials, fuels, lubricants, solvents, and other possible contaminants will be within the construction right-of-way and will not be located in any environmental sensitive areas (ESAs).

Construction Site Best Management Practices (BMPs)

Temporary erosion control measures will be implemented on all disturbed soil areas. All state and federal waters and wetlands will be protected from sediment and pollutant discharges using appropriate techniques. Permanent erosion control measures will be implemented upon completion of construction. The total disturbed soil area (DSA) is 2.2 acres. Water Quality Control Boards require all projects that increase impervious surface area, to assess the feasibility of post construction permanent Treatment BMPs, as a condition of the 401 Water Quality Certification process. More information is provided in Chapter 2 – Water Quality and Stormwater Runoff section.

Action Area Site Preparation

Installation of ESA Fencing:

Before any construction activity starts, ESA fences will be installed along the border of the construction action area.

Vegetation Removal:

Vegetation will be cleared only when necessary and will be cut above original ground level except in areas that will be excavated for permanent construction. All clearing and grubbing will be done by hand tools, motorized chain saw, back hoes or excavators. Approximately 251 trees are anticipated to be removed. The final number of trees to be removed will be determined once plans have been finalized. A motorized chain saw will be used for the removal of the trees. The remaining stem

will be ground down to a sufficient depth in order to proceed with subsequent construction activities.

All vegetation removal will be scheduled outside the bird nesting season. If for any reason this schedule cannot be met, surveys for nesting migratory birds will be conducted before vegetation removal starts. All nest avoidance requirements for the Migratory Bird Treaty Act (MBTA) and California Department of Fish and Wildlife (CDFW) code will be observed. A biologist will be present on-site during vegetation removal to inspect for federally listed species and migratory birds, and to verify that all clearing is done according to the contract special provisions and permits.

Site Cleanup and Restoration:

All construction related materials, including ESA fences, will be removed after construction activities are completed. All temporarily disturbed areas will be restored to original grade and vegetated with appropriate native species. Permanent erosion control, including soil stabilization, measures such as hydro seeding and coir netting will be applied to all impacted areas.

No-Build Alternative

The No Build Alternative compares project conditions if the proposed improvements are not constructed. The Troutdale Creek Bridge would continue to deteriorate in its existing condition under the No Build Alternative as its structural deficiencies would not be resolved or addressed. The STRAIN report's recommendation for bridge replacement would be rejected. Presumably, the bridge condition would continue to deteriorate so that the Department would eventually close the bridge to traffic.

1.5 Alternatives Considered but Eliminated from Further Discussion

The alternatives for this project are the Build Alternative and the No Build Alternative while the Project Development Team has selected the Build Alternative.

Other design variations were also considered under the Build Alternative including the following:

Construct the bridge with 2 reverse radii of 865 feet with design speed of 55 miles per hour (MPH). This variation was rejected because of additional potential environmental impacts and mitigation, additional right-of-way acquisition and additional cost of \$16.7 million to meet design standards.

Construct the bridge with one radius curve of 865 feet with design speed of 55 MPH and a non-standard profile grade of 13%. This variation was rejected because of additional potential environmental impacts and mitigation, additional right-of-way acquisition and additional cost of \$10 million to meet design standards.

Construct the bridge with one radius curve of 600 feet with design speed of 40 MPH and a non-standard profile grade of 9%. This variation was rejected because of additional potential environmental impacts and mitigation, additional right-of-way acquisition and additional cost of \$5 million to meet design standards.

1.6 Permits and Approvals Needed

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

Table 2 - Permits and Approvals Needed

Agency	Permit/Approval	Status
U. S. Fish and Wildlife Service (USFWS)	Section 7 Consultation for Threatened and Endangered Species Biological Opinion	Received June 21, 2013
United States Army of Engineers (USACE)	Section 404 Nationwide Permit for placement of fill in waters of the United States	Application pending (Design phase)
California Department of Fish and Wildlife (CDFW)	Section 1602 Lake and Streambed Alteration Agreement	Application pending (Design phase)
Central Valley Regional Water Quality Control Board (RWQCB)	Section 401 Water Quality Certification	Application pending (Design phase)

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Chapter 2 - Affected Environment, Environmental Consequences, and Avoidance, Minimization, and/or Mitigation Measures

The analyses discussed are based on supporting technical studies and other reference materials not attached to this document. They are available for examination and copying at the following address: California Department of Transportation, District 4, Office of Environmental Analysis, 111 Grand Avenue, Oakland California, 94623-0660.

As part of the scoping and environmental analysis conducted for the project, the following environmental issues were considered but no adverse impacts were identified. Consequently, there is no further discussion regarding these issues in this document.

- *Air Quality* – The project is exempt from the requirement of an air quality conformity determination. Neither an air quality technical study nor a mobile source air toxics analysis is required. This bridge replacement project does not propose to modify highway capacity, operation or accessibility. The Construction Impacts section of Chapter 2 includes a discussion of avoidance and minimization measures related to temporary air quality effects during construction.
- *Community Character and Cohesion* – The proposed project will not alter the character or cohesiveness of existing neighborhoods or communities.
- *Consistency with 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. The Transportation 2035 Plan for the San Francisco Bay Area, adopted by the Metropolitan Transportation Commission in 2009, does not list any planned major highway improvements in the project vicinity. The project's consistency with the Napa County General Plan is discussed in the Visual/Aesthetics section of this chapter.
- *Existing and Future Land Use* – The project will not affect existing or future land uses. No acquisition of residential or commercial structures is anticipated, and the project would not alter community interaction patterns.
- *Farmlands and Timberlands* – There are no farmlands or timberlands within the project vicinity. A portion of a rural residential property will be required for the project, but this property does not meet the definition of farmland per the California Department of Conservation's Office of Land Conservation, is not a

Williamson Act contracted land and is not a Timber Production Zone contracted land.

- *Floodplain* – The project vicinity is not located within a base 100-year floodplain and therefore need not be studied or addressed further.
- *Growth* – The project does not propose to modify highway capacity, operation or accessibility and has no potential to influence growth. Therefore, project related growth is not reasonably foreseeable.
- *Mineral Resources* – There are no mining resources within the project vicinity.
- *Noise* – The project has no potential to increase noise and does not qualify as a Type I project under 23 CFR (Code of Federal Regulations) 772. The Construction Impacts section of Chapter 2 includes a discussion of avoidance and minimization measures related to temporary noise effects during construction.
- *Parks and Recreation* – There are no parks or recreational facilities affected by the project.
- *Plant Species* – No special-status or sensitive plant species were observed within the project vicinity during the reconnaissance level or the focused botanical surveys.
- *Wild and Scenic Rivers* - No wild and scenic rivers are in the project vicinity.

2.1 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) and Title 49 Code of Federal Regulations (CFR) Part 24. The purpose of 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, or sex in compliance with Title VI of the Civil Rights Act (42 USC 2000d, et seq.). Please see Appendix B for a copy of the Department's Title VI Policy Statement.

Affected Environment

The existing right-of-way for the project vicinity consists of property owned in fee by the State with no easements. This property includes the existing roadway, including that over the bridge structure, areas under the bridge structure including this portion of Troutdale Creek, and shoulder areas required for the current roadway alignment and bridge to function and be maintained.

Environmental Consequences

The proposed single span bridge will be built on a new alignment, southeast of the existing bridge. The proposed bridge will be built on a new curve alignment with a radius of 165 feet across the creek, which is larger than the existing radius of 110 feet. Therefore, acquisition of right-of-way will be required southeast of the existing bridge to accommodate the new alignment. Temporary construction easements (TCEs) will also be necessary for access and staging.

Right-of-way requirements for the project are subject to change and the sizes and types of each requirement will be finalized by the design/right-of-way phase of the project. Right-of-way will be required from Napa County Assessor's Parcel #s 016010019000 (temporary construction easement) and 016010020000 (partial acquisition and temporary construction easement), which are rural vacant land and rural residential properties respectively on Route 29.

No owners, tenants, businesses or persons would be displaced by the project. None of the physical improvements (residence) to the affected property at Parcel # 016010020000 will be affected by the project.

Upon the appraisal and inspection of the proposed right-of-way acquisition by the Department at future meetings between the affected property owner(s) and/or tenant(s) and Department right-of-way representatives, the owner(s)/tenant(s) may qualify for relocation assistance benefits for the possible relocation of any personal property within required right-of-way areas encountered during inspection. No other RAP benefits or entitlements are anticipated.

Avoidance, Minimization and/or Mitigation Measures

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

2.2 UTILITIES/EMERGENCY SERVICES

Affected Environment

There are 2-inch water and electrical lines across the highway near the bridge. An existing polyvinyl chloride (PVC) pipe traverses the western bank of Troutdale Creek, and cables are suspended over the bank.

Environmental Consequences

Verification of utilities is ongoing. Where avoidance is not feasible, utility relocation will be required. All of the affected utilities are anticipated to be relocated prior to the beginning of bridge construction.

Avoidance, Minimization, and/or Mitigation Measures

The Department and/or its contractor will notify the local emergency service providers of upcoming periods of one-way traffic control. No avoidance, minimization and/or mitigation measures are proposed.

2.3 TRAFFIC AND TRANSPORTATION/PEDESTRIAN AND BICYCLE FACILITIES

Regulatory Setting

The Department, as assigned by FHWA, directs that full consideration should be given to the safe accommodation of pedestrians and bicyclists during the development of federal-aid highway projects (see 23 CFR 652). It further directs that the special needs of the elderly and the disabled must be considered in all federal-aid projects that include pedestrian facilities. When current or anticipated pedestrian and/or bicycle traffic presents a potential conflict with motor vehicle traffic, every effort must be made to minimize the detrimental effects on all highway users who share the facility.

The Department is committed to carrying out the 1990 Americans with Disabilities Act (ADA) by building transportation facilities that provide equal access for all persons. The same degree of convenience, accessibility, and safety available to the general public will be provided to persons with disabilities.

Affected Environment

This bridge replacement project does not propose to modify highway capacity, operation or accessibility. The project, therefore, will not affect traffic and transportation (i.e., levels of service, etc.).

There is pedestrian/bicycle access consisting of striped but unsigned bicycle/pedestrian paths on the shoulders of both sides of the roadway. The Napa County Transportation & Planning Agency's (NCTPA) Napa Countywide Bicycle Plan, released in May 2012, identifies this segment of Route 29 as a portion of the countywide Primary Bikeway Network that consists of a selection of existing and proposed Class I, Class II, and Class III bikeways that provide inter-city and inter-county routes along with connections to other transportation modes, major destinations, jobs, neighborhoods, recreation, and local bicycle networks. The Napa Countywide Bicycle Plan also identifies this segment of Route 29 as a proposed Class II Bike Lane, defined as a portion of a roadway that has been designated by striping, signing, and pavement markings for the preferential or exclusive use of bicyclists.

Environmental Consequences

Existing two-way vehicular traffic and pedestrian/bicycle access will be maintained as much as possible during construction. However, one-way traffic control may be

employed on a minimal, temporary basis possibly when trees are being removed, when portions of retaining wall 1 are built, and/or the bridge girders are being set.

The project does not inhibit or otherwise prevent this segment of Route 29 from becoming a Class II Bike Lane, and is therefore consistent with the NCTPA's Countywide Bicycle Plan.

Avoidance, Minimization and/or Mitigation Measures

A Transportation Management Plan (TMP) will be required for this project. The TMP will be developed and refined during the design phase of the project and supported by detailed studies to evaluate traffic operations. The TMP may include press releases to notify and inform motorists, businesses, community groups, local entities, emergency services, and local officials of periods of upcoming one-way traffic control. Various TMP elements such as Portable Changeable Message Signs and California Highway Patrol (CHP) Construction Zone Enhanced Enforcement Program (COZEEP) may be utilized to alleviate and minimize delay to the traveling public.

2.4 VISUAL/AESTHETICS

Regulatory Setting

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 Section 21001[b])

Affected Environment

The Department completed a Visual Impact Assessment Technical Report in June 2012. This report is available for review upon request.

Project Setting

The Troutdale Creek Bridge is located on Route 29, approximately 9 miles northeast of the City of Calistoga. The landscape along the highway is primarily characterized by heavy forest comprised of redwoods, oaks and other trees. Development is extremely sparse throughout the area with only one residence located at the inside curve of the Troutdale Creek Bridge and its driveway access just south of the actual bridge. The land in view from the highway has a distinctly rural character and a pleasant, deep, mature forest appearance in most places. Unique or outstanding scenic elements include an almost constant meandering drive through mature forest with occasional patches of sunlight through openings in the trees. The road itself winds continuously for the entire length from Calistoga to the Napa County line. In the mountainous areas, mature trees with an under story of low, shrubby vegetation occur along most sections of the highway. Roadside trees occur mostly in groups but also singly. Route 29 is not a Designated State Scenic Highway but is eligible for such designation. It is also identified in the Napa County General Plan as a Scenic Roadway that is subject to the Viewshed Protection Program. The protective provisions of the program apply to all public projects. The following photographs (Figures 4 and 5) show the existing condition of the project setting.

Figure 4 - Troutdale Creek Bridge Side View



Figure 5 - Troutdale Creek Bridge Northbound



Existing Visual Character of Project Vicinity

The visual character of the immediate project site is entirely rural. There is a distinct absence of development other than the one residence just below the bridge and its driveway just south of the bridge and the barriers and bridge rail of the existing structure. Currently, the level of vividness within the project area is high. The most dramatic individual landscape feature is the dense mature forest with steep hillsides and some understory along this windy road. The experience is memorable with its attractive rural character of the landscape in general, its steeply wooded hills, and occasional seasonal and non-seasonal creek drainages. The general experience is dark with the thick, tightly spaced trees that overhang the road. The intactness of the area is high due to the low level of development within the highway corridor and an absence of visually encroaching or strongly incongruent, human-made features. The unity of the highway corridor landscape is high because there is a clear consistency in the lack of development and the type of native vegetation, which is distinctly rural. The only visually undesirable element is the existing bridge rail. Based on these conditions, existing visual quality along Route 29 in the vicinity of the project is considered high.

Viewer Sensitivity

Viewers of the project site are motorists and cyclists on Route 29 including tourists, people traveling to nearby recreation destinations, and daily commuters. Such viewer groups have a high sensitivity to the landscape within the highway corridor. However, these viewers would be exposed to any project-induced changes for brief time, lasting only as long as it takes for persons to move through the bridge replacement project area. Other than the highway, there are no areas from which the public would be able to see the bridge site other than the one residence below the inside curve.

Environmental Consequences

Once the bridge replacement project is completed, changes to the project setting will be evident. Changes would be due to the removal of approximately 251 trees at the bridge site, earthwork, retaining walls and the presence of the new bridge as compared to the existing bridge. The existing bridge was originally constructed in 1923 and widened in 1950 to the current configuration. It consists of a single span slab with wing abutments on spread footings. It is not considered historically significant or visually appealing.

There will be four new soldier pile walls constructed. They are in lengths of 32 feet, 38 feet, 47 feet and 358 feet. The heights vary from zero feet to 12 feet. Three of

these walls will have a timber lagging finish. The inside curve wall portion directly around the creek opening will have a treatment of 'random rock ashlar' pattern that will be stained natural earth-tones. The fourth and only upslope wall would have a carved and stained shotcrete finish. The inside curve would have concrete barrier Type 736 and the outside curve will have the concrete barrier Type 742. The closest area to have treated walls is approximately five miles south of Troutdale Creek Bridge and will have a carved and stained rock treatment. The existing bridge does not contribute in a positive manner to the scenic quality of the immediate setting nor does it enhance the visual character of the highway facility. The intent of the new bridge aesthetics is to visually integrate it into the existing landscape. The visual quality of the new bridge will be superior to that of the existing bridge in that the existing old damaged concrete barriers would be removed and replaced with a cleaner, more architecturally appealing structure appropriate for the area.

In many places along the highway, trees line the road and overhang the pavement to some degree. Approximately 251 trees on both sides of the road will be removed during project construction, many of them on the northbound side. Removal of these trees is a substantial change and would create an opening in the landscape creating a new visual landscape segment with sky, light and no tree canopy. This would extend approximately 300 to 400 feet past both ends of the proposed bridge. Most of the trees that would be removed are characteristic of the type encountered in the area in terms of their size, form, age, species, location and arrangement.

The following photographs show the existing condition, simulated view after construction and simulated view 10 years after construction in both the northbound and southbound directions.

Figure 6 - View of the existing condition northbound Route 29 at Troutdale Creek Bridge



Figure 7 - Simulated view of northbound Route 29 at Troutdale Creek Bridge after construction

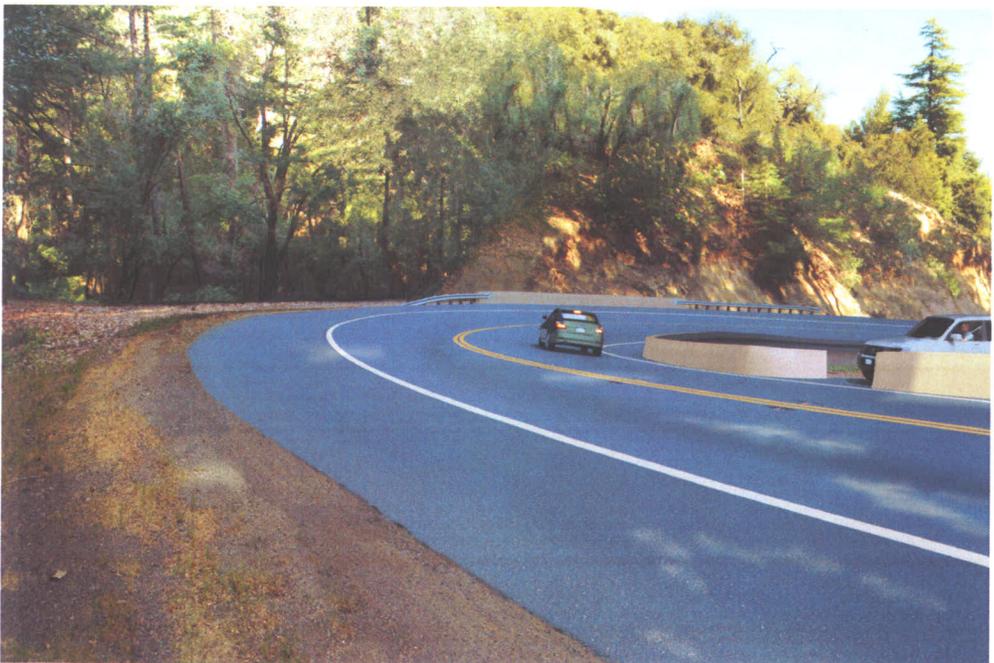


Figure 8 - Simulated view of northbound Route 29 at Troutdale Creek Bridge 10 years after construction

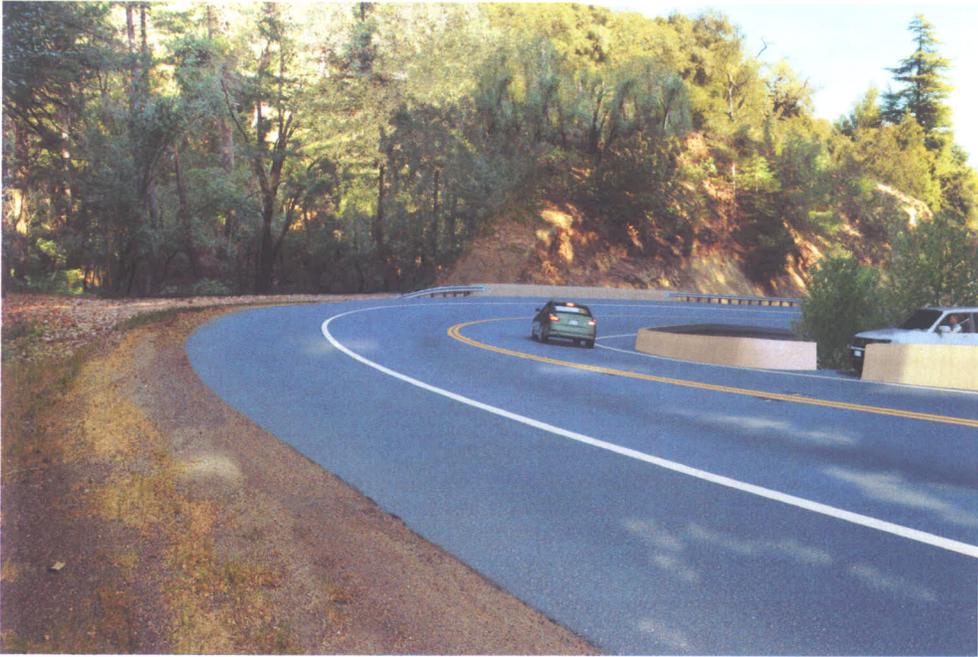


Figure 9 - View of the existing condition southbound Route 29 at Troutdale Creek Bridge



Figure 10 - Simulated view of southbound Route 29 at Troutdale Creek Bridge after construction



Figure 11 - Simulated view of southbound Route 29 at Troutdale Creek Bridge 10 years after construction



Summary of Effects

The project will not have a substantial adverse effect on scenic vistas. There are no designated scenic vistas within the property vicinity and none would be affected by the proposed project.

The project will not substantially damage scenic resources. Route 29 is not a designated State Scenic Highway, but is eligible for such designation. No scenic resources as defined in Chapter 27 of the Department Standard Environmental reference (SER) are present within the project limits. While trees are being removed, there are no designated heritage trees or other unique trees that are designated as scenic resources.

The project will not substantially affect or otherwise degrade the visual character or quality of the highway corridor on a permanent basis. Approximately 251 trees will be removed and will create a sunny opening in the immediate area, but replacement planting, discussed further in this section, will eventually reestablish the forested tree canopy. With recommended minimization measures, effects on visual resources of the corridor, though temporarily adverse, will remain less than significant.

The project will not create a new source of substantial light or glare which would adversely affect day or nighttime views in the area. Any nighttime construction activities would have the potential to cause temporary light and glare impacts on the only residence nearby construction lighting. With recommended minimization measures noted further in this section, these effects will be less than significant. Furthermore, all construction activities are expected to be performed during daytime hours.

Consistency with Local Plans and Policies

The Community Character Element of the Napa County General Plan addresses Aesthetics, Arts and Culture, Views and Scenic Roadways. The following goals and policies contained in the plan are relevant to the proposed project.

Goal CC-1: Preserve, improve, and provide visual access to the beauty of Napa County.

Consistent. *This project is not blocking any scenic views and will open up views to Troutdale creek.*

Policy CC-8: Scenic roadways which shall be subject to the Viewshed Protection Program are those shown in Figure CC-3, or designated by the

Board of Supervisors in the future. [Route 29 is among the roadways shown in Figure CC-3].

Consistent. *The highway will not be impacting landform and there is no unique geology on the site. The tree removal will allow for opening views of the creek valley. Effects of the project are very localized to the site. Bridge construction will be using aesthetics and materials that are compatible with the rural character wherever feasible.*

Policy CC-13: The County's roadway construction and maintenance standards and other practices shall be designed to enhance the attractiveness of all roadways and in particular scenic roadways. New roadway construction or expansion shall retain the current landscape characteristics of County-designated scenic roadways, including retention of existing trees to the extent feasible and required re-vegetation and re-contouring of disturbed areas. In addition:

- a) A program to replant trees and shrubbery should be implemented in cases where they are removed during new roadway alignment.
- b) Installation of landscaping shall be required in conjunction with major roadway improvements where necessary to screen the existing residence from glare generated by vehicle headlights.

Consistent. *Any trees or shrubs removed from the segment shall be replanted to the extent possible. All disturbed areas, including hillsides and streambanks will be re-contoured and protected with best management practices (BMPs). The entire area will be replanted. Any effects to the project are very localized to the site.*

Avoidance, Minimization, and/or Mitigation Measures

Minimization measures of project-related visual effects consist of adhering to the following design requirements in cooperation with the Department's District Landscape Architect. The following specific minimization measures are proposed:

- 1) Cut and fill slopes should be contour graded and rounded so as to reflect the contours of adjacent, undisturbed topography to the extent feasible. Grading operations should not result in angular landforms.

2) All exposed ground surfaces should be hydro-seeded with appropriate plant species for erosion control purposes. The hydro-seeded vegetative cover will reduce the degree of visual contrast of the disturbed areas. It is expected that indigenous shrubs and herbaceous plants occurring on adjacent, undisturbed slopes will colonize the newly seeded slopes. As these colonizing plants mature and increase in density, the visual contrast of the disturbed areas will continue to diminish. In time, vegetative cover patterns of areas disturbed during project construction will match the adjacent, undisturbed areas.

3) Replace native trees that have a diameter at breast height (dbh) of six inches or greater with a ratio of 1:1. The 3:1 ratio recommended in the Natural Communities subsection of the Biological Resources section of this chapter for the replacement of native trees with a dbh of four inches or greater will address this minimization measure. Trees will be planted on-site in the project area to the extent possible under a separate project after the completion of construction. Off-site planting areas will be sought to accommodate the remainder of the tree replacement. Trees species planted in the replacement will come from the palette of trees removed, and may include Douglas fir, white alder, big leaf maple, California bay laurel, Dogwood, Pacific madrone, Canyon live oak, Yew, Tan oak, Manzanita, Ponderosa pine, Valley oak, and California black oak.

4) The new bridge will have a form lined texture and color on the wing walls. The new concrete barriers will receive an architectural treatment to be determined during the design phase of the project.

5) Three of the retaining walls will be soldier pile composed of horizontal timber lagging and vertical steel I-girders. The timber lagging will have a natural brown color and the steel I-girders will be painted a similar brown to the timber. The fourth retaining wall will have a carved and stained shotcrete surface treatment.

6) The light and glare during the project construction will only be visible from the one residence located below the construction site. Lights will be shielded to prevent light intrusion upon the residence as much as possible.

2.5 CULTURAL RESOURCES

Regulatory Setting

“Cultural resources” as used in this document refers to all “built environment” resources (structures, bridges, railroads, water conveyance systems, etc.), culturally important resources, and archaeological resources (both prehistoric and historic), regardless of significance. Laws and regulations dealing with cultural resources include:

The National Historic Preservation Act of 1966, as amended, (NHPA) sets forth national policy and procedures regarding historic properties, defined as districts, sites, buildings, structures, and objects included in or eligible for the National Register of Historic Places. Section 106 of NHPA requires federal agencies to take into account the effects of their undertakings on such properties and to allow the Advisory Council on Historic Preservation the opportunity to comment on those undertakings, following regulations issued by the Advisory Council on Historic Preservation (36 CFR 800). On January 1, 2004, a Section 106 Programmatic Agreement (PA) between the Advisory Council, the Federal Highway Administration (FHWA), 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 Advisory Council’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 Pilot Program (23 CFR 327) (July 1, 2007).

