



# *Pismo Creek Scour Repair Project*



*Initial Study with Mitigated Negative Declaration*



*City of Pismo Beach, San Luis Obispo County, California*

*District 5 – SLO – 101 – PM 16.4*

*05-1C370 – 0512000135*

*SCH#2016031041*

Prepared by the  
State of California Department of Transportation  
August 2016

## General Information about this Document

### ***What's in this document:***

This document contains a Mitigated Negative Declaration, which examines the environmental effects of the project on US 101 at the Price Street on-ramp in Pismo Beach, California.

The Initial Study with proposed Mitigated Negative Declaration was circulated for public review from March 14, 2016 to April 12, 2016. Four comment letters were received on the draft document. The letters and the responses to them are included in the Comments and Responses section of this document (refer to Appendix D), which has been added since the draft. Throughout this document, a line in the left margin indicates changes made since the draft document circulation.

### ***What happens after this:***

The project has completed environmental compliance with circulation of this document. When funding is approved, the California Department of Transportation can design and build all or part of the project.

Printing this document: To save paper, this document has been set up for two-sided printing (to print the front and back of a page). Blank pages occur where needed throughout the document to maintain proper layout of the chapters and appendices.

This document can also be accessed electronically at the following website:

- <http://www.dot.ca.gov/dist05/projects>

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Rehabilitate the Pismo Creek Bridge embankments and pier structures (Bridge No. 49-0015K, PM 16.4)  
to address scour on US 101 on-ramp in the City of Pismo Beach in San Luis Obispo County, California

**INITIAL STUDY  
with Mitigated Negative Declaration**

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

THE STATE OF CALIFORNIA  
Department of Transportation

8/31/16

Date of Approval



Jason J. Wilkinson  
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# Mitigated Negative Declaration

Pursuant to: Division 13, Public Resources Code

## ***Project Description***

The California Department of Transportation (Caltrans) proposes to make improvements to the banks of Pismo Creek and piers of Pismo Creek Bridge (Bridge No. 49-0015K) to protect the bridge against erosion and scour. The bridge is a part of the southbound on-ramp to US 101 from Price Street in the City of Pismo Beach, California. There is no work proposed for the bridge deck or superstructure. All construction work is within the existing Caltrans right of way.

## ***Determination***

Caltrans 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 project would have no effect on: existing and future land use, wild and scenic rivers, growth, farmlands/timberlands, community character and cohesion, relocations and real property acquisition, environmental justice, utilities and emergency services, traffic, cultural resources, paleontology, or plant species.

The project would not create any impacts due to air quality, noise, parks and recreational facilities, vibration or hazardous waste/materials; the proposed project would not be vulnerable to seismic activity.

In addition, the project would have less than significant effects on: transportation/pedestrian and bicycle facilities, hydrology and floodplain, water quality and storm water runoff, or geology and soils.

In addition, the project would not have a significant adverse effect on visual/aesthetics or biological resources because the following mitigation measures would reduce potential effects to less than significant.

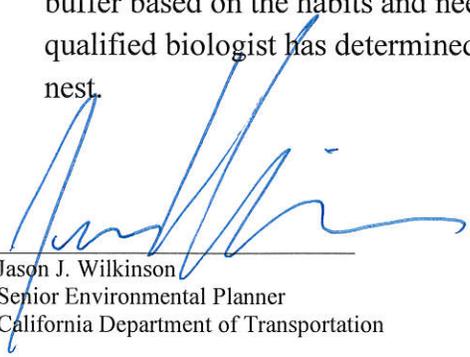
Mitigation measures would reduce impacts to visual/aesthetic resources by:

- Incorporating a revegetation and landscape plan into the final design.
- Protecting valuable existing vegetation through the use of Environmentally Sensitive Area fencing.
- If Design Option 2 is constructed, concrete slope paving shall include integral grouted rock cobble finish. If hydraulic calculations do not allow for the placement of rock cobble, the surface of the slope paving shall include texturing and color to blend with the natural setting.
- Disturbed areas will be revegetated and regarded to their natural vegetated and topographical state (see Section 2.1.4), with the exception of the construction haul road which will be

hydroseeded only and left graded to accommodate the De Anza Trail alignment (See Section 2.1.1).