Historical resources are considered under the California Environmental Quality Act (CEQA), as well as California Public Resources Code (PRC) Section 5024.1, which established the California Register of Historical Resources. PRC Section 5024 requires state agencies to identify and protect state-owned resources that meet National Register of Historic Places listing criteria. It further specifically requires the Department to inventory state-owned structures in its rights-of-way. Sections 5024(f) and 5024.5 require state agencies to provide notice to and consult with the State Historic Preservation Officer (SHPO) before altering, transferring, relocating, or demolishing state-owned historical resources that are listed on or are eligible for inclusion in the National Register or are registered or eligible for registration as California Historical Landmarks.

Affected Environment

The Department prepared and completed a Historical Property Survey Report (HPSR) with an attached Archaeological Survey Report (ASR) in April 2012. The Department's Office of Cultural Resources has completed this report to ensure that the project is carried out in a manner consistent with Department responsibilities under the January 2004 *Programmatic Agreement under 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) for compliance with Section 106 of the National Historic Preservation Act (NHPA).

The Area of Potential Effects (APE) for cultural resources was established in consultation with Department staff and includes the maximum project footprint including: all areas of direct effect, areas of proposed right-of-way acquisition, temporary construction easements and utility relocations. The vertical APE extends to a maximum of 40 feet below ground surface for the bridge pilings and a maximum of 15 feet below ground surface for the retaining walls.

No concerns regarding cultural resources have been brought forth as a result of consultation with the Native American Heritage Commission and groups and individuals identified by the commission as interested parties. A records search of the Northwest Information Center (NWIC) of the California Historical Resources Information System, Sonoma State University, reveals no previously recorded archaeological sites within the APE.

In the course of survey efforts, one previously unrecorded cultural resource was identified in the APE. This resource consists of a chimney, a fireplace and a foundation ruin with no accompanying artifacts. This resource has been determined to be exempt from evaluation pursuant to the PA. No prehistoric artifacts were observed within the APE during archaeological survey and the APE is not sensitive for buried archaeological deposits.

If cultural materials are discovered during construction, all earth-moving activity within and around the immediate discovery area would be diverted until a qualified archaeologist could 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 cease in any area or nearby area suspected to overlie remains, and the County Coroner contacted. Pursuant to Public Resources Code Section 5097.98, if the remains are thought to be Native American, the

coroner would notify the Native American Heritage Commission (NAHC) who would then notify the Most Likely Descendent (MLD). At this time, the person who discovered the remains would contact Lissa McKee, Office Chief, Office of Cultural Resource Studies, so that the Office of Cultural Resource Studies 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.

The Troutdale Creek Bridge (#21-0004) is a Category 5 structure in the Department Historic Highway Bridge Inventory and was determined ineligible for National Register listing in the Statewide Historic Bridge Inventory of 2006. Existing historic property lists researched for this project include the National Register of Historic Places, California Register of Historical Resources, California Historical Landmarks and California Points of Historical Interest. There are no previously identified National Register listed or eligible properties, California Historical Landmarks, or California Points of Historical Interest within the APE of for this project.

Environmental Consequences

The Department has determined that a Finding of No Historic Properties Affected according to the Section 106 PA is appropriate for this undertaking.

The project will not affect or use any Section 4(f) historic resource since no such uses were identified within the project limits.

Avoidance, Minimization, and/or Mitigation Measures

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

2.6 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 source unlawful unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. Known today as the Clean Water Act (CWA), Congress has amended it 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. Important CWA sections are:

- Sections 303 and 304 require states to promulgate water quality standards, criteria, and guidelines.
- Section 401 requires an applicant for a federal license or permit to conduct any activity, which 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. (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).
- 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 objective of the CWA is “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.”

USACE issues two types of 404 permits: Standard and General permits. There are two types of General permits, Regional permits and Nationwide permits. 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 authorize a variety of minor project activities with no more than minimal effects.

There are two types of Standard permits: Individual permits and Letters of Permission. Ordinarily, projects that do not meet the criteria for a Nationwide Permit may be permitted under one of USACE's Standard permits. For Standard permits, the USACE decision to approve is based on compliance with U.S. EPA's Section 404 (b)(1) Guidelines (U.S. EPA CFR 40 Part 230), and whether permit approval is in the public interest. The Section 404(b)(1) Guidelines were developed by the U.S. EPA in conjunction with 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 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. Per 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.

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 regarding water quality standards in a project area are contained in the applicable RWQCB Basin Plan. States designate beneficial uses for all water body segments, and then set criteria necessary to protect these uses.

Consequently, the water quality standards developed for particular water segments are based on the designated use and vary depending on such use. In addition, each state identifies waters failing to meet standards for specific pollutants, which 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 controls, 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, water pollution control, and water quality functions throughout the state. RWCQB are responsible for protecting beneficial uses of water resources within their regional jurisdiction using planning, permitting, and enforcement authorities to meet this responsibility.

National Pollution Discharge Elimination System (NPDES) Program

Municipal Separate Storm Sewer Systems

Section 402(p) of the CWA requires the issuance of NPDES permits for five categories of storm water dischargers, including Municipal Separate Storm Sewer Systems (MS4s). The U.S. EPA defines an MS4 as any conveyance or system of conveyances (roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, human-made channels, and storm drains) owned or operated by a state, city, town, county, or other public body having jurisdiction over storm water, that are designed or used for collecting or conveying storm water. The SWRCB has identified the Department as an owner/operator of an MS4 by the SWRCB. This 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, under revision at the time of this update, contains 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) and other measures.

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.

Part of and appended to the SWMP is the Storm Water Data Report (SWDR) and its associated checklists. The SWDR documents the relevant storm water design decisions made regarding project compliance with the MS4 NPDES permit. The preliminary information in the SWDR prepared during the Project Initiation Document (PID) phase will be reviewed, updated, confirmed, and if required, revised in the SWDR prepared for the later phases of the project. The information contained in the SWDR may be used to make more informed decisions regarding the selection of BMPs and/or recommended avoidance, minimization, or mitigation measures to address water quality impacts.

Construction General Permit

Construction General Permit (Order No. 2009-009-DWQ), adopted on September 2, 2009, became effective on July 1, 2010. The permit regulates storm water discharges from construction sites which 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 results 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 Plan (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 body 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 USACE. The 401 permit certifications are obtained from the appropriate RWQCB, dependent on the project location, and are required before 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 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

The Department completed a Water Quality Report for this project in May 2012. This report is available for review upon request. The Central Valley Regional Water Quality Control Board (RWQCB, Region 5) is responsible for implementation of State and Federal water quality protection laws and regulations in the project vicinity.

Receiving Water Bodies

The project site is within the Putah Creek Hydrologic Unit, Upper Putah Creek Hydrologic Area and Undefined Hydrologic Sub-Area (Sub-Area Number 512.30) with Watershed Area of 160,523 acres with mean annual precipitation of 65 inches per the Watershed Information Center & Conservancy of Napa County.

Storm water from the project area drains into the Troutdale Creek, which is a tributary of Putah Creek that ultimately drains to Lake Berryessa.

Lake Berryessa is considered as a High Risk Area, as a source of the municipal and domestic water supply. Lake Berryessa is on the U. S. EPA's 303(d) List of Water Quality Limited Segments. The pollutant of concern for Lake Berryessa is mercury due potentially to the extraction of resources in the area.

The Region 5 RWQCB Basin Plan has established beneficial uses for Lake Berryessa, which are: municipal and domestic supply (MUN); agricultural supply (AGR); power generation (POW); water contact recreation (REC-1); noncontact water recreation (REC-2); warm freshwater habitat (WARM); cold freshwater habitat (COLD); spawning, reproduction and/or early development of warm freshwater aquatic organisms (SPWN); and wildlife habitat (WILD).

Ground Water

According to the Statewide Ground Water Basin Map with Sub-Basins created by the California Department of Water Resources, this project is not located within any ground water basins or sub-basins. The ground water depth within the project limits is expected to be very close to the creek bed level. Ground water level fluctuates with the seasonal changes. A dewatering permit may be required for this project.

Troutdale Creek discharges to the Putah Creek Groundwater Basin. The potential beneficial uses of this groundwater resource according to the Basin Plan include irrigation water supply at 73% (predominantly vineyards), and municipal and domestic water supply at 27%.

Environmental Consequences

The Department performed studies to monitor and characterize highway storm water runoff throughout the State. Commonly found pollutants are Total Suspended Solids (TSS), nutrients, pesticides, metals (particulate and dissolved), pathogens, litter, Biochemical Oxygen Demand (BOD), Total Dissolved Solids (TDS), zinc (total or dissolved), phosphorous, copper (total or dissolved), sediments, and general metals. Some sources of these pollutants are natural erosion, runoff from construction sites, tree leaves, surfactants and emulsifiers, droppings of wild and domestic animals, automotive exhausts, fertilizer runoff, combustion products from fossil fuels, corrosion of metals, paints and solder, and wearing of brake pads within state right-of-way.

All work proposed for this project is expected to cause approximately 2.2 acres in disturbed soil area (DSA). The net additional impervious area due to the replacement of the bridge will be approximately 0.26 acres with the reworked area of 0.23 acres. Due to the bridge replacement construction work within Troutdale Creek, and the need for an Army Corp 404 permit, the Department will apply for a 401 Water Quality Certification from Region 5, RWQCB. This project will not cause any effects to ground water.

Avoidance, Minimization, and/or Mitigation Measures

According to the Department's National Pollution Discharge Elimination System (NPDES) permit and the Construction General Permit, Best Management Practices (BMPs) will be incorporated to reduce the discharge of pollutants during construction as well as permanently to the Maximum Extent Practicable (MEP). These BMPs fall into four categories, Temporary Construction Site BMPs, Design Pollution Prevention BMPs, Permanent Treatment BMPs, and Maintenance BMPs. The Department has a Storm Water Management Plan (SWMP) (May 2003) that describes how the Department will comply with its NPDES Permit. General categories of BMPs include:

Construction Site BMPs

Construction Site BMPs are implemented during construction activities to reduce pollutants at their source before they come in contact with storm water. The Department's Construction Site BMPs are divided into six categories: Temporary Soil Stabilization, Temporary Sediment Control, Tracking Control, Non-Storm Water Management, and Waste Management and Materials Pollution Control. Some of the BMPs that may be utilized to prevent and minimize soil erosion and sediment discharges during construction are Street Sweeping and Vacuuming, Concrete Waste Management, Stockpile Management, and Stabilized Construction Entrance/Exit.

Given that the anticipated soil disturbance is greater than one acre (0.4 hectares), a Storm Water Pollution Prevention Plan (SWPPP) will be deployed during construction activities. This dynamic document addresses the deployment of various erosion and water pollution control measures that are required commensurate to changing construction activities.

Design Pollution Prevention BMPs

Design Pollution Prevention BMPs are permanent measures to improve storm water quality by reducing erosion, stabilizing disturbed soil areas, and maximizing vegetated surfaces after construction is completed. Erosion control measures will be provided on all disturbed areas to the maximum practical extendable. These measures can utilize a combination of source and sediment control measures to prevent and minimize soil erosion from disturbed areas. Source controls utilize erosion control netting in combination with hydroseeding.

The biodegradable netting is effective in providing good initial mechanical protection while the seeds applied during the hydroseeding operation germinate and re-establish vegetation. Other forms of source control such as tacked straw may also be used when applicable. Sediment controls such as biodegradable fiber rolls can be used to retain sediments and to help control runoff from disturbed slope areas. These measures would be investigated during the design phase.

Outlet protection and velocity dissipation devices placed at the downstream end of culverts and channels are another form of Design Pollution Prevention BMPs that reduce runoff velocity and control erosion and scour. Implementing these devices for this project would be further investigated during the design phase.

For this project treatments may include Erosion Control (Type D) application to all disturbed soil areas and Fiber Roll installation along disturbed slopes to act as slope interrupter devices.

The project design is to minimize areas of disturbance to accommodate improvements and retain the existing vegetation to the Maximum Extent Practicable (MEP). Measures to avoid and minimize disturbance to environmentally sensitive areas will be included. Measures will include implementing the exclusionary fencing in environmentally sensitive areas with a high visibility (HV) fence fabric or a combination silt fence/HV fence fabric to reduce, or eliminate the potential of sediment and other pollutant concentrations from construction activities.

Permanent Treatment BMPs

Treatment BMPs are permanent devices and facilities treating storm water runoff. Department approved Treatment BMPs are Biofiltration Swales, Infiltration Basins, Detention Basins, Traction Sand Traps, Dry Weather Flow Diversions, Media Filters,

Gross Solids Removal Devices (GSRDs), Multi-chamber Treatment Trains, and Wet Basins.

Recently adapted practices require projects with less than one acre of added impervious area to consider incorporating permanent Treatment BMPs, while a 401 Water Quality Certification is required for them.

Due to the dense vegetation and steepness of the project site, construction of conventional Treatments BMPs is not feasible. However, permanent treatment BMPs will be provided by removing part of the existing pavement (approaches to the bridge) and incorporating a bioretention basin, combined with planting vegetation as a natural biofiltration and infiltration devices (Natural Soil Hydrologic Group B). This treatments strategy will effectively remove the pollutants of concerns as well as they will reduce runoff volume and the peak discharge rate.

Maintenance BMPs

Maintenance BMPs are water quality controls used to reduce pollutant discharges during highway maintenance and activities conducted at maintenance facilities. Included in this category are litter pick up, street sweeping, and stenciling storm drain inlets.

Use of appropriate BMPs, quantities, and their locations will be further investigated as the project develops and more detailed information is provided at the subsequent design phase.

Construction Dewatering

Generally, most of the Department's construction activities fall under the general Department NPDES permit and SWPPP of the Project. However, the RWQCBs may have project-specific Waste Discharge Requirements for construction dewatering or for larger projects that have water quality concerns. Ground water level is expected to be close to the creek bed, and a dewatering permit may be required for this project.

2.7 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.

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. The current policy is to use the anticipated Maximum Credible Earthquake (MCE), from young faults in and near California. The MCE is defined as the largest earthquake that can be expected to occur on a fault over a particular period of time.

Affected Environment

Geotechnical information related to the project was completed in June 2012 and is available for review upon request.

Climate

The climate of Napa County is characterized by cool, moderately wet winters, and warm to hot, dry summers. Average low temperatures through the winter are typically in the upper 30’s (Fahrenheit) while average high temperatures in the late summer are in the mid 80’s. Humidity in the region is generally low, with winter having the highest humidity and fall the lowest. Winds are generally out of the northwest during the summer and the south during the winter, and rarely reach greater than 30 miles per hour. The strongest winds are associated with cold winter storms and westerly summer breezes drawn in by the warmer eastern interior. Rainfall is greatest during the winter with annual totals averaging 20 inches in the dryer southern half of the county and 60 inches in the wettest northern regions. December and January are the wettest months, while July and August are the driest.

Topography and Drainage

The project lies in the central part of the Mayacmas Mountain range between northern Napa Valley on the west and Pope Valley to the east. The chain runs roughly northwest-southeast and its highest peak, Cobb Mountain, (4,724 feet), is about 14 miles to the north, and Mount Saint Helena (4,343 feet) is just west of the project area. Troutdale Creek Bridge spans Troutdale Creek at a creek elevation of

about 1,697 feet with the traveled way at an elevation of about 1,722 feet. The difference in elevation between the western and eastern abutment is less than 2 feet, with the west being slightly higher. Troutdale Creek originates on the eastern slopes of Mount Saint Helena and flows east/southeast before joining Saint Helena Creek and flowing north to Putah Creek and the Central Valley to the east. Upstream of the location of the bridge, Troutdale Creek has incised a relatively steep channel suggesting seasonal flows could be swift. Beyond the bridge, Troutdale Creek flows through a narrow, relatively flat unnamed valley where it joins several unnamed streams and Van Ness Creek to form St. Helena Creek.

Regional Geology

Located within the Coast Range geomorphic province of California, the geology of the region consists of northwest-trending ridges, gently sloping hills, intermontane valleys, and large elongated depressions. The San Andreas fault system, the most prominent geologic feature in the area, includes the San Andreas fault as well as numerous splays, including the Rodgers Creek and Maacama faults in the north bay, which together take up strain between the northward migrating Pacific plate and the southward (relatively) moving North American plate. The major faults within the system are predominantly right-lateral, strike-slip faults with some compressional component, and these act together to form the prominent ridges and valleys. The San Francisco Bay, a partially filled northwest-trending depression extending from the Santa Clara Valley in the south to the Petaluma Valley in the north, is a direct result of these fault interactions.

Site Geology and Groundwater

Troutdale Creek Bridge lies at the end of a narrow valley incised through the contact of two geologic units: Rhyolite flows and Tuff Breccia of the Tertiary Sonoma Volcanics. These units form the resistant slopes and ridges in the immediate vicinity of the bridge, while the low-lying areas contain Quaternary landslide debris. Based on borings taken from the location of the new bridge, landslide debris is at least 45 feet deep and consists of varying amounts of gravelly sand and clay. Groundwater was not measured in the boring but can be expected to be at or near the stream elevation within the vicinity of the bridge.

Site Seismicity

The project site is located within a seismically active region dominated by the northwest trending San Andreas fault. Several other faults that parallel the San Andreas make up the larger San Andreas fault system and separate the Pacific plate on the west from the North American plate to the east. The San Andreas fault

system can be thought of as a diffuse plate boundary at which strain is spread across a wide region. There are larger, well-known faults within the system that tend to be the most active; however, there are other unnamed faults that are not mapped that may produce moderate earthquakes.

The following table summarizes the known active faults in the region that have the potential to produce large earthquakes. Data are from Department 2007 Seismic Hazard Report. Maximum Credible Earthquakes are given in Mw (moment magnitude) and are a function of the length and width of a fault zone and not of recent or historical events.

Table 3 – Summary of Active Faults

Fault	Distance from project (miles)	Maximum Credible Earthquake	Peak Ground Acceleration
Maacama	8.4	7.1	0.32 g
Rodgers Creek	12.2	7.1	0.22 g
Hunting Creek-Berryessa	13.8	7.1	0.2 g
San Andreas	33.2	7.9	0.2 g

Note: g refers to the acceleration due to Earth's gravity, equivalent to g-force.

Geologic and Seismic Hazards

Geologic hazards include seismic events including fault rupture and strong ground shaking, slope instability including landslides and rockfall, and other events such as flooding. Potential seismic hazards in such an active region include primary surface rupture, a seismic fault creep, and the secondary effects due to strong ground shaking.

Other Potential Geologic Hazards

Troutdale Creek and the immediate vicinity are not within a flood zone. The project will not further expose the area to flood hazards.

Environmental Consequences

Primary Seismic Hazards

Surface rupture and fault creep:

There are no active faults that cross the project limits, therefore, fault rupture and fault creep are not considered to pose hazard to the project.

Secondary Seismic Hazards

Ground shaking:

The potential for strong ground shaking in the project area during the life of the project is high and will affect both roadways and structures. Loose, saturated soils pose the greatest threat during episodes of strong shaking. The following lists possible hazards that may be caused by strong ground shaking and the probability of their occurrence within the project limits:

Densification and Settlement:

Densification of loose granular soils – The probability of densification of loose soils within the project limits is moderate to low. Any embankments or fill should be sufficiently compacted to lessen the risk of densification.

The proposed project will not increase the likelihood of settlement within the project limits. The current roadway configuration and the existing Troutdale Creek Bridge have withstood moderate to strong ground shaking in the past and have not shown adverse effects. The likelihood of settlement in the future is low.

Liquefaction:

Liquefaction potential, a phenomenon in which soils lose all shear strength and turn essentially to fluids, is considered low in the project area. Potentially liquefiable deposits are generally composed of clean sand with a high ratio of void space. Subsurface sampling in 2007 indicated dense gravelly sand and clay. The subsurface conditions suggest a low potential for liquefaction.

Slope Stability and Rockfall

Slopes around Troutdale Creek are steep and prone to landsliding. Landslides and debris flows have occurred in the past and will likely occur again in the future under the right conditions, such as after periods of heavy rainfall. The project proposes to replace the Troutdale Creek Bridge and construct retaining walls that would negate

the need for large cuts. The long term hazard associated with landsliding and rockfall would be minimal and would not be increased by the project.

Short term slope stability could be a problem if temporary construction slopes are left open during the rainy season. Every effort should be made to construct temporary slopes for retaining walls and abutments during the dry season.

Avoidance, Minimization, and/or Mitigation Measures

The project area is likely to experience seismic activity in the future. No avoidance, minimization and/or mitigation measures are proposed. Best Management Practices (BMPs) for erosion and sediment control are noted in the Water Quality section of this chapter.

2.8 PALEONTOLOGY

Regulatory Setting

Paleontology is the study of life in past geologic time based on fossil plants and animals. A number of federal statutes specifically address paleontological resources, their treatment, and funding for mitigation as a part of federally authorized or funded projects. (e.g., Antiquities Act of 1906 [16 USC 431-433], Federal-Aid Highway Act of 1960 [23 USC 305]), and the Omnibus Public Land Management Act of 2009 [16 USC 470aaa]). Under California law, paleontological resources are protected by the California Environmental Quality Act.

Affected Environment

A Paleontological Identification Report (PIR) for this project was completed in February 2012 and is available upon request. The paleontological study area (PSA) includes approximately 1,050 feet of Route 29. The field survey was conducted along the PSA on December 5, 2011.

Review of data sources researched for the PIR indicate that the project site is located on landslide deposits, which are of the Holocene and late Pleistocene Epoch. The underlying bedrock are the Sonoma Volcanics of the Pliocene and late Miocene Epoch. The bedrock below the quaternary deposits are rhyolite flows to the north and east, and Tuff to the west. The Department's Log of Test Boring show rock on the west of the bridge to be volcanic rock, colluvium and volcanic boulders in stream channel deposits.

A literature review and online fossil locality search were conducted for Napa County using the Berkeley Natural History Museum (BNHM) online database and the UC Paleontology Museum Database (UCMP). Sixty-one fossil localities were located using BNHM and 101 fossils were located using the UCMP database. These fossils are listed by their epoch and of the 101 fossils found, four are from Quaternary deposits and one has an unlisted age. The remaining eight are from Miocene and Pliocene and have the formation listed as Sonoma or Sonoma Volcanics, which include the Sonoma Tuff. Fossils MF6793 through MF6796 do not have a formation listed, but Sonoma Volcanics are in the vicinity the area near Carneros Creek where the fossils are located.

All of the fossils listed in the UCMP Database within the Quaternary age are invertebrates. The remaining fossils are plant, microfossils, and vertebrates. The vertebrates are found within the Sonoma Volcanics.

A search conducted of the UCMF vertebrate fossil locality of the Detert Reservoir United States Geological Survey (USGS) Quadrangle, where the project is located, indicates no previous paleontological finds. Additionally, the on-site survey performed by Department staff in December 2011 concludes that no paleontological resources were observed.

Since the surrounding geology units have in the past, not necessarily at the project location, yielded fossils, this project should be considered of high potential for paleontological sensitivity. High potential is defined as geologic units that, based on previous studies, contain or are likely to contain significant vertebrate, invertebrate or plant fossils. These units include, but are not limited to, sedimentary formations that contain significant non-renewable paleontological resources anywhere within their geographical extent, and sedimentary rocks units temporally or lithographically suitable for the preservation of fossils.

Environmental Consequences

Construction activities can affect paleontologically sensitive geologic units when vehicles or other work equipment impact previously undisturbed sediments by excavating, grading, or crushing bedrock exposed in or underlying a project. This can result in adverse impacts to fossils by destroying them or otherwise altering them in such a way that their scientific value is lost.

Planned ground-disturbing activities within the project footprint could potentially affect paleontological resources. Cut excavations are taking place and one utility excavation, for drainage, is planned for the entire length of the project, to a maximum depth of four feet. Two retaining walls are to be built with cast-in-drilled-hole (CIDH) pile for their foundations at 2 feet on center making a total of 78 piles at a maximum of 40 feet deep. The bridge foundation itself is designed to be installed on two 4-foot diameter CIDH piles at 40 feet deep, supporting the abutments. The total amount of soil to be excavated across the entire site is approximately 30,000 cubic feet.

Avoidance, Minimization, and/or Mitigation Measures

In general, avoidance and minimization measures are not feasible with regard to addressing impacts on paleontological resources. Geologic formations are usually extensive and project design cannot be adjusted sufficiently to effectively avoid or minimize paleontological impacts. As a result, mitigation is the approach generally taken to address these impacts.

The following mitigation measures are recommended and in accordance to the Department's Standard Environmental Reference Guidelines:

- Due to the presence of vertebrate fossils in the Sonoma Volcanics in the adjacent county, a Paleontological Evaluation Report (PER) should be prepared prior to construction to define actual locations where monitoring may be necessary based upon the project design. For budgeting, the PER will provide enough information about the level of effort needed.
- Based upon the findings from the PER, a Paleontological Mitigation Plan (PMP) may be recommended to define the specific mitigation measures and methods that will be implemented if paleontological resources are discovered or detected in the field.
- These recommendations may include:
 - A qualified paleontologist could be present to consult with grading and excavation contractors at pre-grading meetings.
 - The Principal Paleontologist could also have an environmental meeting to train grading and excavation contractors in the identification of fossils.
 - When fossils are discovered, the paleontologist (or paleontological monitor) would be called to recover them. Construction work in these areas may need to be halted or diverted to allow recovery of fossil remains in a timely manner.
 - Fossil remains collected during the monitoring and salvage portion of the mitigation program would be cleaned, stabilized, sorted, and cataloged.
 - Prepared fossils, along with copies of all pertinent field notes, photos, and maps, would then be deposited in a scientific institution with paleontological collections.
 - A final report will be completed that outlines the results of the mitigation program, if needed.

2.9 HAZARDOUS WASTE/MATERIALS

Regulatory Setting

Hazardous materials and hazardous wastes are regulated by many state and federal laws. These include not only specific statutes governing hazardous waste, but also a variety of laws regulating air and water quality, human health and land use.

The primary federal laws regulating hazardous wastes/materials are the Resource Conservation and Recovery Act of 1976 (RCRA) and the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA). The purpose of CERCLA, often referred to as Superfund, is to clean up contaminated sites so that public health and welfare are not compromised. RCRA provides for “cradle to grave” regulation of hazardous wastes. Other federal laws include:

- Community Environmental Response Facilitation Act (CERFA) of 1992
- Clean Water Act
- Clean Air Act
- Safe Drinking Water Act
- Occupational Safety and Health Act (OSHA)
- Atomic Energy Act
- Toxic Substances Control Act (TSCA)
- Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)

In addition to the acts listed above, Executive Order 12088, Federal Compliance with Pollution Control, mandates that necessary actions be taken to prevent and control environmental pollution when federal activities or federal facilities are involved.

Hazardous waste in California is regulated primarily under the authority of the federal Resource and Conservation Act of 1976, and the California Health and Safety Code. Other California laws that affect hazardous waste are specific to handling, storage, transportation, disposal, treatment, reduction, cleanup and emergency planning.

Worker health and safety and public safety are key issues when dealing with hazardous materials that may affect human health and the environment. Proper disposal of hazardous material is vital if it is disturbed during project construction.

Affected Environment

Federal, State and local environmental and health regulatory agency records were consulted to identify any known hazardous waste sites within or near the project vicinity. A site characterization was performed for the general project area in 2009 as noted in the Preliminary Environmental Analysis Report conducted for the project.

Environmental Consequences

The undeveloped, remote location of the proposed project is likely free of the most common soil contaminants that affect highway construction projects. A site characterization has not been performed at the project site for lead, the primary contaminant of concern related to past vehicle emissions. The bridge demolition work will require an asbestos-containing material (ACM) survey before demolition of the existing bridge takes place.

A preliminary site investigation may be necessary for the presence of naturally occurring asbestos (NOA) in the soil within the project area if the bridge replacement will disturb surface materials since NOA materials are known to be present in the general project area. These concerns cannot be confirmed until a detailed site investigation is performed. If the soil at the project site does contain NOA at levels above regulatory standards, the cost of disposal of roadway excavation would escalate to approximately \$100 per cubic yard.

Avoidance, Minimization, and/or Mitigation Measures

The demolition of the existing steel bridge would require surveys for asbestos-containing materials and lead containing paint.

Depending upon the results of the aforementioned investigations and surveys, the Department would implement special material-handling plans that are consistent with state and federal environmental laws. These laws and the resulting environmental consequences are described in the following sections:

Man-made Asbestos Containing Materials (ACM)

Because ACM is a hazardous substance and a hazardous air pollutant, Bay Area Air Quality Management District (BAAQMD) regulations require that the Department conduct a thorough survey prior to any demolition for the presence of ACM. The survey shall include sampling and the results of laboratory analysis of the asbestos content of all suspected ACM. If this asbestos survey finds ACM then other regulations become effective during the demolition of a bridge.

Title 8 of the California Code of Regulations (CCR) Section 1529, "Asbestos," regulates asbestos exposure in all construction work as defined by Section 1502 and includes demolition of structures. Section 1502 states that the construction safety orders establish minimum safety standards whenever employment exists in connection with removal or wrecking of any fixed structure or its parts.

The removal of asbestos-containing material, such as bridge-barrier-rail shims, falls under the 8 CCR Section 1529 definition of "Class II asbestos work." Class II asbestos work means activities involving the removal of asbestos-containing material (ACM) which is not thermal system insulation or surfacing material. Removal means all operations where ACM is taken out or stripped from structures or substrates, and includes demolition operations.

Title 8 of CCR Section 1529, "Asbestos," specifies the following best management practices for handling ACM during bridge removal or demolition operations.

1. The material shall be thoroughly wetted with amended water prior to and during its removal.
2. The material shall be removed in an intact state unless the employer demonstrates that the intact removal is not possible.
3. Cutting, abrading or breaking the material shall be prohibited unless the employer can demonstrate that methods less likely to result in asbestos fiber release are not feasible.
4. Asbestos-containing material removed, shall be immediately bagged or wrapped, or kept wetted until transferred to a closed receptacle, no later than the end of the work shift.

The Department's non-standard special provision (NSSP) entitled "Removal of Asbestos Containing Materials - Bridges and Non-building Structures," would be used to address any ACM removal during the demolition of the bridge. This NSSP requires that all friable ACM be removed in a manner that conforms to OSHA work practice requirements. This NSSP also specifies that the contractor remove and handle all non-friable ACM to prevent breakage. The contractor must dispose of friable and non-friable waste containing asbestos at a disposal facility permitted to accept such material and that meets all the requirements specified by Federal, State, and Local regulations.

Lead Based Paint

The Construction Safety Orders found in Title 8 CCR Section 1532.1, "Lead" apply to all construction work where an employee may be occupationally exposed to lead.

The term "construction work" includes the alteration, repair, demolition, and salvage of structures where lead or materials containing lead are present.

8 CCR Section 1532.1 requires that employers assure that no employee is exposed to lead at concentrations greater than 50 micrograms per cubic meter ($50 \mu\text{g}/\text{m}^3$). Employers are also required to establish a written compliance program to ensure that employees are not exposed to lead.

Title 17 CCR Section 36050 states that any individual conducting lead activities, excluding lead hazard evaluation, shall use containment and shall ensure that the work area has no visible dust or debris following the completion of the project. Containment means a system, process, or barrier used to contain lead hazards inside a work area.

The Department's Engineering Service Center typically specifies that standard specification 14-11.08, "Disturbance of Existing Paint Systems on Bridges" be used to ensure that any work that disturbs existing paint on a structure is protective of human health and safety. Standard special provision (SSP) 15-025, or a similar NSSP, will require that the contractor prepare a lead compliance plan in accordance with the requirements within 8 CCR Section 1532.1, "Lead." These special provisions would also address the issue of containment and the proper disposal of demolition waste that contains lead.

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

2.10 BIOLOGICAL ENVIRONMENT

2.1.1 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 in the Wetlands and Other Waters section.

Affected Environment

The Natural Environment Study (NES) was completed in July 2012 and is available for review upon request. The proposed project limits include Department right-of-way and proposed right-of-way acquisitions including temporary construction easements (TCEs). The project area consists of the project's permanent and temporary direct and indirect effect areas, including construction access, staging, and utility relocation areas.

Three biological study areas (BSA) were determined prior to conducting field studies. The BSAs includes the area within the project footprint. The project footprint includes Department right-of-way and temporary construction easements. The BSAs cover three buffer areas determined by the following special status species that may occur near the project site, which are discussed in the Threatened and Endangered Species section of this chapter: the California freshwater shrimp BSA encompasses a buffer of 250 feet from the project footprint; the Northern spotted owl BSA encompasses a buffer of 1.3 miles from the project footprint; and the California red-legged frog BSA encompasses a buffer of 2.0 miles from the project footprint.

The BSA encompasses portions of Troutdale Creek and is largely composed of mixed hardwood and coniferous forest. The natural vegetation type occurring in the BSA is Douglas fir pine forest.

Environmental Consequences

Vegetation removal will occur in locations where permanent structures will be placed (e.g., shoulder widening) and within the cut and fill line. Approximately 251 trees will need to be removed to construct this project. Table 4 below lists trees that will be removed for the project. More detailed information regarding the specific locations of these trees can be found in the NES.

Table 4 – Trees to be Removed

DBH* ► SPECIES ▼	4-9 in	10-19 in	20-29 in	30-39 in	40-49 in	50-59 in	> 60 in	TOTALS
Big Leaf Maple	17	15	5	2	0	1	0	40
California Bay Laurel	20	9	2	2	1	0	0	34
California Black Oak	1	6	5	4	0	0	0	16
Canyon Live Oak	6	3	1	0	0	0	0	10
Dead	1	0	0	1	0	0	0	2
Dogwood	1	0	0	0	0	0	0	1
Douglas Fir	36	34	16	9	9	3	1	108
Manzanita	0	2	0	0	0	0	0	2
Ponderosa Pine	2	2	4	5	1	0	0	14
Pacific Madrone	11	2	2	0	0	0	0	15
Tan Oak	1	1	0	0	0	0	0	2
Valley Oak	1	0	0	0	0	0	0	1
White Alder	2	3	0	0	0	0	0	5
Yew	1	0	0	0	0	0	0	1
Total								251

*DBH-Diameter at Breast Height

Avoidance, Minimization, and/or Mitigation Measures

The Department proposes to replace trees with diameter at breast height (dbh) of four inches or greater that will be removed to be planted at a ratio of 3:1 for native trees. Non-native trees will be compensated at a ratio of 1:1. Trees will be planted on-site in the project area to the extent possible after the completion of construction. Off-site planting areas will be sought if on-site replacement planting is not adequate.

Tree and shrub planting will occur as a separate landscaping project to follow the bridge/roadway construction project. This project will have a three year establishment period. The landscape planting can occur on and above the cut slope within the proposed right-of-way on both side of the proposed bridge. However, some shrubs will be seeded or planted as an erosion control measure during the construction season.

All disturbed areas will be revegetated with appropriate native, non-invasive species or non-persistent hybrids that will serve to stabilize site conditions.

General Avoidance and Minimization Measures

The following are Department standard construction best management practices (BMPs) and general avoidance and minimization measures that pertain to all biological resources (including those that are discussed further in this chapter) that apply to the entire project. These measures will be communicated to the contractor through the use of special provisions included in the contract bid solicitation package and include the following:

1. **Design Modification.** The project design has been modified to build the new bridge in-place of the existing bridge on a tangent alignment, spanning about 26 feet across the creek. The southern bridge abutment was redesigned to encourage safer wildlife crossing across Route 29. A fourth retaining wall has been eliminated removing additional impacts to the project area.
2. **Seasonal Avoidance.** To the extent practicable, construction will not occur during the wet season when California red-legged frogs are most active. Except for limited vegetation clearing (necessary to minimize effects to nesting birds), work within CRLF habitat will be limited to the period from June 1 to October 15.
3. **Worker Environmental Awareness Training.** Before the onset of construction activities, a qualified biologist will conduct an education program for all construction personnel. At a minimum the training will include a description of California red-legged frog, California freshwater shrimp, foothill yellow-legged frog, northern spotted owl and other listed species, migratory birds and their habitats; the occurrence of these species within the project area; an explanation of the status of these species and protection under the Federal Endangered Species Act (FESA) and California Endangered Species Act (CESA); 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. A fact sheet conveying this information will be prepared and distributed to all construction and project personnel entering the

project area. Upon completion of the training program, personnel will sign a form stating that they attended the program and understand all the avoidance and minimization measures and implications of FESA.

4. **Environmental Sensitive Area (ESA) Fencing.** Prior to the start of construction, ESAs (defined as areas containing sensitive habitats adjacent to or within construction work areas for which physical disturbance is not allowed) will be clearly delineated using high-visibility orange fencing. The ESA fencing will remain in place throughout the duration of the project and will prevent the encroachment of construction equipment/personnel from entering sensitive habitat areas. The final project plans will depict all locations where ESA fencing will be installed and how it will be installed. The special provisions in the bid solicitation package will clearly describe acceptable fencing material and prohibited construction-related activities, vehicle operation, material and equipment storage, and other surface-disturbing activities within ESAs.
5. **Wildlife Exclusion Fencing (WEF).** Prior to the start of construction, WEF will be installed along the Project footprint in all areas where California red-legged frog (CRLF) and foothill yellow-legged frog (FYLF) could enter the project site. The WEF location will be surveyed and included on the project plans. The final Project plans will show where and how the WEF will be installed. The bid solicitation package special provisions will clearly describe acceptable fencing material and proper WEF installation and maintenance. The WEF will remain in place throughout the duration of the project, while construction activities are ongoing, and will be regularly inspected and fully maintained. WEF will be in place during each construction Phase and will be removed after each Phase is completed.
6. **Implementation of Water Quality/Erosion Control Best Management Practices (BMPs).** A Storm Water Pollution Prevention Plan (SWPPP) and erosion control best management practices will be developed and implemented to minimize any wind or water-related erosion. They will also be in compliance with the requirements of the Regional Water Quality Control Board. The Department's BMP Guidance Handbook will provide guidance for design staff to include provisions in construction contracts for measures to protect sensitive areas and prevent and minimize storm water and non-storm water discharges. Protective measures will include, at a minimum:
 - a. Disallowing any discharging of pollutants from vehicle and equipment cleaning into any 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 established vehicle maintenance facility.
 - c. Collecting and disposing of concrete wastes in washouts and water from curing operations. Neither will be allowed into watercourses.
 - d. Maintaining spill containment kits on-site at all times during construction operations and/or staging or fueling of equipment.
 - e. Using water trucks and dust palliatives to control dust in excavation-and-fill areas, covering temporary access road entrances and exits with rock (rocking), 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 and erosion control netting (such as jute or coir) as appropriate on sloped areas.
 - h. Establishing permanent erosion control measures to receive storm water discharges from the highway, or other impervious surfaces.
7. **Construction Site Management Practices.** The following site restrictions will be implemented to avoid or minimize impacts to listed species and their habitats:
- a. Enforcing a speed limit of 15 miles per hour (mph) within 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 right-of-way outside of any designated ESA or outside of the right-of-way 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, storage areas and contractor parking. Routes and boundaries of roadwork will be clearly marked prior to initiating construction or grading.
 - c. Certifying to the maximum extent practicable, any borrow material to be non-toxic and weed free.

- d. Enclosing all food and food-related trash items in sealed trash containers and removing them from the site at the end of each day.
 - e. Prohibiting all pets within the project 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 all equipment in order 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 wetlands and aquatic habitats.
 - h. Servicing vehicles and construction equipment including fueling, cleaning, and maintenance will occur at least 25 feet from the dry channel unless separated by topographic or drainage barrier.
8. **Avoidance of Entrapment.** To prevent inadvertent entrapment of animals during construction, all excavated, steep-walled holes or trenches more than one foot deep will be covered at the close of each working day by plywood or similar materials, or provided with one or more escape ramps constructed of earth fill or wooden planks. Before such holes or trenches are filled they must be thoroughly inspected for trapped animals. All replacement pipes, culverts, or similar structures stored within the project area overnight will be inspected before they are subsequently moved, capped and/or buried.
9. **Handling of Listed Species.** If at any time a listed species is discovered, the Resident Engineer and United States Fish & Wildlife Service (USFWS)-approved biologist will be immediately informed. The USFWS-approved biologist will determine if relocating the species is necessary and will work with the USFWS and CDFW prior to handling or relocating unless otherwise authorized.
10. **Vegetation Removal.** Any vegetation that is within the cut and fill line or growing in locations where permanent structures will be placed (e.g., road alignment, shoulder widening, etc.) will be cleared. Vegetation will be cleared only where necessary and will be cut above soil level except in areas that will be excavated for roadway construction. This will allow plants that reproduce vegetatively to resprout after construction. All clearing and grubbing of woody vegetation will occur by hand tools or using light construction equipment such as backhoes and excavators. If clearing and grubbing occurs between

February 15 and August 15, a qualified biologist(s) will survey for nesting birds within the area(s) to be disturbed including a perimeter buffer of 50 feet for passerines and 250 feet for raptors, within the State right-of-way, before clearing activities begin. All nest avoidance requirements of the Migratory Bird Treaty Act (MBTA) and CDFW Code will be observed. All cleared vegetation will be removed from the project footprint to prevent attracting animals to the project site. The contractor will be responsible for obtaining all permits, licenses and environmental clearances for properly disposing of such materials.

11. **USFWS-Approved Biologist.** A USFWS-approved biologist will be present during all vegetation clearing and grubbing activities. If at any point CRLF or other listed species are discovered during these activities, the USFWS-approved biologist through the Resident Engineer or their designee, will halt all work within 50 feet of the animal and contact the USFWS to determine how to proceed.
12. **Replant, Reseed, and Restore Disturbed Areas.** The Department will restore temporarily disturbed areas to the pre-construction function and values 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.
13. **Reduce Spread of Invasive Species.** To reduce the spread of invasive non-native plant species and minimize the potential decrease of palatable vegetation for wildlife species, the Department will comply with Executive Order 13112. This order is provided to prevent the introduction of invasive species and provide for their control in order to minimize the economic, ecological, and human health impacts. 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 it 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. If seeding is not possible, the area within the project area should be covered to the extent practicable with heavy black plastic solarization material until the end of the project.

2.1.2 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 USC 1344)] is the primary law regulating wetlands and surface waters. The CWA regulates the discharge of dredged or fill material into waters of the United States (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. 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 of Engineers (USACE) with oversight by the United States Environmental Protection Agency (U.S. EPA).

USACE issues two types of 404 permits: Standard and General permits. Nationwide permits, a type of General permit, are issued to authorize a variety of minor project activities with no more than minimal effects. Ordinarily, projects that do not meet the criteria for a Nationwide Permit may be permitted under one of USACE's Standard permits. For Standard permits, the USACE decision to approve is based on compliance with U.S. EPA's Section 404(b)(1) Guidelines (U.S. EPA 40 CFR Part 230), and whether permit approval is in the public interest. The Section 404 (b)(1) Guidelines were developed by the U.S. EPA in conjunction with 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 that would have less adverse effects. The Guidelines state that 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 (E.O. 11990) also regulates the activities of federal agencies with regard to wetlands. Essentially, this executive order states that a federal agency, such as the Federal Highway Administration (FHWA) and/or Caltrans, 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.

At the state level, wetlands and waters are regulated primarily by the California Department of Fish and Wildlife (CDFW), the State Water Resources Control Board (SWRCB), and the Regional Water Quality Control Boards (RWQCB). In certain circumstances, the Coastal Commission (or Bay Conservation and Development Commission or 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. The RWQCB also issues water quality certifications for impacts to wetlands and waters in compliance with Section 401 of the CWA. Please see the Water Quality section for additional details.

Affected Environment

The Natural Environment Study (NES) was completed in July 2012 and is available for review upon request. Department staff conducted a wetland delineation study for the project and a Wetland Delineation Report was submitted to the USACE, San Francisco District in June 2012. A Jurisdictional Determination issued by the USACE is then anticipated.

No wetlands were identified within the project area. A portion of Troutdale Creek and three drainage channels that connect to Troutdale Creek were identified as potential waters of the United States within the project area and are described below.

Troutdale Creek

Troutdale Creek is a third-order perennial creek that eventually flows into Lake Berryessa. A total of 251 linear feet of Troutdale Creek, as determined by the limits of the ordinary high water mark, are within the project footprint. The average width

of the creek in this area is 18 feet. The creek covers an area of 4,518 square feet (0.10 acres) of open water within the project footprint and is characterized by a relatively low-gradient meandering channel with a sand, cobble, and bedrock substrate. Flows appear to be perennial, but variable depending on the season. In the early spring, flows were relatively rapid with several inches to more than one foot of water, whereas later in the season, most of the channel was characterized by shallow slow-moving water. Slopes along both sides of Troutdale Creek are relatively steep.

The portion of Troutdale Creek within the project area supports a dense riparian canopy consisting of Douglas fir (*Pseudotsuga menziesii*), Ponderosa pine (*Pinus ponderosa*), California black oak (*Quercus kelloggii*), California bay laurel (*Umbellularia californica*) and Big Leaf Maple (*Acer macrophyllum*). The understory consists of, Himalayan blackberry (*Rubus discolor*), Pacific madrone (*Arbutus menziesii*), California wild grape (*Vitis californica*) and poison oak (*Toxicodendron diversilobum*).

This segment of Troutdale Creek within the project area is generally devoid of aquatic vegetation. Although some riparian vegetation and shade structures are present, they are very sparsely distributed. Douglas fir and Ponderosa Pine provide a closed canopy over some portions of the creek. Small, scattered riparian vegetation components associated with the creek are Himalayan blackberry (*Rubus discolor*), wild grape, California bay, horsetail (*Equisetum sp.*) and rush (*Juncus sp.*).

Tributary Drainage 1

A small drainage feature 47 feet in length with an average of two feet in width occurs within the project footprint at Post Mile 47.06. The tributary drainage covers an area of 94 square feet (0.002 acres) of open water within the project footprint. The feature is a seasonal stream that flows into Troutdale Creek. The active flow channel of the stream ranges from approximately one to two feet wide. The streambed has a sandy substrate devoid of vegetation. The drainage flows under Route 29 through a concrete culvert approximately 18 inches wide. Vegetation is either absent from the eroded channel or consists of typical understory coniferous forest.

Tributary Drainage 2

A second small drainage feature at Post Mile 47.16 is approximately 67 feet long with an average width of two feet. The tributary drainage covers an area of 134 square feet (0.003 acres) of open water. The feature is a seasonal swale that connects to Troutdale Creek beyond the project area. The active flow channel of the stream ranges from approximately one to two feet wide. The streambed has a

sandy substrate devoid of vegetation. The drainage flows under Route 29 through a concrete culvert approximately 18 inches wide. Vegetation is either absent from the eroded channel or consists of typical understory coniferous forest.

Tributary Drainage 3

A third small drainage feature at PM 47.18 is approximately 11 feet long with an average width of two feet. The tributary drainage covers an area of 22 square feet (0.0005 acres) of open water. The feature is a seasonal swale that connects to Troutdale Creek beyond the project area. The active flow channel of the stream ranges from approximately one to 2 feet wide. The streambed has a sandy substrate devoid of vegetation. The drainage flows under Route 29 through a concrete culvert approximately 18 inches wide. Vegetation is either absent from the eroded channel or consists of typical understory coniferous forest.

Environmental Consequences

Two reinforced concrete abutments with piles and wingwalls will be built below the bridge on the opposing banks of Troutdale Creek. Approximately 30 piles will be installed at each abutment, formed by drilling holes approximately 40 feet deep and filling with steel reinforcement cage and concrete. Each pile would be approximately 40 feet in length and 24 inches in diameter. Pile caps will be installed below the bridge deck. Seat abutments would be built with reinforced concrete, with wingwalls on either side. To prepare for the piles, drill augers would be used to drill a cylindrical hole into the ground. Cranes will be used for multiple parts of the construction from delivery of material to setting precast girders.

A temporary creek diversion system will be employed to ensure that there is no water within the creek bed during the construction window which is proposed from June 1 to October 15. The temporary creek 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 bags wrapped in impermeable plastic sheeting. A cut-off wall will be provided at the bottom of the cofferdams in order to reduce water seepage into the working area. The temporary creek diversion system will be removed at the end of each construction season by October 15. The cofferdams would be assembled and removed in each of the two construction seasons.

Avoidance, Minimization, and/or Mitigation Measures

The general avoidance and minimization measures discussed in the Natural Communities section for the entire project will be implemented to minimize effects to waters of the United States. Additionally, effects will be minimized to the greatest

extent possible through implementation of Department BMPs, working during the dry season (June 1-October 15), and incorporating applicable water quality measures during construction that are noted in the Water Quality and Stormwater Runoff section of this document.

The Department will consult with the CDFW regarding the removal of the trees within the riparian zone in the project area. The Department will work with CDFW to determine the number and location of off-site compensation for tree removal prior to construction.

2.1.3 ANIMAL SPECIES

Regulatory Setting

Many state and federal laws regulate impacts to wildlife. The US 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 state or federal 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 pertaining to wildlife include the following:

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

State laws and regulations pertaining to wildlife include the following:

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

Affected Environment

The Natural Environment Study (NES) was completed in July 2012 and is available for review upon request.

Foothill Yellow-legged Frog

Affected Environment

The foothill yellow-legged frog (*Rana boylei*) is a state species of concern and inhabits shallow, slow streams and rivers located in a variety of habitats, including forests, chaparral, and woodlands. The species requires gravel substrate, such as gravel bars, for egg deposition, and basking sites along boulders or exposed banks. This frog is a highly aquatic amphibian spending most or all of its life in or near streams.

The area along Troutdale Creek within the project area provides suitable foraging habitat for adult frogs, and a gravel bar visible upstream may provide suitable egg deposition substrate. Considering the broadly suitable habitat conditions, and the confirmed presence of the species upstream, there is a potential for the species to occur in the survey area. However, no amphibians within 1,000 feet upstream or downstream of the Troutdale Creek bridge location were observed during the California red-legged frog assessment on March 10, 2012.

Environmental Consequences

The likelihood of foothill yellow-legged frog occurrence in the project area is low. Potential effects to this species, if present, include loss of individuals during grading and heavy equipment movement and temporary loss of foraging and potential breeding habitat during construction.

Avoidance, Minimization, and/or Mitigation Measures

The general avoidance and minimization measures discussed in the Natural Communities section for the entire project will be implemented to minimize effects to the foothill yellow-legged frog. There are no anticipated effects to this species so no compensatory mitigation is proposed.

Migratory Birds

Affected Environment

Certain bird species, such as swallows and black phoebes that may nest under the Troutdale Creek Bridge, are protected under the Migratory Bird Treaty Act.

Environmental Consequences

These migratory birds may nest on the ground, on structures including the bridge itself, or in trees, shrubs, or other vegetation within the project area.

Avoidance, Minimization, and/or Mitigation Measures

A pre-construction bird nesting survey will be conducted to survey active migratory bird nests in potentially impacted trees and shrubs prior to the beginning of construction.

The Department will also inform the CDFW of birds, such as swallows and black phoebes nesting within the construction areas that are protected under the Migratory Bird Treaty Act. The Department will install exclusionary measures before February 15 during the year of construction to prevent birds and bats from nesting or roosting under the bridge while the work is occurring.

2.1.4 THREATENED AND ENDANGERED SPECIES

Regulatory Setting

The primary federal law protecting threatened and endangered species is the Federal Endangered Species Act (FESA): 16 USC Section 1531, et seq. See also 50 CFR Part 402. This act and subsequent 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 is a Biological Opinion or an Incidental Take statement. 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 Wildlife 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 Wildlife Code prohibits "take" of any species determined to be an endangered species or a threatened species. Take is defined in Section 86 of the Fish and Wildlife 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 CDFW. For species listed under both FESA and CESA requiring a Biological Opinion under Section 7 of the FESA, 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

The Natural Environment Study (NES) was completed in July 2012 and is available for review upon request. The project has the potential to affect the following species: California red-legged frog (*Rana aurora draytonii*) and California freshwater shrimp (*Syncaris pacifica*) and Northern spotted owl (*Strix occidentalis caurina*). The Department has completed formal consultation with the USFWS under Section 7 of the FESA regarding the Northern spotted owl California red-legged frog, and a resulting biological opinion (BO) was issued on June 21, 2013. At the request of the USFWS, the Department has prepared a habitat assessment for the California red-legged frog and the California freshwater shrimp.

California Red-legged Frog

Affected Environment

The California red-legged frog (CRLF) is a federally listed threatened species and a California state species of concern. This species generally lives near permanent aquatic habitats, including livestock ponds and pools in perennial streams. Shrubby riparian vegetation seems to be most suitable for this frog such as that provided by arroyo willow, although cattails and bulrushes can also provide suitable habitat. Other key habitat features include good water quality and absence of introduced predators such as bullfrogs and predatory fishes.

The CRLF has a strong dispersal ability. The species is considered to have the ability to travel two miles overland during wet weather periods and does not necessarily require riparian movement corridors.