Mitigation measures would reduce impacts to biological resources by providing revegetation and species protection (see Sections 2.3.1 to 2.3.5):

- Avoidance and minimization measures would be used to protect special-status species and control the spread of invasive, exotic plants to the maximum extent practicable. Invasive plant species within the project limits will be removed where possible, and the area will be re-vegetated with an assemblage of native plants.
- Prior to construction, Caltrans will prepare a Mitigation and Monitoring Plan to mitigate impacts to vegetation and natural habitats. The Mitigation and Monitoring Plan shall be consistent with federal and state regulatory requirements and will be amended with any regulatory permit conditions, as required. Caltrans shall implement the Mitigation and Monitoring Plan as necessary during construction and immediately following project completion.
- Implementation of all protective measures set forth in the Programmatic Biological Opinion from the U.S. Fish and Wildlife Service for the protection of the California red-legged frog, a regular U.S. Fish and Wildlife Service Biological Opinion for the tidewater goby and National Marine Fisheries Service Biological Opinion for the South-Central California Coast Steelhead Distinct Population Segment.
- Replacement plantings would be achieved using a 3:1 ratio for each arroyo willow tree removed. Replacement plantings will be detailed in the Caltrans Landscape Architecture Landscape Planting Plan and annually monitored for a minimum of 5 years.
- Tree removal would be scheduled to occur from September 2 to February 14, outside of the typical nesting bird season, to avoid potential impacts to nesting birds. If construction activities are proposed to occur within 100 feet of potential habitat during the nesting season (February 15 to September 1), a nesting bird survey will be conducted by a qualified Caltrans biologist no more than two weeks (14 days) prior to construction. If an active nest is found, Caltrans will coordinate with the California Department of Fish and Wildlife to determine an appropriate buffer based on the habits and needs of the species. The buffer area will be avoided until a qualified biologist has determined that juveniles have fledged and are no longer dependent on the nest.

  
Jason J. Wilkinson  
Senior Environmental Planner  
California Department of Transportation

Date

8/31/16

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# Chapter 1 Proposed Project

## 1.1 Introduction

The California Department of Transportation (Caltrans) proposes to protect to the banks of Pismo Creek and piers of Pismo Creek Bridge (Bridge No. 49-0015K) against erosion and scour. The bridge is a part of the southbound on-ramp to US 101 from Price Street in the City of Pismo Beach, California (see Figures 1-1 and 1-2). There is no work proposed for the bridge deck or superstructure. All construction work is within the existing Caltrans right of way.

Pismo Creek has been undermining the embankments under the bridge for many years, causing the concrete slope lining and cutoff walls to break and collapse at several locations. Deterioration of the slope lining and cutoff walls has led to scouring at the bridge bents (piers and columns). A Bridge Inspection Report prepared in January 2011 placed the bridge on the scour critical list.

Access to the project area will be via Park Avenue to the Caltrans right-of-way. The existing southbound lanes of US 101 and the on-ramp from Pismo Street to the US 101 will remain open, with little to no disruption in traffic flow during the construction period.