Environmental Consequences

The USFWS issued a biological opinion on June 21, 2013 and determined that the proposed project is not likely to jeopardize the continued existence of the CRLF. However, the findings in the biological opinion concluded that the project may affect, and is likely to adversely affect the CRLF, but effects are likely limited to the construction phase of the project and will be minimized by the measures outlined below.

The may affect, likely to adversely affect determination for CRLF was based on the following technical assistance and guidance provided by the USFWS on November 18, 2011:

1. The proposed project is within the range of the CRLF and within the CRLF Putah Creek-Cache Creek Core Recovery Area.
2. Despite the lack of surveys for the species in the area, there are local observational records of the CRLF north, south, east and west of the project action area.
3. The USFWS has completed formal consultation for the CRLF for other projects in the general area.
4. Troutdale Creek provides habitat for the CRLF. It is a perennial waterway surrounded by dense riparian vegetation. On October 27, 2011, the creek was observed to have a variety of hydrological features including a large pool under the existing bridge as well as slack water, riffles, and cascading pools. The creek bed is full of large boulders, cobbles, root wads, and woody debris, providing complex frog cover in conjunction with the surrounding dense understory riparian vegetation.
5. There are potential breeding ponds between approximately 0.5 and 1.14 miles from the proposed project. Troutdale Creek is a dynamic hydrologic system which contains backwaters, pools, and slackwater areas whose location and suitability for successful breeding varies annually.

Avoidance, Minimization, and/or Mitigation Measures

The demolition of the existing bridge structure and associated approaches will partially offset the adverse effects associated with the new bridge construction. Avoidance and minimization for effects to the CRLF include the successful reclamation of the 0.16 acres of riparian vegetation within the demolished bridge alignment and the restoration of the 1.63 acres of temporary work area.

The general avoidance and minimization measures discussed in the Natural Communities section for the entire project will also be implemented to minimize effects to the CRLF. No compensatory mitigation will be required for this species. The following additional measures are proposed to avoid and minimize any potential effects to the CRLF:

1. Night pre-construction surveys 24 and 48 hours before construction is to begin;

2. Fencing of the project site boundary with silt fencing after pre-construction surveys; and
3. Implementing adequate measures to make sure that curing concrete does not come in contact with any surface waters of Troutdale Creek.
4. A USFWS-approved biologist will be on-site during all activities that may result in the take of CRLF.
5. No more than twenty working days prior to any ground disturbance, pre-construction CRLF surveys will be conducted by a USFWS-approved biologist that will investigate all potential CRLF frog cover sites within the action area. This includes full investigation of mammal burrows within the construction footprint with scoping or excavation. The entrances of burrows will be collapsed following investigation in areas that will be subject to ground disturbance.
6. Safety permitting, a USFWS- approved biological monitor will also investigate areas of disturbed soil for signs of CRLF within 30 minutes following the initial disturbance of that given area.
7. The USFWS-approved biologist will permanently remove, from the project site, any exotic wildlife species, such as bullfrogs and crayfish, to the extent possible.
8. The Resident Engineer (RE) or their designee will be responsible for implementing the conservation measures and terms and conditions of the biological opinion (BO) and will be the point of contact for the project. The RE or their designee will maintain a copy of the BO on-site whenever construction is taking place. Their name and telephone number will be provided to the USFWS at least thirty calendar days prior to the groundbreaking. Prior to groundbreaking, the RE will submit a letter to USFWS verifying that they possess a copy of the BO and understands the terms and conditions.
9. The RE will stop work at the request of the USFWS-approved biologist if activities are identified that may result in the take of CRLF. Should the biologist or the RE exercise this authority, the USFWS will be notified by telephone or email within one working day. The USFWS contact will be the Coast-Bay/Forest Foothills Division Chief in the Sacramento Fish and Wildlife Office at (916) 414-6600.
10. Night-time construction will be minimized.

11. Firearms will be prohibited at the project site, except for those carried by authorized security personnel, or local, State or Federal law enforcement officials.
12. If requested, before, during, or upon completion of groundbreaking and construction activities, the Department will allow access by USFWS personnel to the action area to inspect project effects. The Department requests that all agency representatives contact the RE prior to accessing the work site and review and sign the Safe Work Code of Practices, prior to accessing the work site for the first time.
13. Plastic mono-filament netting (erosion control matting) or similar material will not be used at the project site because the CRLF may become entangled or trapped in it. Acceptable substitutes include coconut coir matting or tackified hydroseeding compounds.
14. If pumping is used for dewatering, intakes will be completely screened with wire mesh no larger than 0.2 inch to prevent frogs from entering the pump.

California Freshwater Shrimp

Affected Environment

The USFWS and CDFW list the California freshwater shrimp (CFS) as endangered and is a decapods crustacean of the family *Atyidae*, believed to be the only extant species of the genus. California freshwater shrimp are found in low elevation (generally less than 380 feet [116 meters]), low gradient (generally less than one percent), fresh water, perennial streams. During the winter, habitat includes shallow margins of stream pools containing undercut banks and exposed living fine-root material. During the summer months, the CFS is often associated with submerged leafy branches. It is believed both winter and summer habitat components need to be found in close proximity for this species to persist.

Characteristics of Troutdale Creek within the study area make it unsuitable for the CFS. Elevation in the study area is over 1,700 feet which is well above the known general range (less than 380 feet) and known maximum elevation (540 feet) of the species. The Troutdale Creek gradient in the study area ranges from less than two percent to greater than 34 percent. Slope estimates of the creek within the study area using the clinometers revealed the overall slope of the creek at nine percent. The creek flows over coarse materials (boulders, cobbles, gravels, and sands) and is dominated by riffles with few glides and pools. Those glides and pools that are present are generally shallow (average of four inches) in depth and void of fine roots

or other submergent vegetation. Troutdale Creek within the project area has very few undercut banks and those that exist are only small depressions approximately two to four inches deep and less than two feet in length.

Environmental Consequences

Given the habitats identified in the project area, the likelihood of CFS occurrence is low and so there are no anticipated effects to this species.

Avoidance, Minimization, and/or Mitigation Measures

Neither avoidance and minimization measures nor compensatory mitigation are required since suitable habitat for the California freshwater shrimp does not exist within the project area.

Northern Spotted Owl

Affected Environment

The Northern spotted owl (NSO) is a federally listed threatened species and a California state species of concern. Spotted owls require cool microclimates during summer and abundant primary prey such as wood rats or flying squirrels. They are limited to mature or old growth, coniferous forests and closed canopied Douglas fir and mixed hardwood forests. They can also be found using oak woodlands within deep-sided canyons as well. Canopy closure is important to maintain cool temperatures during summer.

Spotted owl home ranges vary widely by forest type, degree of habitat fragmentation, primary prey species and geography. Mean home ranges varying from 1,317 to 9,066 acres have been recorded, but none of these were based upon studies of owls in Douglas-fir/hardwoods in central California. However, in areas where woodrats are the primary prey, which is likely the case in the State Route 128 corridor of Napa County, home ranges were reduced in proportion to increased wood rat density.

Surveys within the project area found areas of suitable breeding habitat for the NSO. The survey area is not located within revised critical habitat proposed for this species in the Revised Designation of Critical Habitat for the NSO in 2011. The nearest known sighting of the NSO is approximately 0.1 miles from the project site.

Environmental Consequences

The USFWS has issued its biological opinion on June 21, 2013 that the project may affect, but is unlikely to adversely affect the NSO. The USFWS was able to confirm through the CDFW Database Manager that the CNDDDB record of NSO located within the proposed project area is not associated with a spotted owl activity center.

The noise associated with the proposed bridge construction is unlikely to exceed ambient road noise. Activity and noise associated with the proposed construction is unlikely to disturb spotted owls occupying adjacent watersheds.

Avoidance, Minimization, and/or Mitigation Measures

The general avoidance and minimization measures discussed in the Natural Communities section for the entire project will be implemented to minimize effects to the NSO.

Tree removal shall be conducted between September 15 and March 31 to avoid noise and habitat disturbance during the owl's typical breeding season. No compensatory mitigation will be required for this species.

2.11 CONSTRUCTION IMPACTS

Construction Scheduling/Transportation Management Plan

Construction activities are expected to be performed during daytime hours. Any one-way traffic control measures will be discussed in a Transportation Management Plan that is discussed in the Traffic and Transportation/Pedestrian and Bicycle Facilities section of this chapter.

Air Quality

Trucks and construction equipment emit hydrocarbons, oxides of nitrogen, carbon monoxide and particulates. Most pollution would consist of wind-blown dust generated by excavation, grading, hauling and various other activities. The effects from these activities would vary from day to day as construction progresses. The Special Provisions and Standard Specifications would include requirements to minimize or eliminate dust during construction through the application of water or dust palliatives.

Noise

During construction of the project, noise from construction activities may intermittently dominate the noise environment in the immediate area of construction. Construction noise is regulated by Department Standard Specifications Section 7-1.011, "Sound Control Requirements," 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 manufacturers' specifications.

No adverse or significant noise impacts from construction are anticipated because construction would be conducted in accordance with Department Standard Specifications Section 7-1.011 and applicable local noise standards and ordinances. Construction noise would be short-term and intermittent. Further, implementing the following measures would minimize the temporary noise impacts from construction:

- All equipment would have sound-control devices that are no less effective than those provided on the original equipment. No equipment would have an unmuffled exhaust.
- As directed by the Department, the contractor would implement appropriate additional noise minimization measures, including changing the location of stationary construction equipment, turning off idling equipment, avoiding

construction activities during the night and weekends, notifying adjacent residents in advance of construction work, and installing acoustic barriers around stationary construction noise sources.

2.12 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 gases (GHGs), 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's in 1988, has led to increased efforts devoted to greenhouse gas (GHG) emissions reduction and climate change research and policy. These efforts are primarily concerned with the emissions of GHGs related to human activity that include carbon dioxide (CO₂), methane, nitrous oxide, tetrafluoromethane, hexafluoroethane, sulfur hexafluoride, HFC-23 (fluoroform), HFC-134a (s, s, s, 2 –tetrafluoroethane), and HFC-152a (difluoroethane).

There are typically two terms used when discussing the impacts of climate change. "Greenhouse Gas (GHG) Mitigation" is a term for reducing GHG emissions in order to reduce or "mitigate" the impacts of climate change. "Adaptation," refers to the effort of planning for and adapting to impacts due to climate change (such as adjusting transportation design standards to withstand more intense storms and higher sea levels)¹.

Transportation sources (passenger cars, light duty trucks, other trucks, buses and motorcycles) in the state of California make up the largest source (second to electricity generation) of greenhouse gas emitting sources. Conversely, the main source of GHG emissions in the United States (U.S.) is electricity generation followed by transportation. The dominant GHG emitted is CO₂, mostly from fossil fuel combustion.

There are four primary strategies for reducing GHG emissions from transportation sources: 1) improve system and operation efficiencies, 2) reduce growth of vehicle miles traveled (VMT) 3) transition to lower GHG fuels and 4) improve vehicle technologies. To be most effective all four should be pursued collectively. The following regulatory setting section outlines state and federal efforts to comprehensively reduce GHG emissions from transportation sources.

¹ http://climatechange.transportation.org/ghg_mitigation/

Regulatory Setting

State

With the passage of several pieces of legislation including State Senate and Assembly Bills and Executive Orders, California launched an innovative and proactive approach to dealing with greenhouse gas emissions and climate change at the state level.

Assembly Bill 1493 (AB 1493), Pavley. Vehicular Emissions: Greenhouse Gases (AB 1493), 2002: requires the California Air Resources Board (ARB) to develop and implement regulations to reduce automobile and light truck greenhouse gas emissions. These stricter emissions standards were designed to apply to automobiles and light trucks beginning with the 2009-model year. In June 2009, the U.S. Environmental Protection Agency (U.S. EPA) Administrator granted a Clean Air Act waiver of preemption to California. This waiver allowed California to implement its own GHG emission standards for motor vehicles beginning with model year 2009. California agencies will be working with Federal agencies to conduct joint rulemaking to reduce GHG emissions for passenger cars model years 2017-2025.

Executive Order S-3-05: (signed on June 1, 2005, by Governor Arnold Schwarzenegger) the goal of this Executive Order is to reduce California's GHG emissions to: 1) 2000 levels by 2010, 2) 1990 levels by the 2020 and 3) 80 percent below the 1990 levels by the year 2050. In 2006, this goal was further reinforced with the passage of Assembly Bill 32.

AB32 (AB 32), the Global Warming Solutions Act of 2006: AB 32 sets the same overall GHG emissions reduction goals as outlined in Executive Order S-3-05, while further mandating that CARB create a plan, which includes market mechanisms, and implement rules to achieve "real, quantifiable, cost-effective reductions of greenhouse gases." Executive Order S-20-06 further directs state agencies to begin implementing AB 32, including the recommendations made by the State's Climate Action Team.

Executive Order S-01-07: Governor Schwarzenegger set forth the low carbon fuel standard for California. Under this Executive Order, the carbon intensity of California's transportation fuels is to be reduced by at least ten percent by 2020.

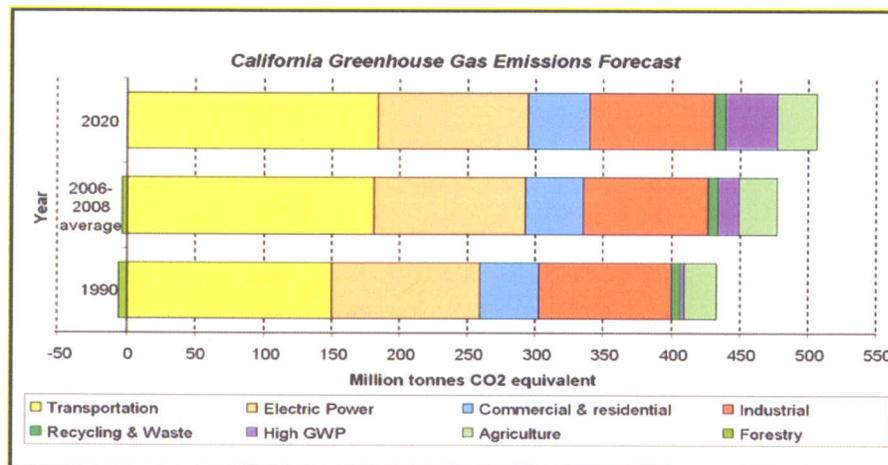
Senate Bill 97 (Chapter 185, 2007): required the Governor's Office of Planning and Research (OPR) to develop recommended amendments to the State CEQA Guidelines for addressing greenhouse gas emissions. The Amendments became effective on March 18, 2010.

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 participate in a potential impact through its incremental contribution combined with the contributions of all other sources of GHG.² In assessing cumulative impacts, it must be determined if a project's incremental effect is "cumulatively considerable." See California Environmental Quality Act (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 in order to make this determination is a difficult if not impossible task.

The AB 32 Scoping Plan contains the main strategies California will use to reduce GHG. As part of its supporting documentation for the Draft Scoping Plan, ARB released the GHG inventory for California (Forecast last updated: 28 October 2010). The forecast is an estimate of the emissions expected to occur in the year 2020 if none of the foreseeable measures included in the Scoping Plan were implemented. The base year used for forecasting emissions is the average of statewide emissions in the GHG inventory for 2006, 2007, and 2008.

Figure 12 - California Greenhouse Gas Forecast



Source: <http://www.arb.ca.gov/cc/inventory/data/forecast.htm>

² This approach is supported by the AEP: *Recommendations by the Association of Environmental Professionals on How to Analyze GHG Emissions and Global Climate Change in CEQA Documents* (March 5, 2007), as well as the SCAQMD (Chapter 6: : The CEQA Guide, April 2011) and the US Forest Service (Climate Change Considerations in Project Level NEPA Analysis, July 13, 2009).

Caltrans and its parent agency, the Business, Transportation, and Housing Agency, have taken an active role in addressing GHG emission reduction and climate change. Recognizing that 98 percent of California's GHG emissions are from the burning of fossil fuels and 40 percent of all human made GHG emissions are from transportation, the Department has created and is implementing the Climate Action Program at Caltrans that was published in December 2006 (see Climate Action Program at Caltrans (December 2006)).³

The purpose of this project is to improve safety for the traveling public and improve structural integrity by replacing the Troutdale Creek Bridge. Construction GHG emissions are unavoidable but the project as proposed will not increase or change long-term traffic volumes and is not expected to cause an overall increase in operational GHG emissions.

Construction Emissions

GHG emissions for transportation projects can be divided into those produced during construction and those produced during operations. Construction GHG emissions include emissions produced as a result of material processing, emissions produced by on-site construction equipment, and emissions arising from 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 mitigated to some degree by longer intervals between maintenance and rehabilitation events.

Measures integrated into the project which help limit/minimize construction-related GHG emissions include reducing traffic delays. A Transportation Management Plan (TMP) is developed during the design phase of a project. A TMP is a method for minimizing traffic delay and collisions related to Caltrans-approved activities by the effective application of traditional traffic handling practices and an innovative combination of public and motorist information, demand management, incident management, system management, construction strategies, alternate routes and other strategies. All TMPs share the common goal of relieving congestion during a project period by managing traffic flow and balancing traffic demand with highway capacity through the project area, or by using an entire corridor.

³ Caltrans Climate Action Program is located at the following web address:
http://www.dot.ca.gov/hq/tpp/offices/ogm/key_reports_files/State_Wide_Strategy/Caltrans_Climate_Action_Program.pdf

Caltrans policy states: “The Department minimizes motorist delays when implementing projects or performing other activities on the state highway system. This is accomplished without compromising public or worker safety, or the quality of the work being performed.”

A TMP implements a variety of strategies, which may include these actions:

- A public awareness campaign.
- A public outreach program.
- Changeable message signs.
- Construction area signs.
- Signs provided at decision points for all routes.
- Advance notification signs before construction.
- Planned lane closure website.
- Caltrans Highway Information Network.
- Construction Zone Enhanced Enforcement Program (COZEEP).
- Lane and ramp closure charts (provided at the design phase).
- Reduced lane widths are acceptable if they are at least 11 feet wide.
- If the contractor chooses to accomplish work that requires an alternative route the contractor must develop a plan and have it approved by the Caltrans Resident Engineer.

CEQA Conclusion

While construction would result in a slight increase in greenhouse gas emissions during construction, Caltrans expects that there would be no operational increase in GHG emissions associated with this proposed project. However, it is Caltrans’ determination that in the absence of further regulatory or scientific information related to greenhouse gas emissions and California Environmental Quality Act significance, it is too speculative to make a determination on the project’s direct impact and its contribution on the cumulative scale to climate change. Nonetheless, Caltrans is taking further measures to help reduce energy consumption and greenhouse gas emissions. These measures are outlined in the following section.

Greenhouse Gas Reduction Strategies

AB 32 Compliance

The Department continues to be actively involved on the Governor's Climate Action Team as ARB works to implement the Executive Orders S-3-05 and S-01-07 and

help achieve the targets set forth in AB 32.

Many of the strategies Caltrans is using to help meet the targets in AB 32 come from the California Strategic Growth Plan, which is updated each year.

Former Governor Arnold

Schwarzenegger's Strategic Growth Plan calls for a \$222 billion infrastructure



improvement program to fortify the state's transportation system, education, housing, and waterways, including \$100.7 billion in transportation funding during the next decade. The Strategic Growth Plan targets a significant decrease in traffic congestion below today's level and a corresponding reduction in GHG emissions. The Strategic Growth Plan proposes to do this while accommodating growth in population and the economy. A suite of investment options has been created that combined together are expected to reduce congestion. The Strategic Growth Plan relies on a complete systems approach to attain CO₂ reduction goals: system monitoring and evaluation, maintenance and preservation, smart land use and demand management, and operational improvements as depicted above in The Mobility Pyramid.

The Department is supporting efforts to reduce vehicle miles traveled by planning and implementing smart land use strategies: job/housing proximity, developing transit-oriented communities, and high density housing along transit corridors. The Department is working closely with local jurisdictions on planning activities; however, the Department does not have local land use planning authority. The Department is also supporting efforts to improve the energy efficiency of the transportation sector by increasing vehicle fuel economy in new cars, light and heavy-duty trucks; the Department is doing this by supporting on-going research efforts at universities, by supporting legislative efforts to increase fuel economy, and by its participation on the Climate Action Team. It is important to note, however, that the control of the fuel

economy standards is held by U.S. EPA and ARB. Lastly, the use of alternative fuels is also being considered; the Department is participating in funding for alternative fuel research at the UC Davis.

Table 5 summarizes the Department and statewide efforts that the Department is implementing in order to reduce GHG emissions. More detailed information about each strategy is included in the Climate Action Program at Caltrans (December 2006).

To the extent that it is applicable or feasible for the project and through coordination with the project development team, measures will also be included in the project to reduce the GHG emissions and potential climate change impacts from the project are to be determined.

Table 5 - Climate Change/CO₂ Reduction Strategies

Strategy	Program	Partnership		Method/Process	Estimated CO ₂ Savings (MMT)	
		Lead	Agency		2010	2020
Smart Land Use	Intergovernmental Review (IGR)	Caltrans	Local Governments	Review and seek to mitigate development proposals	Not Estimated	Not Estimated
	Planning Grants	Caltrans	Local and regional agencies & other stakeholders	Competitive selection process	Not Estimated	Not Estimated
	Regional Plans and Blueprint Planning	Regional Agencies	Caltrans	Regional plans and application process	.975	7.8
Operational Improvements & Intelligent Trans. System (ITS) Deployment	Strategic Growth Plan	Caltrans	Regions	State ITS; Congestion Management Plan	.07	2.17
Mainstream Energy & GHG into Plans and Projects	Office of Policy Analysis & Research; Division of Environmental Analysis	Interdepartmental effort		Policy establishment, guidelines, technical assistance	Not Estimated	Not Estimated
Educational & Information Program	Office of Policy Analysis & Research	Interdepartmental, CalEPA, CARB, CEC		Analytical report, data collection, publication, workshops, outreach	Not Estimated	Not Estimated
Fleet Greening & Fuel Diversification	Division of Equipment	Department of General Services		Fleet Replacement B20 B100	.0045	.0065 .045 .0225
Non-vehicular Conservation Measures	Energy Conservation Program	Green Action Team		Energy Conservation Opportunities	.117	.34
Portland Cement	Office of Rigid Pavement	Cement and Construction Industries		2.5 % limestone cement mix 25% fly ash cement mix > 50% fly ash/slag mix	1.2 .36	4.2 3.6
Goods Movement	Office of Goods Movement	Cal EPA, CARB, BT&H, MPOs		Goods Movement Action Plan	Not Estimated	Not Estimated
Total					2.72	18.18

Adaptation Strategies

“Adaptation strategies” refer to how the Department and others can plan for the effects of climate change on the state’s transportation infrastructure and strengthen or protect the facilities from damage. Climate change is expected to produce increased variability in precipitation, rising temperatures, rising sea levels, storm surges and intensity, and the frequency and intensity of wildfires. These changes may affect the transportation infrastructure in various ways, such as damaging roadbeds by 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. There may also be economic and strategic ramifications as a result of these types of impacts to the transportation infrastructure.

Climate change adaption must also involve the natural environment as well. Efforts are underway on a statewide-level to develop strategies to cope with impacts to habitat and biodiversity through planning and conservation. The results of these efforts will help California agencies plan and implement mitigation strategies for programs and projects.

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

The California Natural Resources Agency (Resources Agency) was directed to coordinate with local, regional, state and federal public and private entities to develop. *The California Climate Adaptation Strategy* (Dec 2009)⁴, which summarizes the best known science on climate change impacts to California, assesses California's vulnerability to the identified impacts, and then outlines solutions that can be implemented within and across state agencies to promote resiliency.

The strategy outline is in direct response to Executive Order S-13-08 that specifically asked the Resources Agency to identify how state agencies can respond to rising temperatures, changing precipitation patterns, sea level rise, and extreme natural events. Numerous other state agencies were involved in the creation of the Adaptation Strategy document, including Environmental Protection; Business,

⁴ <http://www.energy.ca.gov/2009publications/CNRA-1000-2009-027/CNRA-1000-2009-027-F.PDF>

Transportation and Housing; Health and Human Services; and the Department of Agriculture. The document is broken down into strategies for different sectors that include: Public Health; Biodiversity and Habitat; Ocean and Coastal Resources; Water Management; Agriculture; Forestry; and Transportation and Energy Infrastructure. As data continues to be developed and collected, the state's adaptation strategy will be updated to reflect current findings.

Resources Agency was also directed to request the National Academy of Science to prepare a Sea Level Rise Assessment Report by December 2010⁵ to advise how California should plan for future sea level rise. The report is to include:

- relative sea level rise projections for California, Oregon and Washington taking into account coastal erosion rates, tidal impacts, El Niño and La Niña events, storm surge and land subsidence rates;
- the range of uncertainty in selected sea level rise projections;
- 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;
- A discussion of future research needs regarding sea level rise.

Prior to the release of the final Sea Level Rise Assessment Report, all state agencies that are planning to construct projects in areas vulnerable to future sea level rise were directed to consider a range of sea level rise scenarios for the years 2050 and 2100 in order to 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 regarding local uplift and subsidence, coastal erosion rates, predicted higher high water levels, storm surge and storm wave data

Interim guidance has been released by The Coastal Ocean Climate Action Team (CO-CAT) as well as the Department as a method to initiate action and discussion of potential risks to the states infrastructure due to projected sea level rise.

All projects that have filed a Notice of Preparation, and/or are programmed for construction funding from 2008 through 2013, or are routine maintenance projects as of the date of Executive Order S-13-08 may, but are not required to, consider these planning guidelines. This project was programmed for construction in 2010.

Furthermore Executive Order S-13-08 directed the Business, Transportation, and Housing Agency to prepare a report to assess vulnerability of transportation systems

⁵ The Sea Level Rise Assessment report is currently due to be completed in 2012 and will include information for Oregon and Washington State as well as California.

to sea level affecting safety, maintenance and operational improvements of the system and economy of the state. The Department continues to work on assessing the transportation system vulnerability to climate change, including the effect of sea level rise.

Currently, the Department is working to assess which transportation facilities are at greatest risk from climate change effects. However, without statewide planning scenarios for relative sea level rise and other climate change impacts, the Department has not been able to determine what change, if any, may be made to its design standards for its transportation facilities. Once statewide planning scenarios become available, the Department will be able review its current design standards to determine what changes, if any, may be warranted in order to protect the transportation system from sea level rise.

Climate change adaptation for transportation infrastructure involves long-term planning and risk management to address vulnerabilities in the transportation system from increased precipitation and flooding; the increased frequency and intensity of storms and wildfires; rising temperatures; and rising sea levels. The Department is an active participant in the efforts being conducted in response to Executive Order S-13-08 and is mobilizing to be able to respond to the National Academy of Science report on Sea Level Rise Assessment.