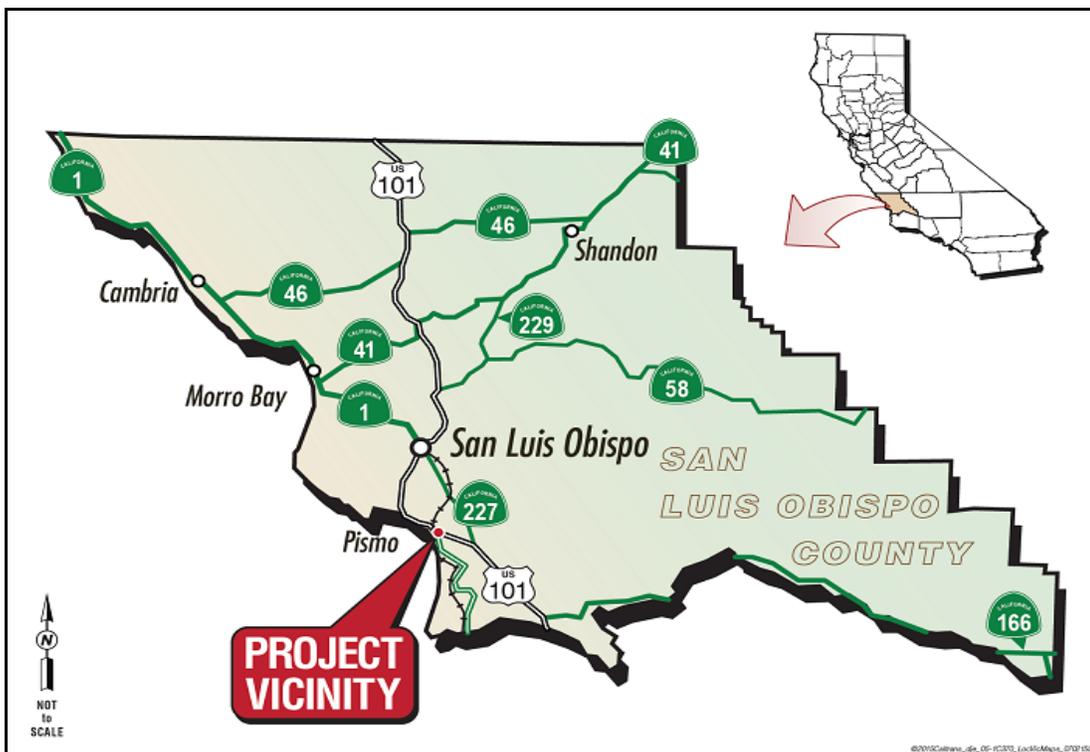
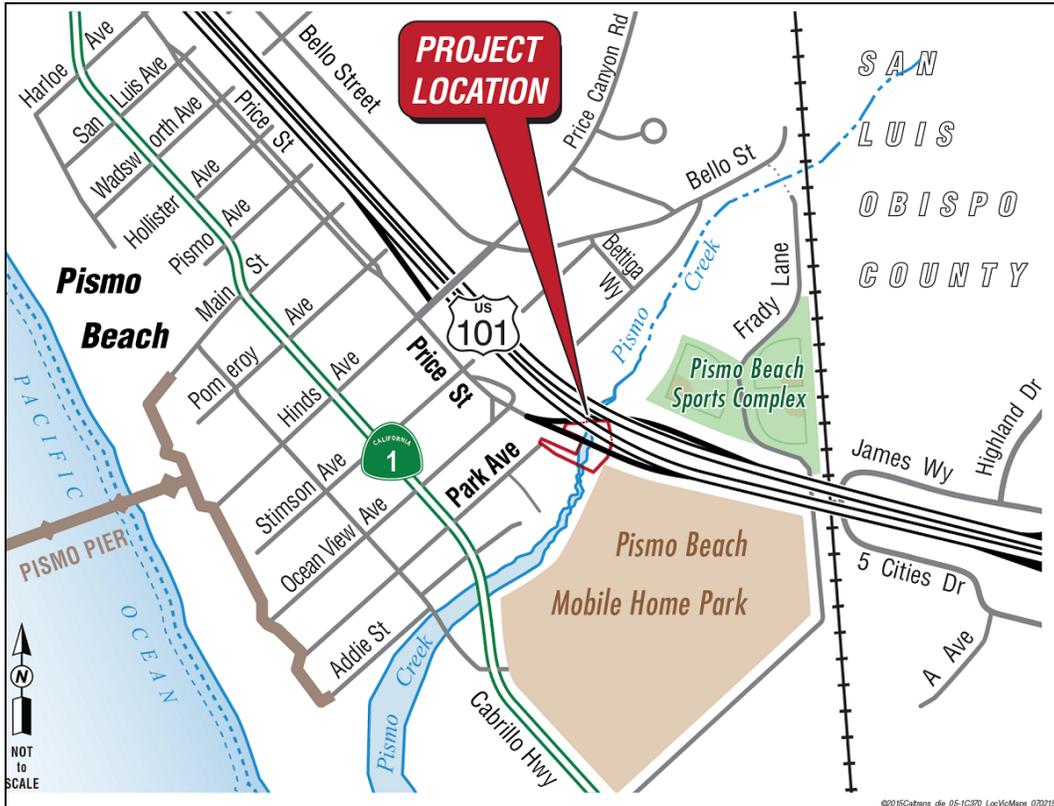


Figure 1-1 Project Vicinity Map



**Figure 1-2 Project Location Map**

The project is programmed in the 2016 State Highway Operation and Protection Program (SHOPP) to be built in fiscal year 2018/2019. Project construction is currently estimated to cost \$2,442,000 and is expected to take about 5-6 months to complete (page 11 in the State Highway Operation and Protection Program).

Caltrans is the Lead Agency under the California Environmental Quality Act.

## **1.2 Purpose and Need**

### **1.2.1 Purpose**

The purpose of this project is to ensure the long-term serviceability of the Pismo Creek Bridge (Bridge No. 49-0015K) and on-ramp by rehabilitating the embankments and protecting the bridge's piers and columns from further erosion and scour.