Chapter 3 - Comments and Coordination

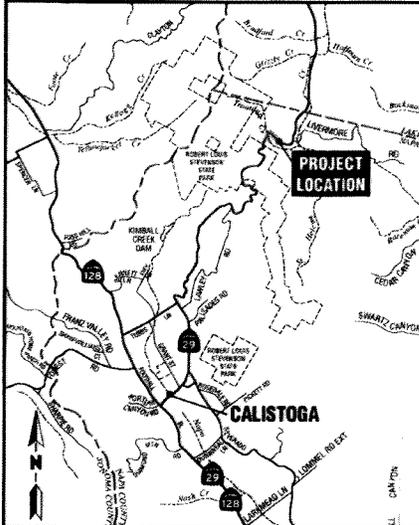
Early and continuing coordination with the general public and appropriate public agencies is an essential part of the environmental process. It helps planners determine the necessary scope of environmental documentation, the level of analysis required, and to identify potential impacts and mitigation 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 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.

The Department has held and continues to hold near monthly project development team (PDT) meetings since at least 2008 when the project was programmed. There is no known opposition to the project.

The Draft Initial Study with Proposed Mitigated Negative Declaration was made available for public review from September 7, 2012 to October 6, 2012. A combined 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 29 was published in the September 7, 2012 issue of the *Calistoga Tribune* on page 5. This Notice is attached on the following page:

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 29



WHAT'S BEING PLANNED

CALTRANS (California Department of Transportation) is proposing to remove and replace the existing Troutdale Creek Bridge on State Route 29 in unincorporated Napa County. The proposed single span bridge would be built on a new alignment of State Route 29, southeast of the existing bridge.

WHY THIS AD?

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 this is called an Initial Study with Proposed Mitigated Declaration. This notice is to tell you of the preparation of the Initial Study with Proposed Mitigated Declaration and of its availability for you to read and to offer a public open house/map display to attend.

WHAT'S AVAILABLE

Maps for the Proposed Mitigated Negative Declaration and Initial Study, and other project information are available for review and copying at the CALTRANS District 4 Office, 111 Grand Avenue, Oakland, California, on weekdays from 8:00 AM to 5:00 PM. The Initial Study with Proposed Mitigated Declaration is also available at:

Calistoga Public Library | **On the Internet:**
1108 Myrtle Street | <http://www.dot.ca.gov/dist4/envdocs.htm>
Calistoga, CA 94515

WHERE YOU COME IN

You are invited to review the Initial Study with Proposed Mitigated Declaration for this Troutdale Creek Bridge replacement project and provide comments to us. Please mail your comments to Yolanda Rivas, District Branch Chief, California Department of Transportation, District 4 Office of Environmental Analysis, P.O. Box 23660, Oakland, CA 94623 or email them to yolanda_rivas@dot.ca.gov. Your comments should be received no later than October 6, 2012.

WHERE AND WHEN

OPEN HOUSE/MAP DISPLAY
Date: Wednesday, September 19, 2012
Time: 6:30 pm to 8:00 pm
Place: Calistoga Community Center
1307 Washington Street, Calistoga, CA 94515

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) 286-6445. TDD users may contact the California Relay Service TDD line at 1-800-735-2929 or Voice Line at 1-800-735-2922.



The open house/map display was held on September 19, 2012 at the Calistoga Community Center, 1307 Washington Street, Calistoga, California, from 6:30 pm to 8:00 pm. The following attachment is the sign-in sheet for the open house/map display.



PUBLIC MEETING
TROUTDALE CREEK BRIDGE REPLACEMENT PROJECT
CALISTOGA COMMUNITY CENTER
WEDNESDAY, SEPTEMBER 19, 2012 – 6:30 PM

Name	Telephone Number:	E-mail Address:
Mary Beall	916 227-5858	MaryBeall@aol.com
Brian Mori	916 227-8859	Brian.Mori@dot.ca.gov
Jason Pharis	510 286-4867	jason.pharis@dot.ca.gov
Tom Roseman	510 286-5360	T.ROSEMAN@DOT.CA.GOV
David Mars	510-286-5463	david_mars@dot.ca.gov
Sean Sully	707-942-4055	E2650@community.calsta.gov
Jose Vazquez	949-5386	
PETE MCTEE	942 1373	mctee@hughes.net

Public / citizens employees

The Department received the following comments during the public review period.
The Department's response immediately follows each comment.

Comment Received by Peter McGee



Yolanda
Rivas/D04/Caltrans/CAGov
09/17/2012 12:44 PM

To Kelly Hirschberg/D04/Caltrans/CAGov@DOT
cc Thomas Rosevear/D04/Caltrans/CAGov@DOT
bcc
Subject Fw: troutdale bridge on highway 29

FYI.

Thank you for your time,
Yolanda Rivas
Branch Chief, Environmental Analysis
(510) 286-6216

MOVE OVER for Highway Workers!

----- Forwarded by Yolanda Rivas/D04/Caltrans/CAGov on 09/17/2012 12:43 PM -----



Peter McGee
<montesol@hughes.net>
09/17/2012 07:01 AM

To <yolanda_rivas@dot.ca.gov>
cc
Subject troutdale bridge on highway 29

Please respond to
Peter McGee
<montesol@hughes.net>

Yolanda,

I am the manager of the Livermore Ranch; on Mt. St. Helena. I am glad that the bridge will be rebuilt, but I am wondering how that will happen without using additional lands during the construction process. We would gladly consider either leasing you lands or selling lands at that construction site.

I will be at the meeting on Wednesday night in Calistoga to discuss this option with you.
Pete McGee 707 942 1373

Department's Response to Peter McGee

The Department will consider this request as the project progresses into the design phase.

Comment Received by Scott Morgan, Director, State Clearinghouse



EDMUND G. BROWN JR.
GOVERNOR

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



KEN ALEX
DIRECTOR

October 9, 2012

Yolanda Rivas
California Department of Transportation, District 4
PO Box 23660
Oakland, CA 94623-0660

Subject: Troutdale Creek Bridge Replacement Project
SCH#: 2012092011

Dear Yolanda Rivas:

The State Clearinghouse submitted the above named Mitigated Negative Declaration to selected state agencies for review. The review period closed on October 8, 2012, 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,

A handwritten signature in black ink that reads "Scott Morgan".

Scott Morgan
Director, State Clearinghouse

1400 10th Street P.O. Box 3044 Sacramento, California 95812-3044
(916) 445-0613 FAX (916) 323-3018 www.opr.ca.gov

**Document Details Report
State Clearinghouse Data Base**

SCH# 2012092011
Project Title Troutdale Creek Bridge Replacement Project
Lead Agency Caltrans #4

Type MND Mitigated Negative Declaration
Description Caltrans proposes to remove the existing 31-foot wide, 26-feet long, two-lane, single-span Troutdale Creek Bridge (Bridge # 21-0004) and replace it with a 51-foot wide, 60-feet long, two-lane, single-span bridge. The proposed single span bridge would be built on a new alignment of Route 29, southeast of the existing bridge. The proposed bridge will be built on a new curve alignment with a radius of 165 feet across the creek, which is larger than the existing radius of 110 feet. The proposed roadway section will consist of two 16-foot lanes with standards 8-foot shoulders that will conform to the existing two 12-foot lanes with non-standard 2-foot shoulders. The project will not increase roadway capacity.

Lead Agency Contact

Name Yolanda Rivas
Agency California Department of Transportation, District 4
Phone 510 286 6216 **Fax**
email
Address PO Box 23660
City Oakland **State** CA **Zip** 94623-0660

Project Location

County Napa
City Calistoga
Region
Lat / Long
Cross Streets SR 29 at Troutdale Creek
Parcel No.
Township **Range** **Section** **Base**

Proximity to:

Highways
Airports
Railways
Waterways
Schools
Land Use Conventional State Highway

Project Issues Aesthetic/Visual; Archaeologic-Historic; Biological Resources; Geologic/Seismic; Toxic/Hazardous; Water Quality

Reviewing Agencies Resources Agency; Department of Boating and Waterways; Department of Fish and Game, Region 3; Cal Fire; Department of Parks and Recreation; Department of Water Resources; California Highway Patrol; Air Resources Board, Transportation Projects; Regional Water Quality Control Bd., Region 5 (Sacramento); Native American Heritage Commission; State Lands Commission

Date Received 09/07/2012 **Start of Review** 09/07/2012 **End of Review** 10/08/2012

Department's Response to Scott Morgan, Director, State Clearinghouse

No response is necessary by the Department.

Coordination with United States Fish & Wildlife Service (USFWS)

In November 2011, Department biologists contacted USFWS agency personnel John Cleckler regarding sensitive species occurring within the project area. The issues focused on the potential for the following species to occur within the Detert Reservoir quadrangle: the federally-listed threatened, and state-listed species of special concern, California red-legged frog (*Rana aurora draytonii*); the federally-listed endangered, and state-listed endangered species, California freshwater shrimp (*Syncaris pacifica*); and the federally-listed threatened, and state-listed species of special concern Northern spotted owl (*Strix occidentalis caurina*).

A biological assessment for the threatened CRLF and associated habitat that may be impacted by the implementation of this project was submitted to USFWS on February 22, 2011 for consultation under the Endangered Species Act, Section 7.

In April 2012, the Department sought to update its environmental information for this project. Department Senior Biologist Christopher States re-initiated correspondence with John Cleckler (USFWS).

In January 2013, the USFWS received the Department's request to initiate formal consultation for the northern spotted owl and informal consultation for the California red-legged frog. In March 2013, the USFWS recommended that the Department initiate formal consultation for the California red-legged frog. The USFWS then recommended that the Department seek informal consultation for the listed northern spotted owl. With the response, the Department requested formal consultation on the California red-legged frog and informal consultation on the northern spotted owl.

In June 2013, USFWS issued a draft and subsequent final biological opinion (Service File #81420-2011-F-0821-2).

Coordination with California Department of Fish & Wildlife (CDFW)

Consultation with the CDFW under the California Endangered Species Act will be required for the state threatened California freshwater shrimp. The Department will apply for a 1602 Lake and Streambed Alteration Agreement permit from the CDFW and will also consult with the CDFW regarding the removal of trees within the riparian zone in the project area.

Coordination with California Regional Water Quality Control Board (RWQCB)

The Department will apply for a Section 401 Permit from the Regional Water Quality Control Board (RWQCB) prior to construction.

Coordination with United States Army Corps of Engineers (USACE)

Caltrans will apply for a Section 404 Nationwide Permit from the USACE for this project due to construction activities that will take place below the ordinary high water mark of Troutdale Creek.

Chapter 4 - List of Preparers

Office of Environmental Analysis

Yolanda Rivas, *Branch Chief*
Thomas Rosevear, *Associate Environmental Planner*

Office of Natural Sciences and Permits

Christopher States, *Branch Chief*
Dianne Joy Hughey, *Environmental Planner*
James Coniglio, *Environmental Planner*
Sande Hufana, *Environmental Planner*

Office of Cultural Resources

Brett Rushing, *Archaeology Branch Chief*
Elizabeth Greene, *Architectural History Branch Chief*
Benjamin Harris, *Associate Environmental Planner*
Leslie Smirnoff, *Environmental Planner*

Office of Landscape Architecture

Susan Lindsay, *Branch Chief*
Marty Hogan, *Landscape Associate*

Office of Environmental Engineering

Chris Wilson, *Hazardous Waste Branch Chief*
Glenn Kinoshita, *Air & Noise Senior Transportation Engineer*

Office of Design –SHOPP

Stewart Lee, *Design Engineer*
Jason Phoen, *Project Engineer*

Office of Project Management North

Kelly Hirschberg, *Project Manager*

Office of Water Quality Program

Mostafa Mo Faghihi, *Transportation Engineer*

Office of Geotechnical Design

Grant Wilcox, *Senior Engineering Geologist*
Matthew Gaffney, *Engineering Geologist*
Chris Ridsen, *Engineering Geologist*

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Chapter 5 - Distribution List

The Honorable Barbara Boxer
United States Senate
70 Washington Street
Oakland, CA 94607

The Honorable Dianne Feinstein
United States Senate
One Post Street, Suite 2450
San Francisco, CA 94104

The Honorable Mike Thompson
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Appendix A - CEQA Checklist

CEQA Environmental Checklist

04-NAP-29

47.0/47.2

4A090

Dist.-Co.-Rte.

P.M/P.M.

E.A.

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.

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

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non- attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

V. CULTURAL RESOURCES: Would the project:

a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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?

An assessment of the greenhouse gas emissions and climate change is included in the body of environmental document. While Caltrans has included this good faith effort in order to provide the public and decision-makers as much information as possible about the project, 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 and indirect impact with respect to climate change. Caltrans does remain firmly committed to implementing measures to help 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?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

IX. HYDROLOGY AND WATER QUALITY: Would the project:

a) Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
j) Inundation by seiche, tsunami, or mudflow	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

X. LAND USE AND PLANNING: Would the project:

a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
) 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
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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? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 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? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

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? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| e) Result in inadequate emergency access? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| f) Conflict with adopted policies, plans or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

XVII. UTILITIES AND SERVICE SYSTEMS: Would the project:

- | | | | | |
|--|--------------------------|--------------------------|--------------------------|-------------------------------------|
| a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

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

XVIII. MANDATORY FINDINGS OF SIGNIFICANCE

a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Appendix B - Title VI Policy Statement

STATE OF CALIFORNIA—BUSINESS, TRANSPORTATION AND HOUSING AGENCY

EDMUND G. BROWN Jr., Governor

DEPARTMENT OF TRANSPORTATION
OFFICE OF THE DIRECTOR
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SACRAMENTO, CA 94273-0001
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March 16, 2012

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/bcp/title_vi/t6_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 Mario Solis, Manager, Title VI and Americans with Disabilities Act Program, California Department of Transportation, 1823 14th Street, MS-79, Sacramento, CA 95811. Phone: (916) 324-1353, TTY 711, fax (916) 324-1869, or via email: mario_solis@dot.ca.gov.

A handwritten signature in black ink, appearing to read "Malcolm Dougherty".

MALCOLM DOUGHERTY
Acting Director

"Caltrans improves mobility across California"

Appendix C - U. S. Fish & Wildlife Service Biological Opinion

The U.S. Fish and Wildlife Service issued its biological opinion on June 21, 2013 and is found on the following pages.



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825-1846



In Reply Refer To:
81420-2011-F-0821-3

JUN 21 2013

Ms. Melanie Brent
California Department of Transportation
Environmental Division, MS-8E
111 Grand Avenue
Oakland, California 94612

Subject: Biological Opinion for the Proposed State Route 29 Troutdale Creek Bridge Replacement Project, Napa County, California (Caltrans EA 4A090)

Dear Ms. Brent:

This is in response to your March 29, 2013, request for formal consultation with the U.S. Fish and Wildlife Service (Service) on the proposed State Route (SR) 29 Troutdale Creek Bridge Replacement Project in Napa County, California. The associated letter included the request for formal consultation on the threatened California red-legged frog (*Rana draytonii*). Your consultation package was considered complete on March 29, 2013. This document represents the Service's biological opinion on the effects of the proposed action on the California red-legged frog. This document has been prepared in accordance with section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. § 1531 *et seq.*)(Act).

The Service agrees with Caltrans determination that the project may affect, but is unlikely to adversely affect the threatened northern spotted owl. The Service was able to confirm through the California Department of Fish and Wildlife (CDFW) Spotted Owl Database Manager, Michael Hardy, that the California Natural Diversity Database (CNDDDB) northern spotted owl (*Strix occidentalis caurina*) record, NAP0017, located within the proposed project action area is not associated with a spotted owl activity center. It is the Services' opinion that the proposed project is not likely to adversely affect the northern spotted owl given Caltrans commitment to conduct all tree removal between September 15 and March 31. This work window would likely avoid noise and habitat disturbance during the owl's typically breeding season. According to a Caltrans' acoustic survey provided in the January 2013, Biological Assessment (BA), the noise associated with the proposed bridge construction is unlikely to exceed ambient road noise. Noise and activity associated with the proposed construction is unlikely to disturb spotted owls occupying adjacent watersheds.

Moving Ahead for Progress in the 21st Century Act (MAP-21) was signed into law on July 6, 2012. Effective, October 1, 2012, MAP-21 includes provisions to promote streamlined

and accelerated project delivery. Caltrans was approved to participate in the MAP-21 Surface Transportation 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.

This biological opinion (BO) is based on: (1) an October 27, 2011 field visit; (2) the January 2013, BA; (3) Caltrans' March 29, 2013, response to the Service's March 11, 2013, 30-day letter; (4) Caltrans' June 18, 2013, response to the June 12, 2013 draft BO (Service File #81420-2011-F-0821-2); and (5) other information available to the Service.

Consultation History

- September 8, 2011 The Service received a telephone call from Caltrans requesting technical assistance for the project. The Service was informed that a 2007 record of northern spotted owl nest site was located within 0.1 mile of the project footprint and the project would include the removal of more than 100 trees. The Service provided standard northern spotted owl work windows and noise disturbance guidelines intended for avoidance and minimization of adverse effects on active northern spotted owl nest sites. The Service offered to provide more detailed guidance after Caltrans provided a map of the project footprint and a project description.
- October 27, 2011 The Service visited the proposed project site with Caltrans. The Service recommended that Caltrans initiate formal consultation for the California red-legged frog based on the riparian and creek habitat that would be affected by the proposed project.
- November 18, 2011 The Service provided Caltrans with technical assistance regarding the California red-legged frog, via an electronic (e-mail) mail message. The message provided an outline of the Service's rationale for why the California red-legged frog has the potential to occur within the proposed action area and is likely to be adversely affected by the proposed project.
- January 16, 2013 The Service received Caltrans' request to initiate formal consultation for the northern spotted owl and informal consultation for the California red-legged frog. The request submittal included a January 2013 BA.
- March 11, 2013 The Service issued a 30-day letter (Service File No: 81420-2011-TA-0821-1) to Caltrans requesting additional project description information necessary to complete formal consultation. In the letter, the Service recommended that Caltrans initiate formal consultation for the California red-legged frog. The Service also included additional information regarding northern spotted owl occupancy of the project area, leading the

- Service to recommend that Caltrans seek informal consultation for the listed owl.
- March 29, 2013 The Service received additional project description information from Caltrans in response to the March 11, 2013, 30-day letter. With the response, Caltrans requested formal consultation on the California red-legged frog and informal consultation on the northern spotted owl. Caltrans' response provided the additional information needed to complete consultation.
- June 12, 2013 The Service issued a draft BO (Service File #81420-2011-F-0821-2) for Caltrans' review and comment.
- June 18, 2013 The Service received Caltrans' comments regarding the June 12, 2013, draft BO.

BIOLOGICAL OPINION

Description of the Proposed Action

The following project description was provided by Caltrans with minor modifications for reasons of clarity and accuracy incorporated by the Service.

The proposed project is located at Post Mile 47.11 along SR 29 in rural Napa County. The proposed project area is in a mountainous area approximately 5 miles north of the City of Calistoga and 5.5 miles south of the City of Middletown. SR 29 exits Robert Louis Stevenson State Park approximately 0.5 mile south of the project. The project is centered on a sharp curve in the 2-lane roadway with a bridge crossing of Troutdale Creek. The curve and the approaches are situated across steep topography and adjacent to dense forest. A residence and its access are located within the curve. The bridge was originally constructed in 1925 and was reconstructed in 1950.

The purpose of the project is to: (1) replace the bridge and subsurface structure to prevent further scouring, (2) meet current hydraulic and structural design standards, and (3) realign the roadway to reduce the curve for safer travel.

Construction Schedule

The proposed project is estimated to take 3 years to complete. Vegetation removal and utility relocation will occur in the first year between September 15 and March 31. Construction of the new bridge and road realignment will be completed during the second year. Demolition of the old bridge and removal of the abandoned roadway will be completed in the third year. Restoration of temporary work areas will occur following each year of project activities. Bridge construction is projected to begin in 2015. Ground disturbance work within the bed and bank of Troutdale Creek and drainage improvement work will be restricted to the dry season work window of June 1 to October 15.

Equipment

Equipment expected to be used during construction includes:

- Back hoes, dozers, trenchers, and excavators;
- Chainsaws, chippers, and loaders;
- Augers and pile drivers;
- Cranes and manlifts;
- Concrete mixer truck, pump trucks, and logging truck;
- Paver compressor and other compaction equipment; and
- Hoe ram and jack hammers.

Project Components and Methods

Site Preparation

Site preparation will include installation of fencing, establishment of staging areas, establishment of access roads, and vegetation clearing.

Prior to construction, high-visibility orange construction or sensitive habitat fencing and California red-legged frog exclusion fencing will be installed along the perimeter of the work areas to clearly delineate the extent of the construction area and to prevent red-legged frogs from entering the construction area. The location of the fences will be established in the field by the biological monitor.

Temporary staging areas will be used for equipment storage, equipment maintenance, and construction material storage. Staging will take place within the described project footprint, which includes the existing and the proposed right of way. The staging areas will be moved accordingly within the project footprint to facilitate project construction.

Two temporary 12-foot wide roads will be established to provide access from both sides of Troutdale Creek. The access from the north creek bank will be 60 feet long. The south bank access will be 120 feet long. These temporary access roads will be restored to their original grade and will be revegetated following construction. Caltrans will re-establish contours to areas that are being reclaimed to reflect the natural stream morphology of Troutdale Creek observed up and down stream of the existing bridge structure.

Vegetation removal will occur prior to the first year of construction season between September 15 and March 31. Vegetation will be completely removed from areas that will be occupied by permanent structures. Vegetation will be cut above ground level in areas that will be subject to temporary ground disturbance. Caltrans estimates that approximately 250 trees will be removed. Tree removal and clearing and grubbing will include the use of hand tools, chain saws, chippers, loaders, logging trucks, backhoes, dozers, and excavators.

Utility Relocation

Water, electrical, and telephone utilities are located within the project footprint. The existing water line is contained within a polyvinyl chloride pipe that traverses the western bank of

Troutdale Creek. The electrical and telephone lines are suspended overhead and supported by poles.

The removal and replacement of the water line will occur during the bridge construction phase. Access will be established south of the new bridge alignment. No staging area will be required and the work will be completed with hand tools and a backhoe.

If avoidance is not possible, the electrical and phone lines will be relocated within the immediate vicinity of the existing pole locations. This work would be contained within the described construction footprint and may involve the removal of existing support poles and the installation of new poles.

Troutdale Creek Bridge Replacement

The existing Troutdale Creek Bridge will be replaced with a single-span structure. The proposed bridge will be built on a new curve alignment with a 165-foot radius. The new alignment will reduce the severity of the existing road bend which has a 110-foot radius.

The bridge abutments will be built first followed by adjoining wing walls designed to direct the channel flow under the bridge. For the superstructure construction, cranes may be used to set 11 precast/prestress I-girders onto the seats at both abutments. Then, timber falsework will be placed between the girders. Concrete will be poured onto this falsework as cast-in-place to form a 7-inch-thick bridge deck with steel reinforcement.

The bridge replacement would occur in two phases. The new bridge would be built in the first year, allowing traffic to continue to use the existing structure. Following completion of the new bridge, traffic would be rerouted to the new structure and the old bridge will be demolished the following year as phase 2.

Creek access will be needed for bridge demolition. A falsework platform will be suspended beneath the existing bridge to capture construction debris. The bridge deck and the tops of abutments will be demolished from the middle, out. The remaining portions of the old bridge abutments and pile caps will be cut down to 3 feet below the existing grade.

Temporary Water Diversion

A temporary water diversion system will be used during construction to reroute creek flow during in-stream work. The temporary creek diversion system is likely to consist of a diversion pipe with temporary cofferdams located at the up and downstream ends of the work area. The cofferdams will be constructed across the existing creek channel with gravel bags wrapped in impermeable plastic sheeting. A cutoff wall will be provided at the bottom of the cofferdams to reduce water seepage into the working area. The cofferdams will be assembled and removed during each year of the 2-year construction schedule. The temporary creek diversion system will be removed by October 15 of each construction year.

Caltrans will submit the water diversion plan to the Regional Water Quality Control Board (RWQCB) and CDFW for review and approval prior to construction.

Road Realignment

The road approaches on either end of the bridge will be realigned and widened to conform to the new bridge structure. In doing so, the existing 31-foot wide bridge and roadway will be widened to 48 feet. The approaches will taper to conform to the existing 31-foot wide roadway, north and south of the bridge. Existing metal beam guard rails will be replaced with solid concrete barriers. The existing roadside drainage will be modified to conform to the new road alignment. Suitable excavated material will be used to raise the profile of the approaches to meet the new bridge structure. Excess excavated material will be disposed at a certified landfill. Retaining walls will be built along the northbound lane of bridge approaches and for the bridge abutments to minimize and support the road embankment. The walls will have cast-in-drilled-hole or pile-driven footing foundation of reinforced soldier pile. The walls range in height from 6 to 12 feet tall and will be 32 to 358 feet long. Abandoned roadway will be removed and the former roadbed will be recontoured, stabilized, and revegetated with plants native to the area.

Site Clean-Up and Restoration

All construction-related materials including the wildlife exclusion fencing and environmentally sensitive area fencing will be removed after construction activities have been completed. Temporarily disturbed areas will be revegetated with appropriate native plant species. Permanent erosion control, including soil stabilization measures such as hydroseeding, coir netting and non-filament mesh will be applied to affected construction areas to minimize erosion following construction.

A revegetation plan will be prepared and will likely include, but will not be limited to: amendment of plant holes; initial plant installation of native or appropriate trees, shrubs, ground covers, grasses or forbs by way of nursery container stock or hydroseeding; caring for the plantings to ensure a healthy, growing condition for a 3-year plant establishment period; in-kind replacement of suitable plants; weeding, non-chemical rodent and other pest control; mowing; trash and debris removal; plant pruning and fertilizer application; plant basin mulching; and installation of foliage protectors as needed or as determined necessary. Irrigation may include hand or truck watering and a temporary above or below grade irrigation system. Maintenance of the restoration site is expected to be minimal, as the native plants should be well established by the completion of the 3-year plant establishment period.

Proposed Conservation Measures

Caltrans proposes to avoid and minimize effects to the northern spotted owl and California red-legged frog by implementing the following measures:

- a. Before the onset of construction activities, a Service-approved biologist will conduct an education program for all construction personnel. At a minimum, the training will include a description of the California red-legged frog, northern spotted owl, migratory birds, and their habitats; the occurrence of these species within the project footprint and action area; an explanation of the status of these species and protection under the Act and MBTA; 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. A fact sheet conveying this information will be prepared and distributed to all construction and project personnel. Upon completion of the training

program, personnel will sign a form stating that they attended the program and understand all the avoidance and minimization measures and implications of Act. Sign-in sheets will be kept on file and will be available to the Service upon request.

- b. A Service-approved biologist(s) will be on-site during all activities that may result in the take of the California red-legged frog.
- c. No more than twenty (20) working days prior to any ground disturbance, pre-construction California red-legged frog surveys will be conducted by a Service-approved biologist. The Service-approved biologist(s) will investigate all potential California red-legged frog cover sites within the action area. This includes full investigation of mammal burrows within the construction footprint with scoping or excavation. The entrances of burrows will be collapsed following investigation in areas that will be subject to ground disturbance.
- d. Safety permitting, a Service-approved biological monitor will also investigate areas of disturbed soil for signs of California red-legged frogs within 30 minutes following the initial disturbance of that given area.
- e. The Service-approved biologist(s) will permanently remove, from the project site, any exotic wildlife species, such as bullfrogs and crayfish, to the extent possible.
- f. The Resident Engineer or their designee will be responsible for implementing the conservation measures and *Terms and Conditions* of the BO and will be the point of contact for the project. The Resident Engineer or their designee will maintain a copy of the BO onsite whenever construction is taking place. Their name and telephone number will be provided to the Service at least thirty (30) calendar days prior to groundbreaking. Prior to groundbreaking, the Resident Engineer will submit a letter to the Service verifying that they possess a copy of the BO and understands the *Terms and Conditions*.
- g. The Resident Engineer will stop work at the request of the Service-approved biologist(s) if activities are identified that may result in the take of the California red-legged frog. Should the biologist(s) or the Resident Engineer exercise this authority, the Service will be notified by telephone and e-mail within one (1) working day. The Service contact will be the Coast-Bay/Forest Foothills Division Chief in the Sacramento Fish and Wildlife Office at (916) 414-6600.
- h. If, at any time, a California red-legged frog is discovered, the Resident Engineer and the biological monitor will be informed immediately. The biological monitor will determine if relocating the animal is necessary and will work with Service prior to handling or relocating unless otherwise authorized.
- i. Vegetation that is within the cut-and-fill line or is growing in locations where permanent structures will be placed (for example, road alignment, shoulder widening, and bridge abutments) will be cleared. In areas that will be subject to revegetation,

plants will only be cleared where necessary and will be cut above soil level. This will increase the potential of those plants to resprout after construction. All clearing and grubbing of woody vegetation will occur by hand or by using construction equipment such as backhoes and excavators, with the exception of trees (which will be removed by chainsaw, as needed). All cleared vegetation will be removed from the project footprint to prevent attracting animals to the project site.

- j. A Service-approved biologist will be present during all vegetation clearing and grubbing activities. If a California red-legged frog is discovered during these activities, the Service-approved biologist, through the Resident Engineer or their designee, will halt all work within 50 feet of the animal and will contact the Service to determine how to proceed.
- k. Except for limited vegetation clearing, work within California red-legged frog habitat will be restricted to between June 1 and October 15. Pre-construction vegetation clearing will occur outside of the typical migratory bird nesting season and northern spotted owl breeding season (February 1 to September 15), restricting all tree and vegetation removal to between September 15 and March 31.
- l. Caltrans will restore temporarily disturbed areas to the preconstruction function and values 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 local species composition. Any revegetation plans will be reviewed and approved by the Service. In addition, annual monitoring reports on the success of the plantings will be provided to the Service for review.
- m. Night-time construction will be minimized.
- n. Firearms will be prohibited at the project site, except for those carried by authorized security personnel, or local, State or Federal law enforcement officials.
- o. If requested, before, during, or upon completion of groundbreaking and construction activities, Caltrans will allow access by Service personnel to the action area to inspect project effects. Caltrans requests that all agency representatives contact the Resident Engineer prior to accessing the work site and review and sign the Safe Work Code of Practices, prior to accessing the work site for the first time.
- p. Prior to the start of construction, areas containing sensitive habitats adjacent to or within construction work areas for which physical disturbance is not allowed will be clearly delineated using high-visibility orange fencing. The fencing will remain in place throughout the duration of the project and will prevent construction equipment or personnel from entering sensitive habitat areas. The final project plans will depict all locations where fencing will be installed and how it will be installed. The special provisions in the bid solicitation package will clearly describe acceptable fencing

material and prohibited construction-related activities, vehicle operation, material and equipment storage, and other surface-disturbing activities within the sensitive areas.

- q. California red-legged frog exclusionary fencing will be placed at the edge of active construction areas to restrict frog access into the work area. The fencing will consist of taut silt fabric; 24 inches in height, stacked at 10-foot intervals, with the bottom buried 6 inches below grade. Exclusion fencing will be inspected and maintained on a daily basis.
- r. To prevent inadvertent entrapment of the California red-legged frog 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 or will be constructed with one or more escape ramps composed of earth fill or wooden planks. Before such holes or trenches are filled, they will be thoroughly inspected for trapped animals. All replacement pipes, culverts, or similar structures stored in the project footprint overnight will be inspected before they are subsequently moved, capped, and/or buried.
- s. If pumping is used for dewatering, intakes will be completely screened with wire mesh no larger than 0.2 inch to prevent frogs from entering the pump.
- t. Caltrans will comply with Presidential Executive Order 13112 (available at <http://www.gpo.gov/fdsys/pkg/FR-1999-02-08/pdf/99-3184.pdf>) to reduce the spread of invasive, non-native plant species and minimize the potential decrease of palatable vegetation for wildlife. This order prevents the introduction of invasive species and provides for their control in order 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 their spread. 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. If seeding is not possible, the areas will be covered to the extent practicable with heavy black plastic solarization material until the end of the project.
- u. A Stormwater Pollution Prevention Plan (SWPPP) and erosion control best management practices (BMPs) will be developed and implemented to minimize wind- or water-related erosion. These BMPs will be in compliance with RWQCB requirements. Protective measures will include, at a minimum:
 - 1. Forbidding any discharge of pollutants from vehicle and equipment cleaning into any storm drains or watercourses;

2. Keeping vehicle and equipment fueling and maintenance operations at least 50 feet away from watercourses, except at established commercial gas stations or established vehicle maintenance facilities;
 3. Collecting and disposing of concrete wastes in washouts and water from curing operations;
 4. Maintaining spill containment kits onsite at all times during construction operations and/or staging or fueling of equipment;
 5. Using water trucks and dust palliatives to control dust in excavation and fill areas, covering temporary access road entrances and exits with rock (rocking), and covering of temporary stockpiles when weather conditions require;
 6. Installing coir rolls or straw wattles along or at the base of slopes during construction to capture sediment;
 7. 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 (such as jute or coir) as appropriate on sloped areas; and
 8. Establishing permanent erosion control measures, such as biofiltration strips and swales, to receive stormwater discharges from the highway or other impervious surfaces.
- v. Plastic mono-filament netting (erosion control matting) or similar material will not be used at the project site because California red-legged frog may become entangled or trapped in it. Acceptable substitutes include coconut coir matting or tackified hydroseeding compounds.
- w. The following site restrictions will be implemented to avoid or minimize potential effects on listed species and their habitats:
1. Enforcing a speed limit of 15 miles per hour in the project footprint in unpaved and paved areas, except on the current highway, to reduce dust and excessive soil disturbance;
 2. Locating construction access, staging, storage, and parking areas within the project right-of-way outside of Caltrans' identified sensitive habitat areas or outside of the right-of-way in areas environmentally cleared and permitted by the contractor. Access routes, staging and storage areas, and contractor parking will be limited to the minimum necessary to construct the proposed project. Routes and boundaries of roadwork will be clearly marked prior to initiating construction or grading;
 3. Certifying, to the maximum extent practicable, any borrow material to be nontoxic and weed free; and

4. Enclosing all food and food-related trash items in sealed trash containers and removing them from the site at the end of each day;
5. Prohibiting all pets within the project footprint during construction;
6. Maintaining all 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, and solvents) will be stored in sealable containers in a designated location that is at least 50 feet from aquatic habitats;
7. Servicing vehicles and construction equipment including fueling, cleaning, and maintenance at least 50 feet from any aquatic habitat unless separated by a topographic or drainage barrier.

Analytical Framework for the Jeopardy Determination

In accordance with policy and regulation, the jeopardy analysis in this BO relies on four components: (1) the *Status of the Species*, which evaluates the California red-legged frog range-wide condition, the factors responsible for that condition, and its survival and recovery needs; (2) the *Environmental Baseline*, which evaluates 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 listed 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 California red-legged frog; and (4) *Cumulative Effects*, which evaluates the effects of future, non-Federal activities in the action area on the species.

In accordance with policy and regulation, the jeopardy determination is made by evaluating the effects of the proposed Federal action in the context of the California red-legged frog current status, taking into account any cumulative effects, to determine if implementation of the proposed action is likely to cause an appreciable reduction in the likelihood of both the survival and recovery of the species in the wild.

The jeopardy analysis in this BO places an emphasis on consideration of the range-wide survival and recovery needs of the California red-legged frog and the role of the action area in the survival and recovery of the California red-legged frog as the context for evaluating the significance of the effects of the proposed Federal action, taken together with cumulative effects, for purposes of making the jeopardy determination.

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 action, the action area encompasses the 2.71-acre construction footprint and other habitat within at least 0.5 mile downstream of the construction footprint affected by potential water quality issues.

Status of the 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 re-designated for this species on March 17, 2010 (Service 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. Dorsal spots usually have light centers (Stebbins 2003), and dorsolateral folds are prominent on the back. California red-legged frogs have paired vocal sacs and vocalize in air (Hayes and Krempels 1986). 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 red-legged frog extended coastally 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 (Jennings and Hayes 1985; Hayes and Krempels 1986; Fellers 2005). The red-legged frog was historically documented in 46 California counties but the taxon 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 Coast. Within the remaining distribution of the species, only isolated populations have been documented in the Sierra Nevada, northern Coast Range, northern Transverse Ranges, southern Transverse Ranges, and Peninsular Ranges.

Status and Natural History

California red-legged frogs predominately inhabit permanent water sources such as streams, lakes, marshes, natural and man-made ponds, and ephemeral drainages in valley bottoms and foothills up to 4,921 feet in elevation (Jennings and Hayes 1994, Bulger *et al.* 2003, Stebbins 2003). However, California red-legged frogs also have been found in ephemeral creeks and drainages and in ponds that may or may not have riparian 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. Gaber, 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. Kobernus, Coast Ridge Ecology, pers. comm., 2008). 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 Millbrae 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 typically breed between November and April in still or slow-moving water at least 2.5 feet in depth with emergent vegetation, such as cattails, tules or overhanging willows (Hayes and Jennings 1988). There are earlier breeding records from the southern portion of their range (Storer 1925). 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 1984). Individuals occurring in coastal areas are active year-round (Jennings *et al.* 1992), whereas those found in interior sites are normally less active during the cold and dry seasons.

During other parts of the year, habitat includes nearly any area within 1-2 miles of a breeding site that stays moist and cool through the summer (Fellers 2005). According to Fellers (2005), this can include vegetated areas with coyote brush, California blackberry thickets, and root masses associated with willow and California bay trees. Sometimes the non-breeding habitat used by California red-legged frogs is extremely limited in size. For example, non-breeding California red-legged frogs have been found in a 6-foot wide coyote brush thicket growing along a small intermittent creek surrounded by heavily grazed grassland (Fellers 2005). Sheltering habitat for California red-legged frogs is potentially all aquatic, riparian, and upland areas within the range of the species and includes any landscape features that provide cover, such as existing animal burrows, boulders or rocks, organic debris such as downed trees or logs, and industrial debris. Agricultural features such as drains, watering troughs, spring boxes, abandoned structures, 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). Adult frogs are often associated with permanent bodies of water. Some frogs remain at breeding sites all year while others disperse. Dispersal distances are typically less than 0.5 mile, with other 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 mesic area of the Santa Cruz Mountains, Bulger *et al.* (2003) categorized terrestrial use as migratory and non-migratory. The latter occurred over 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 corridors (Bulger *et al.* 2003).

In a study of California red-legged frog terrestrial activity in a xeric environment, Tatarian (2008) noted that 57 percent of frogs fitted with radio transmitters in the Round Valley study area in eastern Contra Costa County stayed at their breeding pools, whereas 43 percent moved into adjacent upland habitat or to other aquatic sites. This study reported a peak of seasonal terrestrial movement occurring in the fall months, with movement commencing with the first 0.2 inch of precipitation. Movements away from the source pools tapered off into spring. Upland movement activities ranged from 3 to 233 feet, averaging 80 feet, and were associated with a variety of refugia including grass thatch, crevices, cow hoof prints, ground squirrel burrows at the bases of trees or rocks, logs, and a downed barn door; others were associated with upland sites lacking refugia (Tatarian 2008). The majority of terrestrial movements lasted from 1-4 days; however, an adult female was reported to remain in upland habitat for 50 days (Tatarian 2008). Uplands closer to aquatic sites were used more often and frog refugia 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 results in 100 percent mortality (Jennings and Hayes 1990). Increased siltation 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). Sexual maturity normally is reached at 3-4 years of age (Storer 1925; Jennings and Hayes 1985). California red-legged frogs may live 8-10 years (Jennings *et al.* 1992). Populations of California red-legged frogs fluctuate from year to year. When conditions are favorable California red-legged frogs can experience 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, California red-legged frogs may temporarily disappear from an area when conditions are stressful (*e.g.*, drought).

California red-legged frogs have a diverse diet which changes as they mature. The diet of larval California red-legged frogs is not well studied, but is likely similar to that of other ranid frogs, which feed on algae, diatoms, and detritus by grazing on the surfaces of rocks and vegetation (Fellers 2005; Kupferberg 1996a, 1996b, 1997). Hayes and Tennant (1985) analyzed the diets of California red-legged frogs from Cañada 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 tree 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 diets (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).

Metapopulation and Patch Dynamics

The direction and type of habitat used by dispersing animals is especially important in fragmented environments (Forys and Humphrey 1996). Models of habitat patch geometry predict that individual animals will exit patches at more “permeable” areas (Buechner 1987; Stamps *et al.* 1987). A landscape corridor may increase the patch-edge permeability by extending patch habitat (La Polla and Barrett 1993), and allow individuals to move from one patch to another. The geometric and habitat features that constitute a “corridor” must be determined from the perspective of the animal (Forys and Humphrey 1996).

Because their habitats have been fragmented, many endangered and threatened species exist as metapopulations (Verboom and Apeldom 1990; Verboom *et al.* 1991). A metapopulation is a collection of spatially discrete subpopulations that are connected by the dispersal movements of the individuals (Levins 1970; Hanski 1991). For metapopulations of listed species, a prerequisite to recovery is determining if unoccupied habitat patches are vacant due to the attributes of the habitat patch (food, cover, and patch area) or due to patch context (distance of the patch to other patches and distance of the patch to other features). Subpopulations of patches with higher quality food and cover are more likely to persist because they can support more individuals. Large populations have less of a chance of extinction due to stochastic events (Gilpin and Soule 1986). Similarly, small patches will support fewer individuals, increasing the rate of extinction. Patches that are near occupied patches are more likely to be recolonized when local extinction occurs and may benefit from emigration of individuals via the “rescue” effect (Hanski 1982; Fahrig and Merriam 1985; Gotelli 1991; Holt 1993). For the metapopulation to persist, the rate of patches being colonized must exceed the rate of patches going extinct (Levins 1970). If some subpopulations go extinct regardless of patch context, recovery actions should be placed on patch attributes. Patches could be managed to increase the availability of food and/or cover.

Movements and dispersal corridors likely are critical to California red-legged frog population dynamics, particularly because the animals likely currently persist as metapopulations with disjunct population centers. Movement and dispersal corridors are important for alleviating over-crowding and intraspecific competition, and also they are important for facilitating the recolonization of areas where the animal has been extirpated. Movement between population centers maintains gene flow and reduced genetic isolation. Genetically isolated populations are at greater risk of deleterious genetic effects such as inbreeding, genetic drift, and founder effects. The survival of wildlife species in fragmented habitats may ultimately depend on their ability to move among patches to access necessary resources, retain genetic diversity, and maintain reproductive capacity within populations (Petit *et al.* 1995; Buza *et al.* 2000; Hilty and Merenlender 2004).

Most metapopulation or metapopulation-like models of patchy populations do not directly include the effects of dispersal mortality on population dynamics (Hanski 1994; With and Crist 1995; Lindenmayer and Possingham 1996). Based on these models, it has become a widely held notion that more vagile species have a higher tolerance to habitat loss and fragmentation than less vagile species. But models that include dispersal mortality predict the opposite: more vagile species should be more vulnerable to habitat loss and fragmentation because they are more susceptible to dispersal mortality (Fahrig 1998; Casagrandi and Gatto 1999). This prediction is supported by Gibbs (1998), who examined the presence-absence of five amphibian species across a gradient of habitat loss. He found that species with low dispersal rates are better able than more vagile species to persist in landscapes with low habitat cover. Gibbs (1998) postulated that the land between habitats serves as a demographic “drain” for many amphibians. Furthermore, Bonnet *et al.* (1999) found that snake species that use frequent long-distance movements have higher mortality rates than do sedentary species.

Threats

Habitat loss, non-native species introduction, and urban encroachment are the primary factors that have adversely affected the red-legged frog throughout its range. Several researchers in central California have noted the decline and eventual local disappearance of California and northern California red-legged frogs (*Rana aurora*) in systems supporting bullfrogs (Jennings and Hayes 1990; Twedt 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 Schaffer 1996). This has been attributed to predation, competition, and reproduction interference. Twedt (1993) documented bullfrog predation of juvenile northern California red-legged frogs, and suggested that bullfrogs could prey on subadult northern 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 (Bury and Whelan 1984). In addition, bullfrogs have an extended breeding season (Storer 1933) during which an individual female can produce as many as 20,000 eggs (Emlen 1977). Furthermore, bullfrog larvae are unpalatable to predatory fish (Kruse and Francis 1977). Bullfrogs also interfere with red-legged frog reproduction. Thus bullfrogs are able to prey upon and out-compete California red-legged frogs, especially in sub-optimal habitat. Both California and northern California red-legged frogs have also been observed in amplexus (mounted on) with both male and female bullfrogs (Jennings and Hayes 1990; Jennings 1993; Twedt 1993).

The urbanization of land within and adjacent to red-legged frog habitat has also adversely affected California red-legged frogs. These declines are attributed to channelization of riparian areas, enclosure of the channels by urban development that blocks red-legged frog dispersal, and the introduction of predatory fishes and bullfrogs.

Diseases may also pose a significant threat though the specific effects of diseases on the California red-legged frog are not known. Pathogens are suspected of causing global amphibian declines (Davidson *et al.* 2003). Chytridiomycosis and ranaviruses are a potential threat to the red-legged frog because these diseases have been found to adversely affect other amphibians, including the listed species (Davidson *et al.* 2003; Lips *et al.* 2003). 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 (Garner *et al.* 2005). 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 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. Disease will likely become a growing threat because of the relatively small and fragmented remaining California red-legged frog breeding sites, the many stresses on these sites due to habitat losses and alterations, and the many other potential disease-enhancing anthropogenic changes that have occurred both inside and outside the species' range.

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 BO, 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 4-lane road in Massachusetts, they determined that this zone extend for an average of approximately 980 feet to either side of the road for an average total zone width of approximately 1,970 feet. They describe 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 Zandt *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 female bighorn sheep increase near roads (MacArthur *et al.* 1979). Trombulak and Frossell (2000) described another type of "road-zone" effect due to contaminants. Heavy metal concentrations from vehicle exhaust were greatest within 66 feet of roads, but elevated levels of metals in both soil and plants were detected at 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 anurans 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 (Hansen 1982; Rosen and Lowe 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 in the Action Area

The proposed SR 29 Troutdale Creek Bridge Replacement Project is located in a rural, mountainous area of Napa County, approximately 0.5 mile north of Robert Louis Stevenson State Park. The vicinity is primarily characterized by coniferous and hardwood forest with patches of scrub vegetation and cleared areas occupied by non-native grasses.

Troutdale Creek originates on the upper western slope of Mount St. Helena Robert Louis Stevenson State Park and flows westward, approximately 1.7 miles to the SR 29 Bridge. From the bridge, the creek travels another approximately 0.9 mile to a confluence with Saint Helena Creek.

Troutdale Creek provides habitat for the California red-legged frog. It is a perennial waterway surrounded by dense riparian vegetation. On October 27, 2011, visit to the proposed action area the creek was observed to have a variety of hydrological features including a large pool under the existing bridge as well as slack water, riffles, and cascading pools. The creek bed is full of large boulders, cobbles, root wads, and woody debris, providing complex frog cover in conjunction with the surrounding dense understory riparian vegetation.

Red-legged frogs can breed in a variety of freshwater situations, including freshwater marshes, backwater pools, ditches, agricultural basins, and stock ponds. Based on our review of aerial photography, there are potential breeding ponds between approximately 0.5 and 1.14 miles from the proposed project. Troutdale Creek is a dynamic hydrologic system which contains backwaters, pools, and slackwater areas whose location and suitability for successful breeding varies annually. 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 north, south, east, and west of the project site and is well within the feasible movement distance to potential breeding locations.

The red-legged frog likely utilizes the surrounding upland habitat within and beyond the Troutdale Creek riparian corridor for refuge, forage, and dispersal. Red-legged frogs could travel to and between resource areas by using the riparian corridor or moving directly over the surrounding hills. The action area provides year-round refuge, forage, and dispersal habit for California red-legged frogs and potential breeding habitat during ideal hydrological periods.

There are local observational records of the California red-legged frog, north, south, east, and west of the project action area. However, there are no identifiable records within 2 miles of the project footprint. The lack of species occurrence records in the California Natural Diversity Database (CNDDDB) likely is the result of a lack of survey efforts in northern Napa County (CDFW 2013a; 2013b). This in turn is likely due to few recent local development projects and the majority of the land adjacent to the action area being in private ownership.

Caltrans did not conduct standardized or protocol frog or other wildlife surveys in the proposed action area to support their baseline analysis for the project. The Service used aerial photography and field observations from available access locations to independently identify available upland habitat for refugia and dispersal as well as potential riparian and aquatic habitat throughout the action area vicinity.

The recovery plan for California red-legged frogs identifies eight Recovery Units (Service 2002). The establishment of these Recovery Units is based on the Recovery Team's determination that various regional areas of the species' range are essential to its survival and recovery. The status of the California red-legged frog will be considered within the smaller scale of Recovery Units as opposed to the overall range. These Recovery Units are delineated by major watershed boundaries as defined by U. S. Geological Survey (USGS) hydrologic units and the limits of the range of the California red-legged frog. The goal of the recovery plan is to protect the long-term viability of all extant populations within each Recovery Unit. The proposed project is within Putah Creek-Cache Creek Core Recovery Area of Recovery Unit 3 (North Coast and North San Francisco Bay Unit) (Service 2002).

The Service believes that the California red-legged frog is reasonably certain to occur within the action area due to: (1) the project being located within the species' range and current distribution; (2) suitable aquatic, dense riparian, and upland habitat within the action area; (3) the project footprint is within 0.5 miles of a potential breeding pond; (4) all the elements needed to support the species' life history are potentially located within 0.5-mile of the action area; (5) the lack of significant disturbance or history of significant threats to the species in the general vicinity; (6) the ability of the California red-legged frog to move a considerable distance; and (7) the biology and ecology of the animal.

Effects of the Proposed Action

Caltrans proposes to minimize construction related effects by implementing the *Proposed Conservation Measures* included in the *Description of the Proposed Action* section of this BO. Effective implementation of the *Conservation Measures* will likely minimize effects to the California red-legged frog during construction but incidental take is still likely to occur. Therefore, the proposed SR 29 Troutdale Creek Bridge Replacement Project has the potential to result in a variety of adverse effects that would result in take of the California red-legged frog.

Construction activities could result in the killing, harming and/or harassment of juvenile and adult frogs inhabiting areas of suitable aquatic and upland habitat. The project, as proposed in Caltrans' January 2013, BA and further described in Caltrans' March 29, 2013 letter, is defined by a 2.71-acre construction footprint, much of which is located within the bed and bank of Troutdale Creek. The project will include: (1) the installation of 0.54 acre of permanent roadway structures; (2) 1.63 acres of temporary work areas; and (3) the reclamation of 0.16 of abandoned roadway. Work in the riparian zone will include 0.05 acre of permanent effects, 0.27 acre of temporary effects, and 0.03 acre of habitat restoration of the area occupied by the old bridge.

Adverse effects to the California red-legged frog are most likely to be limited to the construction phase of the project. Permanent and prolonged temporal loss of habitat will result from: the construction of a new bridge structure and road alignment; the removal and/or disturbance of vegetation; the establishment and use of temporary access roads down to the streambed; temporary dewatering of the Troutdale Creek bed and temporary rerouting of Troutdale Creek; exclusion from habitat within the work area; and disruption of connectivity between up and downstream habitat. Construction noise, vibration, and increased human activity during construction may interfere with normal behaviors such as feeding, sheltering, movement between refugia and foraging grounds, and other frog essential behaviors. This can result in avoidance of areas that have suitable habitat but intolerable levels of disturbance.

Unless identified by the biological monitor or site personnel, and rescued by the biological monitor, individual California red-legged frogs exposed during earthwork and vegetation trimming/clearing or moving within active work areas likely will be crushed and killed or injured by construction-related activities. Even with biological monitoring, overall awareness, and proper escape ramps, California red-legged frogs could fall into the trenches, pits, or other excavations, and then risk being directly killed or be unable to escape and be killed due to 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 amphibian. 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). Restricting work within Troutdale Creek to between June 1 and October 15, primarily avoids the wettest time of year and the onset of the breeding season when frogs are more likely to be involved in dispersal. Caltrans will further minimize adverse effects by: locating much of the construction staging, storage, and parking areas outside of sensitive habitat; clearly marking construction work boundaries with high-visibility fencing; conducting preconstruction surveys and environmental monitoring; and stabilizing and revegetating temporarily disturbed areas. Adverse effects from construction activities will be partially minimized by: installing wildlife exclusion fencing to deter frogs from wandering into construction areas; educating workers; and requiring a Service-approved biologist to be present to monitor construction activities.

If unrestricted, the proposed construction activities could result in the introduction of chemical contaminants to frog habitat. 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 minimize these risks by implementing a SWPPP and erosion control BMPs which will consist of refueling, oiling, or cleaning of vehicles and equipment a minimum of 50 feet from riparian and aquatic areas; installing coir rolls, straw wattles 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.