### 1.2.2 Need

Concrete slope paving at the Pismo Creek Bridge has been deteriorating for years. This continuous deterioration has caused the concrete cut-off walls and slope paving to break and collapse at several locations, leading to scouring at the bridge columns and piers (see Figure 1-3). A Bridge Inspection Report prepared in January 2011 placed the bridge on the scour critical list.

### 1.3 Project Description

Caltrans proposes to rehabilitate the southbound on-ramp bridge spanning Pismo Creek from Price Street in Pismo Beach to US 101. To protect the bridge's bent system (sets of piers and columns) from future scour, Caltrans is proposing to repair the crumbling embankments at the base of the outer bents and reinforce the center bent using an outrigger bent and cap system (see Figure 1-3 Bridge Elements and Figure 1-4 Proposed Project Site Plan Elements).

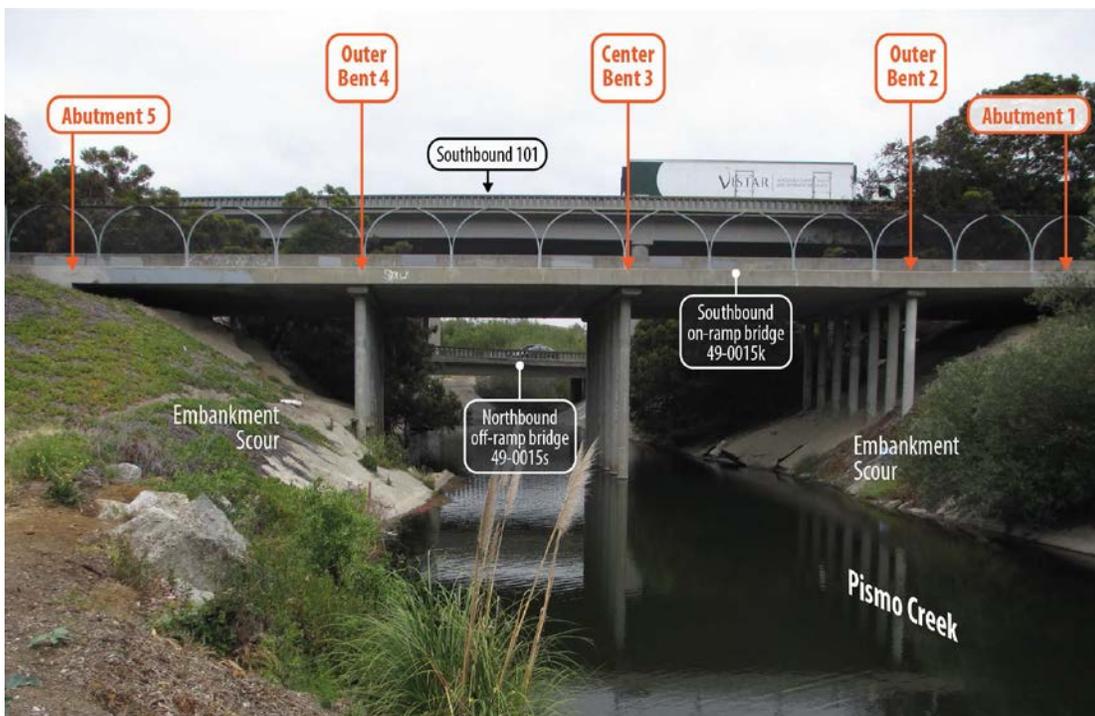


Figure 1-3 Bridge Elements

### 1.4 Project Alternatives

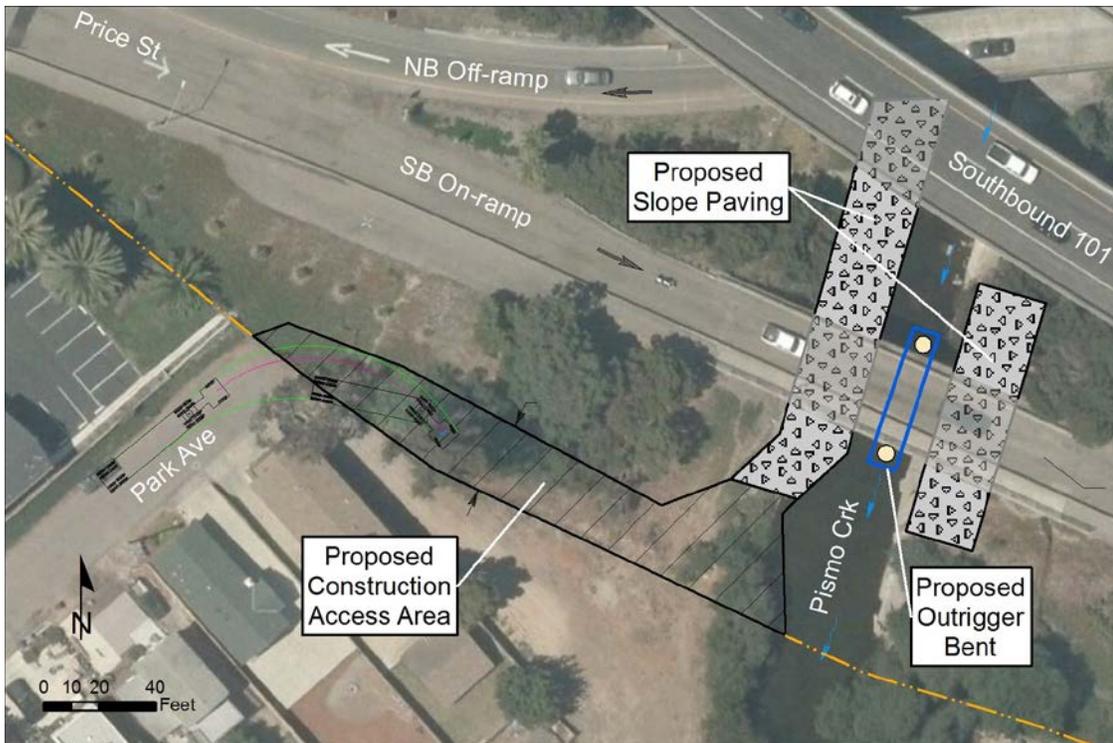
Two alternatives are under consideration: the Build Alternative and the No-Build Alternative.

### 1.4.1 Build Alternative

The Build Alternative would rehabilitate the bridge piers and columns. Because of the locations of the piers and columns affected by scour, two independent protection systems are proposed to repair and protect the structure foundation (see Figure 1-4):

Center bent 3 (center piers): An outrigger bent with integral cap beam is proposed. Cast-in-steel-shell piles will be driven on each side of bent 3, offset from the existing bridge. A concrete cap beam will connect to the cast-in-steel-shell piles and be placed in line with bent 3's existing piers (Figure 1-4). The cap beam will cradle the bridge at bent 3 to transfer the full bridge dead load and live load to the new piles.

Outer bents 2 and 4 (outer columns) and embankment slopes: On both the west and east banks, the existing outer columns will remain in place. However, all damaged concrete paving on the two banks will be removed. The slope embankments will be re-graded to 2:1 and re-paved.