Preconstruction surveys and the relocation of individual California red-legged frogs may avoid injury or mortality; however, capturing and handling frogs may result in stress and/or inadvertent injury during handling, containment, and transport. Caltrans proposes to minimize these effects by using Service-approved biologists, limiting the duration of handling, and relocating amphibians to suitable nearby habitat within the Troutdale Creek riparian corridor in accordance with Service guidance.

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).

Gaining access to and working in the Troutdale Creek bed represents the primary risk to the California red-legged frog. Bridge construction and demolition work activities will be located in the creek bed to such an extent that the water flow will be rerouted around the work area. Therefore the proposed activities have the potential to adversely affect all the frogs that occupy the general vicinity; the local aquatic and upland habitat; frogs that would be moving up or downstream through the project footprint; and habitat connectivity. Construction of the new bridge and the associated road realignment on both bridge approaches will require the removal of dense riparian vegetation and forest that provides cover and refuge for the listed frog. California red-legged frogs are likely active year-round within the Troutdale Creek riparian corridor and may be encountered on a daily basis. Work activities are likely to adversely affect the movement, and localized foraging and other behaviors of the red-legged frogs in the riparian corridor and surrounding forest. Frogs will most likely be actively moving around, through, or within the work area during the evening when work is not taking place. This places greater emphasis on thorough biological clearance of work areas and under staged equipment and materials prior to the start of each day's activities.

The new bridge structure should be less intrusive to the Troutdale Creek bed, having less influence on the creek hydrology. The new bridge will be a spanned structure with abutments set back further from the creek bank than the existing bridge. The longer bridge design will result in a less constricted creek bank with more natural flows and a more contiguous riparian corridor. A greater width will promote enhance passage for California red-legged frogs and other wildlife. This is especially true during periods of high flow when inundation of the stream bank forces available terrestrial wildlife passage further up the margins of the creek bank.

Demolition of the existing bridge structure and associated approaches will partially offset the adverse effects associated with the new bridge construction. The current bridge structure restricts the width of the creek, therefore altering hydrology. The existing abutments are located within the creek bank, interrupting the continuity of the riparian corridor and wildlife passage.

Successful reclamation of the 0.16-acre of riparian vegetation within the demolished bridge alignment and the restoration of the 1.63-acre temporary work area needed for construction of the new structure should result in a more extensive and contiguous riparian corridor.

Use of the new bridge and associated road realignment is not expected to increase the local wildlife-vehicle collision risk. The project is unlikely to result in increased traffic volume or speed. The realignment should result in increased visibility of the roadway ahead and retaining walls supporting the bridge approaches are a likely barrier to California red-legged frog movement onto the road and may be effective in directing frog and other wildlife movement under the Troutdale Creek Bridge.

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 BO. Future Federal actions that are unrelated to the proposed SR 29 Troutdale Creek Bridge Replacement Project are not considered in this section because they require separate consultation pursuant to section 7 of the Act. The Service is not aware of specific projects that might affect the California red-legged frog in the action area that are currently under review by State, county, or local authorities.

The Service is not aware of any cumulative effects to the California red-legged frog that are reasonably certain to occur within the action area.

Conclusion

After reviewing the current status of California red-legged frog, the environmental baseline for the action area, and the effects of the proposed action, and the cumulative effects on the species, it is the Service's biological opinion that the proposed SR 29 Troutdale Creek Bridge Replacement Project, as described herein, is not likely to jeopardize the continued existence of this/these species. We base this conclusion on the following: (1) Caltrans will implement a comprehensive list of conservation measures to minimize and avoid adverse effects to the California red-legged frog; (2) areas of temporary ground disturbance will be restored to meet baseline or enhanced California red-legged frog habitat values; and (3) the new bridge and approach design will provide enhanced habitat connectivity up and downstream of the bridge crossing.

INCIDENTAL TAKE STATEMENT

Section 9(a)(1) of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened fish and wildlife species without special exemption. Take is defined as harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harass is defined by the Service as an intentional or negligent act or omission which creates the likelihood of injury to a listed species by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering. Harm is defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly

impairing behavioral 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(o)(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 this Incidental Take Statement.

The measures described below are non-discretionary, and must be implemented by Caltrans so that they become binding conditions of any grant or permit issued to Caltrans as appropriate, in order for the exemption in section 7(o)(2) to apply. Caltrans has a continuing duty to regulate the activity covered by this incidental take statement. If Caltrans (1) fails to assume and implement the terms and conditions or (2) fails 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(o)(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(i)(3)].

Amount or Extent of Take

The Service anticipates that incidental take of the California red-legged frog will be difficult to detect due to their wariness, cryptic nature, and the abundance of potential cover sites within the action area. Finding an injured or dead California red-legged frog is unlikely due to their relatively small body size, rapid carcass deterioration, and likelihood that the remains will be removed by a scavenger. Depending on the condition of the carcass, it may be difficult to differentiate between the remains of the California red-legged frog and the foothill yellow-legged frog (*Rana boylei*), which is also likely to occur in Troutdale Creek. 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 and temporary loss/degradation of suitable habitat, and capture and relocation efforts; therefore, the Service is authorizing take incidental to the proposed action as (1) the injury and mortality of no more than one adult, juvenile, or larval California red-legged frog and (2) the capture, harm and harassment of all California red-legged frogs within the 2.71-acre project footprint. Upon implementation of the following *Reasonable and Prudent Measures*, California red-legged frogs within the action area 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

The Service has determined that this level of anticipated take for the California red-legged frog is not likely to jeopardize the continued existence of this 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 proposed action on the California red-legged frog.

Caltrans will be responsible for the implementation and compliance with this measure:

1. Minimize the adverse effects to the California red-legged frog and its habitat in the action area.

Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the Act, Caltrans must comply 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 minimize the potential for harm, harassment, or killing of the California red-legged frog resulting from project related activities by implementing the conservation measures as stated in the *Description of the Proposed Action* of this BO.
 - b. Caltrans shall require all contractors to comply with the Act in the performance of the action and shall perform the action as outlined in the *Description of the Proposed Action* of this BO as provided by Caltrans in the January 2013, BA and all other supporting documentation submitted to the Service.
 - c. Caltrans shall include language in their contracts that expressly requires contractors and subcontractors to work within the boundaries of the project footprint identified in this BO, including vehicle parking, staging, laydown areas, and access.
 - d. At least 15 days prior to the onset of any construction-related activities, Caltrans shall submit to the Service, for approval, the name(s) and credentials of biologists it wishes to conduct activities specified for this project. Information included in a request for authorization should include, at a minimum: (1) relevant education; (2) relevant training on species 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 BOs under which they were authorized to work with the listed species and at what level (such as construction monitoring versus handling), this should 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 are authorized to work with the species (to include permit number, authorized activities, and name of permit holder); (6) any relevant professional references with contact information. No project construction shall begin until Caltrans has received written Service approval for biologists to conduct specified activities.
 - e. Caltrans shall provide a restoration and revegetation plan for the 1.63 acres of temporary effected areas and the 0.16 acre reclaimed area to be reviewed and

approved by the Service no later than sixty (60) calendar days prior to date of 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, and remediation and adaptive management. In addition, annual monitoring reports on the success of the plantings shall be provided to the Service following the date of project completion. The reports 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. Stations will be located in areas that allow for unobstructed views, to the extent allowed by surrounding vegetative cover and topography. 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 the date of initial ground breaking activities. 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 two 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.
- f. 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 frog if it is not in danger or (2) move the frog to a nearby location if it is in danger.

These two options are further 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) 414-6600. If you get voicemail messages for these contacts then contact John Cleckler on his cell phone at (916) 712-6784. The issue of contacting people on the weekend or after office hours is addressed later. 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 frog and allow it to move out of the action area 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 a California red-legged frog is encountered on the move during conditions that make their upland travel feasible. This does not apply to California red-legged frog 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 California red-legged frog is not moving and is using aquatic habitat or is within some sort of burrow or other refugia. The area should be well marked 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. 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 the frogs, 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/daptf/>).

- i. All dirt and debris, including mud, snails, 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, individual 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.

The Service believes that no more than one California red-legged frog will be incidentally taken due to harm as a result of the proposed action. The reasonable and prudent measures, with their implementing terms and conditions, are designed to minimize the impact of incidental take that might otherwise result from the proposed action. If, during the course of the action, this level of incidental take is exceeded, such incidental take represents new information requiring reinitiation of consultation and review of the reasonable and prudent measures provided. The Federal agency must immediately provide an explanation of the causes of the taking and review with the Service the need for possible modification of the reasonable and prudent measures.

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 reinitiate formal consultation as per 50 CFR 402.16.

1. The Service must be notified within one (1) working day of the finding of any injured or dead listed species or any unanticipated damage to its habitat associated with the proposed project. Notification will be made to the Coast-Bay/Forest Foothills Division Chief of the Endangered Species Program at the Sacramento Fish and Wildlife Office at (916) 414-6600, and must include the date, time, and precise location of the individual/incident clearly indicated on a U.S. Geological Survey 7.5-minute quadrangle or other maps at a finer scale, as requested by the Service, and any other pertinent information. 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 of the CDFW (<http://www.dfg.ca.gov/biogeodata/cnddb/>).
3. Caltrans shall submit a post-construction compliance report prepared by the on-site biologist to the Service within forty (40) working days following project completion or within sixty (60) calendar days of any break in construction activity lasting more than forty (40) working days. This report will detail (i) dates that construction occurred; (ii) pertinent information concerning the success of the project in meeting compensation and other conservation measures; (iii) an explanation of failure to meet such measures, if any; (iv) known project effects on listed species, if any; (v) occurrences of incidental take of any listed species; and (vi) other pertinent information. The report(s) will be addressed to the Coast-Bay/Forest Foothills Division Chief of the Endangered Species Program at the Sacramento Fish and Wildlife Office.

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 persons are the Coast-Bay/Forest Foothills Division Chief of the Endangered Species Program at the Sacramento Fish and Wildlife Office at (916) 414-6600; and the Resident Agent-in-Charge of the Service's Office of Law Enforcement, 5622 Price Way, McClellan, California 95562, at (916) 569-8444.

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. In the January 2013 BA, Caltrans proposed the transfer of funds to the California Department of Parks and Recreation (State Parks) for management or study-related uses associated with the northern spotted owl. The Service encourages such a contribution and would work with Caltrans, State Parks, and other local entities to “brain storm” ideas. The 2011 Robert Louis Stevenson State Park & Wildlake-Duff Ranches Interim Management Plan includes a relevant discussion of management needs and opportunities (LTNC 2011).
2. 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.
3. Caltrans should assist the Service in implementing recovery actions identified in the Recovery Plan for the California Red-legged Frog (Service 2002).
4. Caltrans should consider participating in the planning for a regional habitat conservation plan for the California red-legged frog, other listed species, and sensitive species.
5. Caltrans should consider establishing functioning preservation and creation conservation banking systems to further the conservation of the California red-legged frog, and other appropriate species. Such banking systems also could possibly 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.
6. Roadways can constitute a major barrier to critical wildlife movement. Therefore, Caltrans should incorporate culverts, tunnels, or bridges on highways and other roadways that allow safe passage by California red-legged frog, other listed animals, and wildlife. Photographs, plans, and other information into the BAs if “wildlife friendly” crossings are incorporated into projects. Efforts should be made to establish upland culverts designed specifically for wildlife movement rather than accommodations for hydrology. Transportation agencies should also acknowledge the value of enhancing human safety by providing safe passage for wildlife in their early project design.

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 proposed SR 29 Troutdale Creek Bridge Replacement Project. As provided in 50 CFR § 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been maintained (or is authorized by law) and if: (1) the amount or extent of incidental take 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, including work outside of the project footprint analyzed in this opinion and including vehicle parking, staging, lay down areas, and access roads; (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 BO including use of rodenticides or herbicides; relocation of utilities; and use of vehicle parking, staging, lay down areas, and access roads; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any additional take will not be exempt from the prohibitions of section 9 until consultation has been completed on a reinitiation.

If you have questions concerning this BO on the proposed SR 29 Troutdale Creek Bridge Replacement Project, please contact John Cleckler, Caltrans Liaison (john_cleckler@fws.gov) or Ryan Olah, Coast-Bay/Forest Foothills Division Chief (ryan_olah@fws.gov), at the letterhead address, (916) 414-6600, or by electronic mail.

Sincerely,


for Jan Knight
Acting Field Supervisor

cc:

Melissa Escaron, California Department of Fish and Wildlife, Napa, California
Elizabeth Lee, California Regional Water Quality Control Board, Sacramento, California
Paula Gill, U.S. Army Corps of Engineers, San Francisco, California
Chris States, James Coniglio, Carie Montero, California Department of Transportation, Oakland,
California

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Personal Communication

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Kobernus, Patrick. 2008. Wildlife Biologist, Coast Ridge Ecology, San Francisco, California. Personal communication with Michelle Havens, U.S. Fish and Wildlife Service, Sacramento Fish and Wildlife Office, on October 16, 2008.

Appendix D - U. S. Fish & Wildlife Service Species List

Sacramento Fish & Wildlife Office Species List

Page 1 of 5

These buttons will not appear on your list.

[Revise Selection](#)

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Print species list before going on to letter.

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U.S. Fish & Wildlife Service

Sacramento Fish & Wildlife Office

**Federal Endangered and Threatened Species that Occur in
or may be Affected by Projects in the Counties and/or
U.S.G.S. 7 1/2 Minute Quads you requested**

Document Number: 130625025604

Database Last Updated: September 18, 2011

Quad Lists

Listed Species

Invertebrates

- Branchinecta conservatio
 - Conservancy fairy shrimp (E)
- Desmocerus californicus dimorphus
 - valley elderberry longhorn beetle (T)
- Syncaris pacifica
 - California freshwater shrimp (E)

Fish

- Hypomesus transpacificus
 - delta smelt (T)
- Oncorhynchus (=Salmo) clarki henshawi
 - Lahontan cutthroat trout (T)
- Oncorhynchus kisutch
 - coho salmon - central CA coast (E) (NMFS)
- Oncorhynchus mykiss

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- Central California Coastal steelhead (T) (NMFS)
- Central Valley steelhead (T) (NMFS)
- Critical habitat, Central California coastal steelhead (X) (NMFS)
- *Oncorhynchus tshawytscha*
 - California coastal chinook salmon (T) (NMFS)
 - Central Valley spring-run chinook salmon (T) (NMFS)
 - winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

- *Ambystoma californiense*
 - California tiger salamander, central population (T)
- *Rana draytonii*
 - California red-legged frog (T)

Birds

- *Strix occidentalis caurina*
 - northern spotted owl (T)

Plants

- *Astragalus clarianus*
 - Clara Hunt's milk-vetch (E)
- *Eryngium constancei*
 - Loch Lomond coyote-thistle (=button-celery) (E)
- *Lasthenia burkei*
 - Burke's goldfields (E)
- *Limnanthes vincularis*
 - Sebastopol meadowfoam (E)
- *Navarretia leucocephala* ssp. *pauciflora*
 - few-flowered navarretia (E)
- *Navarretia leucocephala* ssp. *plieantha*
 - many-flowered navarretia (E)
- *Orcuttia tenuis*
 - Critical habitat, slender Orcutt grass (X)
 - slender Orcutt grass (T)
- *Parvisedum leiocarpum*
 - Lake County stonecrop (E)
- *Plagiobothrys strictus*
 - *Calistoga allocarya* (popcorn-flower) (E)
- *Poa napensis*

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- Napa bluegrass (E)
- *Sidalcea keckii*
 - Keck's checker-mallow (=checkerbloom) (E)
- *Sidalcea oregana* ssp. *valida*
 - Kenwood Marsh checkermallow (=checkerbloom) (E)

Quads Containing Listed, Proposed or Candidate Species:

AETNA SPRINGS (516B)

ST. HELENA (516C)

DETERT RESERVOIR (517A)

MOUNT ST. HELENA (517B)

MARK WEST SPRINGS (517C)

CALISTOGA (517D)

JERICHO VALLEY (532C)

WHISPERING PINES (533C)

MIDDLETOWN (533D)

County Lists

No county species lists requested.

Key:

- (E) Endangered - Listed as being in danger of extinction.
- (T) Threatened - Listed as likely to become endangered within the foreseeable future.
- (P) Proposed - Officially proposed in the Federal Register for listing as endangered or threatened.
- (NMFS) Species under the Jurisdiction of the National Oceanic & Atmospheric Administration Fisheries Service. Consult with them directly about these species.
- Critical Habitat - Area essential to the conservation of a species.
- (PX) Proposed Critical Habitat - The species is already listed. Critical habitat is being proposed for it.
- (C) Candidate - Candidate to become a proposed species.
- (V) Vacated by a court order. Not currently in effect. Being reviewed by the Service.
- (X) Critical Habitat designated for this species

Important Information About Your Species List

How We Make Species Lists

We store information about endangered and threatened species lists by U.S. Geological Survey 7½ minute

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quads. The United States is divided into these quads, which are about the size of San Francisco.

The animals on your species list are ones that occur within, or may be affected by projects within, the quads covered by the list.

- Fish and other aquatic species appear on your list if they are in the same watershed as your quad or if water use in your quad might affect them.
- Amphibians will be on the list for a quad or county if pesticides applied in that area may be carried to their habitat by air currents.
- Birds are shown regardless of whether they are resident or migratory. Relevant birds on the county list should be considered regardless of whether they appear on a quad list.

Plants

Any plants on your list are ones that have actually been observed in the area covered by the list. Plants may exist in an area without ever having been detected there. You can find out what's in the surrounding quads through the California Native Plant Society's online [Inventory of Rare and Endangered Plants](#).

Surveying

Some of the species on your list may not be affected by your project. A trained biologist and/or botanist, familiar with the habitat requirements of the species on your list, should determine whether they or habitats suitable for them may be affected by your project. We recommend that your surveys include any proposed and candidate species on your list.

See our [Protocol](#) and [Recovery Permits](#) pages.

For plant surveys, we recommend using the [Guidelines for Conducting and Reporting Botanical Inventories](#). The results of your surveys should be published in any environmental documents prepared for your project.

Your Responsibilities Under the Endangered Species Act

All animals identified as listed above are fully protected under the Endangered Species Act of 1973, as amended. Section 9 of the Act and its implementing regulations prohibit the take of a federally listed wildlife species. Take is defined by the Act as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect" any such animal.

Take may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or shelter (50 CFR §17.3).

Take incidental to an otherwise lawful activity may be authorized by one of two procedures:

- If a Federal agency is involved with the permitting, funding, or carrying out of a project that may result in take, then that agency must engage in a formal [consultation](#) with the Service.
- During formal consultation, the Federal agency, the applicant and the Service work together to avoid or minimize the impact on listed species and their habitat. Such consultation would result in a biological opinion by the Service addressing the anticipated effect of the project on listed and proposed species. The opinion may authorize a limited level of incidental take.
- If no Federal agency is involved with the project, and federally listed species may be taken as part of the project, then you, the applicant, should apply for an incidental take permit. The Service may issue such a permit if you submit a satisfactory conservation plan for the species that would be affected by your project.

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- Should your survey determine that federally listed or proposed species occur in the area and are likely to be affected by the project, we recommend that you work with this office and the California Department of Fish and Game to develop a plan that minimizes the project's direct and indirect impacts to listed species and compensates for project-related loss of habitat. You should include the plan in any environmental documents you file.

Critical Habitat

When a species is listed as endangered or threatened, areas of habitat considered essential to its conservation may be designated as critical habitat. These areas may require special management considerations or protection. They provide needed space for growth and normal behavior; food, water, air, light, other nutritional or physiological requirements; cover or shelter; and sites for breeding, reproduction, rearing of offspring, germination or seed dispersal.

Although critical habitat may be designated on private or State lands, activities on these lands are not restricted unless there is Federal involvement in the activities or direct harm to listed wildlife.

If any species has proposed or designated critical habitat within a quad, there will be a separate line for this on the species list. Boundary descriptions of the critical habitat may be found in the Federal Register. The information is also reprinted in the Code of Federal Regulations (50 CFR 17.95). See our [Map Room](#) page.

Candidate Species

We recommend that you address impacts to candidate species. We put plants and animals on our candidate list when we have enough scientific information to eventually propose them for listing as threatened or endangered. By considering these species early in your planning process you may be able to avoid the problems that could develop if one of these candidates was listed before the end of your project.

Species of Concern

The Sacramento Fish & Wildlife Office no longer maintains a list of species of concern. However, various other agencies and organizations maintain lists of at-risk species. These lists provide essential information for land management planning and conservation efforts. [More info](#)

Wetlands

If your project will impact wetlands, riparian habitat, or other jurisdictional waters as defined by section 404 of the Clean Water Act and/or section 10 of the Rivers and Harbors Act, you will need to obtain a permit from the U.S. Army Corps of Engineers. Impacts to wetland habitats require site specific mitigation and monitoring. For questions regarding wetlands, please contact Mark Littlefield of this office at (916) 414-6520.

Updates

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be September 23, 2013.

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Appendix E - California Natural Diversity Database (CNDDDB)

California Department of Fish and Game
Natural Diversity Database

Selected Elements by Scientific Name - Portrait

Aetna Springs, St. Helena, Detert Reservoir, Mount St. Helena, Mark West Springs, Calistoga, Jericho Valley, Whispering Pines, and Middletown USGS Quads

Scientific Name/Common Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1 <i>Astragalus claranus</i> Clara Hunt's milk-vetch	PDFAB0F240	Endangered	Threatened	G1	S1	1B.1
2 <i>Brodiaea rosea</i> Indian Valley brodiaea	PMLIL0C032		Endangered	G1	S1	1B.1
3 <i>Eryngium constancei</i> Loch Lomond button-celery	PDAP10Z0W0	Endangered	Endangered	G1	S1	1B.1
4 <i>Gratiola heterosepala</i> Boggs Lake hedge-hyssop	PDSCR0R060		Endangered	G2	S2	1B.2
5 <i>Haliaeetus leucocephalus</i> bald eagle	ABNKC10010	Delisted	Endangered	G5	S2	
6 <i>Hesperolinon didymocarpum</i> Lake County western flax	PDLIN01070		Endangered	G1	S1	1B.2
7 <i>Lasthenia burkei</i> Burke's goldfields	PDA5T5L010	Endangered	Endangered	G1	S1	1B.1
8 <i>Limnanthes vinculans</i> Sebastopol meadowfoam	PDLIM02090	Endangered	Endangered	G1	S1	1B.1
9 <i>Navarretia leucocephala</i> ssp. <i>pauciflora</i> few-flowered navarretia	PDPLM0C0E4	Endangered	Threatened	G4T1	S1	1B.1
10 <i>Navarretia leucocephala</i> ssp. <i>plieantha</i> many-flowered navarretia	PDPLM0C0E5	Endangered	Endangered	G4T1	S1	1B.2
11 <i>Oncorhynchus mykiss irideus</i> steelhead - central California coast DPS	AFCHA0209G	Threatened		G5T2Q	S2	
12 <i>Orcuttia tenuis</i> slender Orcutt grass	PMPOA4G050	Threatened	Endangered	G2	S2	1B.1
13 <i>Panicum acuminatum</i> var. <i>thermale</i> Geysers panicum	PMPOA24028		Endangered	G5T2Q	S2	1B.2
14 <i>Plagiobothrys strictus</i> Calistoga popcornflower	PDBOR0V120	Endangered	Threatened	G1	S1	1B.1
15 <i>Poa napensis</i> Napa blue grass	PMPOA4Z1R0	Endangered	Endangered	G1	S1	1B.1
16 <i>Rana draytonii</i> California red-legged frog	AAABH01022	Threatened		G4T2T3	S2S3	SC
17 <i>Sedella leiocarpa</i> Lake County stonecrop	PDCRA0F020	Endangered	Endangered	G1	S1	1B.1
18 <i>Sidalcea keckii</i> Keck's checkerbloom	PDMAL110D0	Endangered		G1	S1	1B.1
19 <i>Sidalcea oregana</i> ssp. <i>valida</i> Kenwood Marsh checkerbloom	PDMAL110K5	Endangered	Endangered	G5T1	S1	1B.1
20 <i>Syncaris pacifica</i> California freshwater shrimp	ICMAL27010	Endangered	Endangered	G1	S1	

Appendix F - Avoidance and Minimization Summary

<p>Traffic/Transportation: A Transportation Management Plan (TMP) will be required for this project. The TMP will be developed and refined during the design phase of the project and supported by detailed studies to evaluate traffic operations. The TMP may include press releases to notify and inform motorists, businesses, community groups, local entities, emergency services, and local officials of periods of upcoming one-way traffic control. Various TMP elements such as Portable Changeable Message Signs and California Highway Patrol (CHP) Construction Zone Enhanced Enforcement Program (COZEEP) may be utilized to alleviate and minimize delay to the traveling public.</p>	<p><u>Reference</u> p. 21</p>	<p><u>Responsible Party</u> Traffic Ops., Design</p>	<p><u>Timing</u> PS&E, Const.</p>
<p>Visual/Aesthetics: Cut and fill slopes should be contour graded and rounded so as to reflect the contours of adjacent, undisturbed topography to the extent feasible. Grading operations should not result in angular landforms.</p>	<p><u>Reference</u> p. 30</p>	<p><u>Responsible Party</u> Design, Landscape Arch.</p>	<p><u>Timing</u> PS&E, Const.</p>
<p>Visual/Aesthetics: All exposed ground surfaces should be hydro-seeded with appropriate plant species for erosion control purposes. The hydro-seeded vegetative cover will reduce the degree of visual contrast of the disturbed areas. It is expected that indigenous shrubs and herbaceous plants occurring on adjacent, undisturbed slopes will colonize the newly seeded slopes. As these colonizing plants mature and increase in density, the visual contrast of the disturbed areas will continue to diminish. In time, vegetative cover patterns of areas disturbed during</p>	<p><u>Reference</u> p. 31</p>	<p><u>Responsible Party</u> Design, Landscape Arch.</p>	<p><u>Timing</u> PS&E, Const.</p>

<p>project construction will match the adjacent, undisturbed areas.</p>			
<p>Visual/Aesthetics: Replace native trees that have a diameter at breast height (dbh) of six inches or greater with a ratio of 1:1. The 3:1 ratio recommended in the Natural Communities subsection of the Biological Resources section of this chapter for the replacement of native trees with a dbh of four inches or greater will address this minimization measure. Trees will be planted on-site in the project area to the extent possible under a separate project after the completion of construction. Off-site planting areas will be sought to accommodate the remainder of the tree replacement. Trees species planted in the replacement will come from the palette of trees removed, and may include Douglas fir, white alder, big leaf maple, California bay laurel, Dogwood, Pacific madrone, Canyon live oak, Yew, Tan oak, Manzanita, Ponderosa pine, Valley oak, and California black oak.</p>	<p><u>Reference</u></p> <p>p. 31</p>	<p><u>Responsible Party</u></p> <p>Design, Landscape Arch., Bio.</p>	<p><u>Timing</u></p> <p>PS&E, Const.</p>
<p>Visual/Aesthetics: The new bridge will have a form lined texture and color on the wing walls. The new concrete barriers will receive an architectural treatment to be determined during the design phase of the project.</p>	<p><u>Reference</u></p> <p>p. 31</p>	<p><u>Responsible Party</u></p> <p>Design, Landscape Arch.</p>	<p><u>Timing</u></p> <p>PS&E, Const.</p>

<p>Visual/Aesthetics: Three of the retaining walls will be soldier pile composed of horizontal timber lagging and vertical steel I-girders. The timber lagging will have a natural brown color and the steel I-girders will be painted a similar brown to the timber. The fourth retaining wall will have a carved and stained shotcrete surface treatment.</p>	<p><u>Reference</u> p. 31</p>	<p><u>Responsible Party</u> Design, Landscape Arch.</p>	<p><u>Timing</u> PS&E, Const.</p>
<p>Visual/Aesthetics: The light and glare during the project construction will only be visible from the one residence located below the construction site. Lights will be shielded to prevent light intrusion upon the residence as much as possible.</p>	<p><u>Reference</u> p. 31</p>	<p><u>Responsible Party</u> Design, Landscape Arch.</p>	<p><u>Timing</u> PS&E, Const.</p>
<p>Water Quality: Construction Site BMPs are implemented during construction activities to reduce pollutants at their source before they come in contact with storm water. The Department's Construction Site BMPs are divided into six categories: Temporary Soil Stabilization, Temporary Sediment Control, Tracking Control, Non-Storm Water Management, and Waste Management and Materials Pollution Control. Some of the BMPs that may be utilized to prevent and minimize soil erosion and sediment discharges during construction are Street Sweeping and Vacuuming, Concrete Waste Management, Stockpile Management, and Stabilized Construction Entrance/Exit.</p> <p>Given that the anticipated soil disturbance is greater than one acre</p>	<p><u>Reference</u> p. 41</p>	<p><u>Responsible Party</u> Design, Water Quality</p>	<p><u>Timing</u> PS&E, Const.</p>

<p>(0.4 hectares), a Storm Water Pollution Prevention Plan (SWPPP) will be deployed during construction activities. This dynamic document addresses the deployment of various erosion and water pollution control measures that are required commensurate to changing construction activities.</p>			
<p>Water Quality: Design Pollution Prevention BMPs are permanent measures to improve storm water quality by reducing erosion, stabilizing disturbed soil areas, and maximizing vegetated surfaces after construction is completed. Erosion control measures will be provided on all disturbed areas to the maximum practical extendable. These measures can utilize a combination of source and sediment control measures to prevent and minimize soil erosion from disturbed areas. Source controls utilize erosion control netting in combination with hydroseeding.</p> <p>The biodegradable netting is effective in providing good initial mechanical protection while the seeds applied during the hydroseeding operation germinate and re-establish vegetation. Other forms of source control such as tacked straw may also be used when applicable. Sediment controls such as biodegradable fiber rolls can be used to retain sediments and to help control runoff from disturbed slope areas. These measures would be investigated during the design phase.</p>	<p><u>Reference</u></p> <p>p. 42</p>	<p><u>Responsible Party</u></p> <p>Design, Water Quality</p>	<p><u>Timing</u></p> <p>PS&E, Const.</p>

<p>Outlet protection and velocity dissipation devices placed at the downstream end of culverts and channels are another form of Design Pollution Prevention BMPs that reduce runoff velocity and control erosion and scour. Implementing these devices for this project would be further investigated during the design phase.</p> <p>For this project treatments may include Erosion Control (Type D) application to all disturbed soil areas and Fiber Roll installation along disturbed slopes to act as slope interrupter devices.</p> <p>The project design is to minimize areas of disturbance to accommodate improvements and retain the existing vegetation to the Maximum Extent Practicable (MEP). Measures to avoid and minimize disturbance to environmentally sensitive areas will be included. Measures will include implementing the exclusionary fencing in environmentally sensitive areas with a high visibility (HV) fence fabric or a combination silt fence/HV fence fabric to reduce, or eliminate the potential of sediment and other pollutant concentrations from construction activities.</p>			
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<p>Water Quality: Treatment BMPs are permanent devices and facilities treating storm water runoff. Department approved Treatment BMPs are Biofiltration Swales, Infiltration Basins, Detention Basins, Traction Sand Traps, Dry Weather Flow Diversions, Media Filters, Gross Solids Removal Devices (GSRDs), Multi-chamber Treatment Trains, and Wet Basins.</p> <p>Recently adapted practices require projects with less than one acre of added impervious area to consider incorporating permanent Treatment BMPs, while a 401 Water Quality Certification is required for them.</p> <p>Due to the dense vegetation and steepness of the project site, construction of conventional Treatments BMPs is not feasible. However, permanent treatment BMPs will be provided by removing part of the existing pavement (approaches to the bridge) and incorporating a bioretention basin, combined with planting vegetation as a natural biofiltration and infiltration devices (Natural Soil Hydrologic Group B). This treatments strategy will effectively remove the pollutants of concerns as well as they will reduce runoff volume and the peak discharge rate.</p>	<p><u>Reference</u></p> <p>p. 42</p>	<p><u>Responsible Party</u></p> <p>Design, Water Quality</p>	<p><u>Timing</u></p> <p>PS&E, Const.</p>
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<p>Water Quality: Maintenance BMPs are water quality controls used to reduce pollutant discharges during highway maintenance and activities conducted at maintenance facilities. Included in this category are litter pick up, street sweeping, and stenciling storm drain inlets.</p> <p>Use of appropriate BMPs, quantities, and their locations will be further investigated as the project develops and more detailed information is provided at the subsequent design phase.</p>	<p><u>Reference</u></p> <p>p. 43</p>	<p><u>Responsible Party</u></p> <p>Design, Water Quality</p>	<p><u>Timing</u></p> <p>PS&E, Const.</p>
<p>Water Quality: Generally, most of the Department's construction activities fall under the general Department NPDES permit and SWPPP of the Project. However, the RWQCBs may have project-specific Waste Discharge Requirements for construction dewatering or for larger projects that have water quality concerns. Ground water level is expected to be close to the creek bed, and a dewatering permit may be required for this project.</p>	<p><u>Reference</u></p> <p>p. 43</p>	<p><u>Responsible Party</u></p> <p>Design, Water Quality</p>	<p><u>Timing</u></p> <p>PS&E, Const.</p>
<p>Paleontology: A Paleontological Mitigation Plan (PMP) may be recommended to define the specific mitigation measures and methods that will be implemented if paleontological resources are discovered or detected in the field.</p> <p>These recommendations may include: A qualified paleontologist could be</p>	<p><u>Reference</u></p> <p>p. 51</p>	<p><u>Responsible Party</u></p> <p>Geotech</p>	<p><u>Timing</u></p> <p>PS&E, Const.</p>

present to consult with grading and excavation contractors at pre-grading meetings.

The Principal Paleontologist could also have an environmental meeting to train grading and excavation contractors in the identification of fossils.

When fossils are discovered, the paleontologist (or paleontological monitor) would be called to recover them. Construction work in these areas may need to be halted or diverted to allow recovery of fossil remains in a timely manner.

Fossil remains collected during the monitoring and salvage portion of the mitigation program would be cleaned, stabilized, sorted, and cataloged.

Prepared fossils, along with copies of all pertinent field notes, photos, and maps, would then be deposited in a scientific institution with paleontological collections.

A final report will be completed that outlines the results of the mitigation program, if needed.

Hazardous Waste:	<u>Reference</u>	<u>Responsible Party</u>	<u>Timing</u>
<p data-bbox="240 342 760 422"><i>Man-made Asbestos Containing Materials (ACM)</i></p> <p data-bbox="240 464 760 1041">Because ACM is a hazardous substance and a hazardous air pollutant, Bay Area Air Quality Management District (BAAQMD) regulations require that the Department conduct a thorough survey prior to any demolition for the presence of ACM. The survey shall include sampling and the results of laboratory analysis of the asbestos content of all suspected ACM. If this asbestos survey finds ACM then other regulations become effective during the demolition of a bridge.</p> <p data-bbox="240 1083 760 1577">Title 8 of the California Code of Regulations (CCR) Section 1529, "Asbestos," regulates asbestos exposure in all construction work as defined by Section 1502 and includes demolition of structures. Section 1502 states that the construction safety orders establish minimum safety standards whenever employment exists in connection with removal or wrecking of any fixed structure or its parts.</p> <p data-bbox="240 1619 760 1946">The removal of asbestos-containing material, such as bridge-barrier-rail shims, falls under the 8 CCR Section 1529 definition of "Class II asbestos work." Class II asbestos work means activities involving the removal of asbestos-containing material (ACM) which is not thermal</p>	<p data-bbox="824 373 894 409">p. 53</p>	<p data-bbox="976 342 1235 409">Hazardous Waste, Contractor</p>	<p data-bbox="1312 342 1409 373">Const.</p>

<p>system insulation or surfacing material. Removal means all operations where ACM is taken out or stripped from structures or substrates, and includes demolition operations.</p> <p>Title 8 of CCR Section 1529, "Asbestos," specifies the following best management practices for handling ACM during bridge removal or demolition operations.</p> <ol style="list-style-type: none"> 1. The material shall be thoroughly wetted with amended water prior to and during its removal. 2. The material shall be removed in an intact state unless the employer demonstrates that the intact removal is not possible. 3. Cutting, abrading or breaking the material shall be prohibited unless the employer can demonstrate that methods less likely to result in asbestos fiber release are not feasible. 4. Asbestos-containing material removed, shall be immediately bagged or wrapped, or kept wetted until transferred to a closed receptacle, no later than the end of the work shift. <p>The Department's non-standard special provision (NSSP) entitled "Removal of Asbestos Containing Materials - Bridges and Non-building Structures," would be used to address any ACM removal during</p>			
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<p>the demolition of the bridge. This NSSP requires that all friable ACM be removed in a manner that conforms to OSHA work practice requirements. This NSSP also specifies that the contractor remove and handle all non-friable ACM to prevent breakage. The contractor must dispose of friable and non-friable waste containing asbestos at a disposal facility permitted to accept such material and that meets all the requirements specified by Federal, State, and Local regulations.</p>			
<p>Hazardous Waste: <i>Lead Based Paint</i></p> <p>The Construction Safety Orders found in Title 8 CCR Section 1532.1, "Lead" apply to all construction work where an employee may be occupationally exposed to lead. The term "construction work" includes the alteration, repair, demolition, and salvage of structures where lead or materials containing lead are present.</p> <p>8 CCR Section 1532.1 requires that employers assure that no employee is exposed to lead at concentrations greater than 50 micrograms per cubic meter (50 µg/m³). Employers are also required to establish a written compliance program to ensure that employees are not exposed to lead.</p> <p>Title 17 CCR Section 36050 states</p>	<p><u>Reference</u></p> <p>p. 54</p>	<p><u>Responsible Party</u></p> <p>Hazardous Waste, Contractor</p>	<p><u>Timing</u></p> <p>Pre-Const.</p>

<p>that any individual conducting lead activities, excluding lead hazard evaluation, shall use containment and shall ensure that the work area has no visible dust or debris following the completion of the project. Containment means a system, process, or barrier used to contain lead hazards inside a work area.</p> <p>The Department's Engineering Service Center typically specifies that standard specification 14-11.08, "Disturbance of Existing Paint Systems on Bridges" be used to ensure that any work that disturbs existing paint on a structure is protective of human health and safety. Standard special provision (SSP) 15-025, or a similar NSSP, will require that the contractor prepare a lead compliance plan in accordance with the requirements within 8 CCR Section 1532.1, "Lead." These special provisions would also address the issue of containment and the proper disposal of demolition waste that contains lead.</p>			
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<p>Biology:</p> <p>The project design has been modified to build the new bridge in-place of the existing bridge on a tangent alignment, spanning about 26 feet across the creek. The southern bridge abutment was redesigned to encourage safer wildlife crossing across Route 29. A fourth retaining wall has been eliminated removing additional impacts to the project area.</p>	<p><u>Reference</u></p> <p>p. 58</p>	<p><u>Responsible Party</u></p> <p>Design</p>	<p><u>Timing</u></p> <p>PS&E</p>
<p>Biology:</p> <p>To the extent practicable, construction will not occur during the wet season when California red-legged frogs are most active. Except for limited vegetation clearing (necessary to minimize effects to nesting birds), work within CRLF habitat will be limited to the period from June 1 to October 15.</p>	<p><u>Reference</u></p> <p>p. 58</p>	<p><u>Responsible Party</u></p> <p>Contractor</p>	<p><u>Timing</u></p> <p>Const.</p>

Biology:	<u>Reference</u>	<u>Responsible Party</u>	<u>Timing</u>
<p>Before the onset construction activities, a qualified biologist will conduct an education program for all construction personnel. At a minimum the training will include a description of California red-legged frog, California freshwater shrimp, foothill yellow-legged frog, northern spotted owl and other listed species, migratory birds and their habitats; the occurrence of these species within the project area; an explanation of the status of these species and protection under the Federal Endangered Species Act (FESA) and California Endangered Species Act (CESA); 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. A fact sheet conveying this information will be prepared and distributed to all construction and project personnel entering the project area. Upon completion of the training program, personnel will sign a form stating that they attended the program and understand all the avoidance and minimization measures and implications of FESA.</p>	<p>p. 58</p>	<p>Contractor, Office of Biological Sciences & Permits</p>	<p>Pre-const.</p>

Biology:	<u>Reference</u>	<u>Responsible Party</u>	<u>Timing</u>
<p>Prior to the start of construction, wildlife exclusion fencing (WEF) will be installed along the Project footprint in all areas where California red-legged frog (CRLF) and foothill yellow-legged frog (FYLF) could enter the project site. The WEF location will be surveyed and included on the project plans. The final Project plans will show where and how the WEF will be installed. The bid solicitation package special provisions will clearly describe acceptable fencing material and proper WEF installation and maintenance. The WEF will remain in place throughout the duration of the project, while construction activities are ongoing, and will be regularly inspected and fully maintained. WEF will be in place during each construction Phase and will be removed after each Phase is completed.</p>	<p>p. 59</p>	<p>Contractor, Office of Biological Sciences & Permits (Biology)</p>	<p>Pre-const.</p>

Biology:	<u>Reference</u>	<u>Responsible Party</u>	<u>Timing</u>
<p>A Storm Water Pollution Prevention Plan (SWPPP) and erosion control best management practices will be developed and implemented to minimize any wind or water-related erosion. They will also be in compliance with the requirements of the Regional Water Quality Control Board. The Department's BMP Guidance Handbook will provide guidance for design staff to include provisions in construction contracts for measures to protect sensitive areas and prevent and minimize storm water and non-storm water discharges. Protective measures will include, at a minimum:</p> <ul style="list-style-type: none"> a. Disallowing any discharging of pollutants from vehicle and equipment cleaning into any 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 established vehicle maintenance facility. c. Collecting and disposing of concrete wastes in washouts and water from curing operations. Neither will be allowed into watercourses. d. Maintaining spill containment kits on-site at all times during 	p. 59	Design, Water Quality	PS&E

<p>construction operations and/or staging or fueling of equipment.</p> <p>e. Using water trucks and dust palliatives to control dust in excavation-and-fill areas, covering temporary access road entrances and exits with rock (rocking), and covering of temporary stockpiles when weather conditions require.</p> <p>f. Installing coir rolls or straw wattles along or at the base of slopes during construction to capture sediment.</p> <p>g. Protecting graded areas from erosion using a combination of silt fences, fiber rolls along toes of slopes and erosion control netting (such as jute or coir) as appropriate on sloped areas.</p> <p>h. Establishing permanent erosion control measures to receive storm water discharges from the highway, or other impervious surfaces.</p>			
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<p>Biology: The following site restrictions will be implemented to avoid or minimize impacts to listed species and their habitats:</p> <ul style="list-style-type: none"> a. Enforcing a speed limit of 15 miles per hour (mph) within 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 right-of-way outside of any designated ESA or outside of the right-of-way 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, storage areas and contractor parking. Routes and boundaries of roadwork will be clearly marked prior to initiating construction or grading. c. Certifying to the maximum extent practicable, any borrow material to be non-toxic and weed free. d. Enclosing all food and food related trash items in sealed trash containers and removing them from the site at the end of each day. e. Prohibiting all pets within the project area during construction. f. Prohibiting firearms within the project site except for those 	<p><u>Reference</u></p> <p>p. 60</p>	<p><u>Responsible Party</u></p> <p>Contractor</p>	<p><u>Timing</u></p> <p>Const.</p>
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<p>carried by authorized security personnel, or local, State or Federal law enforcement officials.</p> <p>g. Maintaining all equipment in order 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 wetlands and aquatic habitats.</p> <p>h. Servicing vehicles and construction equipment including fueling, cleaning, and maintenance will occur at least 25 feet from the dry channel unless separated by topographic or drainage barrier.</p>			
<p>Biology: To prevent inadvertent entrapment of animals during construction, all excavated, steep-walled holes or trenches more than one foot deep will be covered at the close of each working day by plywood or similar materials, or provided with one or more escape ramps constructed of earth fill or wooden planks. Before such holes or trenches are filled they must be thoroughly inspected for trapped animals. All replacement pipes, culverts, or similar structures stored within the project area overnight will be inspected before they are subsequently moved, capped and/or buried.</p>	<p><u>Reference</u></p> <p>p. 61</p>	<p><u>Responsible Party</u></p> <p>Contractor, Biology</p>	<p><u>Timing</u></p> <p>Const.</p>

<p>Biology: If at any time a listed species is discovered, the Resident Engineer and United States Fish & Wildlife Service (USFWS)-approved biologist will be immediately informed. The USFWS-approved biologist will determine if relocating the species is necessary and will work with the USFWS and CDFW prior to handling or relocating unless otherwise authorized.</p>	<p><u>Reference</u></p> <p>p. 61</p>	<p><u>Responsible Party</u></p> <p>Contractor, Biology</p>	<p><u>Timing</u></p> <p>Const.</p>
<p>Biology: Any vegetation that is within the cut and fill line or growing in locations where permanent structures will be placed (e.g., road alignment, shoulder widening, etc.) will be cleared. Vegetation will be cleared only where necessary and will be cut above soil level except in areas that will be excavated for roadway construction. This will allow plants that reproduce vegetatively to resprout after construction. All clearing and grubbing of woody vegetation will occur by hand tools or using light construction equipment such as backhoes and excavators.</p>	<p><u>Reference</u></p> <p>p. 61</p>	<p><u>Responsible Party</u></p> <p>Contractor</p>	<p><u>Timing</u></p> <p>Const.</p>

<p>Biology: If clearing and grubbing occurs between February 15 and August 15, a qualified biologist will survey for nesting birds within the areas(s) to be disturbed including a perimeter buffer of 50 feet for passerines and 250 feet for raptors, within the State right-of-way, before clearing activities begin. All nest avoidance requirements of the Migratory Bird Treaty Act (MBTA) and CDFW Code will be observed.</p>	<p><u>Reference</u> p. 61</p>	<p><u>Responsible Party</u> Contractor, Biology</p>	<p><u>Timing</u> Const.</p>
<p>Biology: All cleared vegetation will be removed from the project footprint to prevent attracting animals to the project site. The contractor will be responsible for obtaining all permits, licenses and environmental clearances for properly disposing of such materials.</p>	<p><u>Reference</u> p. 61</p>	<p><u>Responsible Party</u> Contractor</p>	<p><u>Timing</u> Const.</p>

<p>Biology: A USFWS-approved biologist will be present during all vegetation clearing and grubbing activities. If at any point CRLF or other listed species are discovered during these activities, the USFWS-approved biologist through the Resident Engineer or their designee, will halt all work within 50 feet of the animal and contact the USFWS to determine how to proceed.</p>	<p><u>Reference</u> p. 62</p>	<p><u>Responsible Party</u> Biology</p>	<p><u>Timing</u> Const.</p>
<p>Biology: The Department will restore temporarily disturbed areas to the pre-construction function and values 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.</p>	<p><u>Reference</u> p. 62</p>	<p><u>Responsible Party</u> Contractor, Office of Erosion Control</p>	<p><u>Timing</u> Const.</p>
<p>Biology: To reduce the spread of invasive non-native plant species and minimize the potential decrease of palatable vegetation for wildlife species, the Department will comply with Executive Order 13112. This order is provided to prevent the introduction of invasive species and provide for their control in order to minimize the economic, ecological, and human health impacts. In the event that noxious weeds are disturbed or removed during construction-related activities, the</p>	<p><u>Reference</u> p. 62</p>	<p><u>Responsible Party</u> Contractor, Office of Erosion Control</p>	<p><u>Timing</u> Const.</p>

<p>contractor will be required to contain the plant material associated with these noxious weeds and dispose of it 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. If seeding is not possible, the area within the project area should be covered to the extent practicable with heavy black plastic solarization material until the end of the project.</p>			
<p>Biology: A pre-construction bird nesting survey will be conducted to survey active migratory bird nests in potentially impacted trees and shrubs prior to the beginning of construction.</p> <p>The Department will also inform the CDFW of birds, such as swallows and black phoebes nesting within the construction areas that are protected under the Migratory Bird Treaty Act. The Department will install exclusionary measures before February 15 during the year of construction to prevent birds and bats from nesting or roosting under the bridge or other areas in the construction zone while the work is occurring.</p>	<p><u>Reference</u></p> <p>p. 70</p>	<p><u>Responsible Party</u></p> <p>Biology, Contractor</p>	<p><u>Timing</u></p> <p>Pre-const.</p>

<p>Biology (California red-legged frog): The demolition of the existing bridge structure and associated approaches will partially offset the adverse effects associated with the new bridge construction. Avoidance and minimization for effects to the CRLF include the successful reclamation of the 0.16 acres of riparian vegetation within the demolished bridge alignment and the restoration of the 1.63 acres of temporary work area.</p>	<p><u>Reference</u></p> <p>p. 73</p>	<p><u>Responsible Party</u></p> <p>Contractor, Biology</p>	<p><u>Timing</u></p> <p>Post-const.</p>
<p>Biology (California red-legged frog):</p> <ol style="list-style-type: none"> 1. Night pre-construction surveys 24 and 48 hours before construction is to begin; 2. Fencing of the project site boundary with silt fencing after pre-construction surveys; and 3. Implementing adequate measures to make sure that curing concrete does not come in contact with any surface waters of Troutdale Creek. 4. A USFWS-approved biologist will be on-site during all activities that may result in the take of CRLF. 5. No more than twenty working days prior to any ground disturbance, pre-construction CRLF surveys will be 	<p><u>Reference</u></p> <p>p. 73</p>	<p><u>Responsible Party</u></p> <p>Contractor, Biology</p>	<p><u>Timing</u></p> <p>Pre-const, Const.</p>

<p>conducted by a USFWS-approved biologist that will investigate all potential CRLF frog cover sites within the action area. This includes full investigation of mammal burrows within the construction footprint with scoping or excavation. The entrances of burrows will be collapsed following investigation in areas that will be subject to ground disturbance.</p> <p>6. Safety permitting, a USFWS-approved biological monitor will also investigate areas of disturbed soil for signs of CRLF within 30 minutes following the initial disturbance of that given area.</p> <p>7. The USFWS-approved biologist will permanently remove, from the project site, any exotic wildlife species, such as bullfrogs and crayfish, to the extent possible.</p> <p>8. The Resident Engineer (RE) or their designee will be responsible for implementing the conservation measures and terms and conditions of the biological opinion (BO) and will be the point of contact for the project. The RE or their designee will maintain a copy of the BO</p>			
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<p>on-site whenever construction is taking place. Their name and telephone number will be provided to the USFWS at least thirty calendar days prior to the groundbreaking. Prior to groundbreaking, the RE will submit a letter to USFWS verifying that they possess a copy of the BO and understands the terms and conditions.</p> <p>9. The RE will stop work at the request of the USFWS-approved biologist if activities are identified that may result in the take of CRLF. Should the biologist or the RE exercise this authority, the USFWS will be notified by telephone or email within one working day. The USFWS contact will be the Coast-Bay/Forest Foothills Division Chief in the Sacramento Fish and Wildlife Office at (916) 414-6600.</p> <p>10. Night-time construction will be minimized.</p> <p>11. Firearms will be prohibited at the project site, except for those carried by authorized security personnel, or local, State or Federal law enforcement officials.</p> <p>12. If requested, before, during, or upon completion of</p>			
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<p>groundbreaking and construction activities, the Department will allow access by USFWS personnel to the action area to inspect project effects. The Department requests that all agency representatives contact the RE prior to accessing the work site and review and sign the Safe Work Code of Practices, prior to accessing the work site for the first time.</p> <p>13. Plastic mono-filament netting (erosion control matting) or similar material will not be used at the project site because the CRLF may become entangled or trapped in it. Acceptable substitutes include coconut coir matting or tackified hydroseeding compounds.</p> <p>14. If pumping is used for dewatering, intakes will be completely screened with wire mesh no larger than 0.2 inch to prevent frogs from entering the pump.</p>			
<p>Biology (Northern spotted owl): Tree removal shall be conducted between September 15 and March 31 to avoid noise and habitat disturbance during the owl's typical breeding season.</p>	<p><u>Reference</u> p. 77</p>	<p><u>Responsible Party</u> Contractor</p>	<p><u>Timing</u> Const.</p>
<p>Air and Noise During Construction: Special Provisions</p>	<p><u>Reference</u></p>	<p><u>Responsible Party</u></p>	<p><u>Timing</u></p>

<p>and Standard Specifications would include requirements to minimize or eliminate dust during construction through the application of water or dust palliatives.</p> <ul style="list-style-type: none"> • All equipment would have sound-control devices that are no less effective than those provided on the original equipment. No equipment would have an unmuffled exhaust. • As directed by the Department, the contractor would implement appropriate additional noise minimization measures, including changing the location of stationary construction equipment, turning off idling equipment, avoiding construction activities during the night and weekends, notifying adjacent residents in advance of construction work, and installing acoustic barriers around stationary construction noise sources. 	<p>p. 78</p>	<p>Contractor</p>	<p>Const.</p>
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Appendix G - List of Technical Studies

Natural Environment Study, July 2012

Historic Property Survey Report, April 2012

Visual Impact Assessment Technical Report, June 2012

Paleontological Identification Report, February 2012

Water Quality Report, May 2012