**Figure 1-4 Proposed Project Site Plan Elements**

Two design options are being considered for the paving treatment of the slope embankments:



Depending on the chosen paving design option, the new slope embankments will meet and conform to the existing slope paving upstream and to the natural earth channel downstream.

#### **1.4.2 No-Build (No-Action) Alternative**

Without the proposed project, the concrete slope lining will continue to deteriorate, break and collapse, leading to further scouring at the bridge bents/vertical columns, piers and concrete footings in the creek channel. Over time, this will weaken the entire structure and the integrity of the bridge deck, which would require repeated maintenance and repairs in later years.

### **1.5 Identification of a Preferred Alternative**

The build alternative was selected as the preferred alternative because it meets the purpose and need of the project by protecting the bridge's piers and columns from further erosion and scour. To accomplish this, this alternative proposes to remove and replace the damaged and broken embankment concrete around the outer bents and adds outrigger bent and cap system to the center bent. This strategy will prolong the overall life and serviceability of the bridge and on-ramp.

**Table 1.1 Summary of Potential Impacts from Alternatives**

Potential Impact		Build Alternative	No-Build Alternative
Land Use	Consistency with City of Pismo General Plan	None—The project would not change land use designations and is consistent with the Local Coastal Plan for the City of Pismo Beach.	None
Coastal Zone		The project is within the Coastal Zone. A Coastal Development Permit will be obtained.	None
Parks and Recreation Facilities		Three parks lie within a half-mile radius of the project site. No measures are required because the proposed project does not impact the park facilities near the project. The project will include provisions to allow for the incorporation of the De Anza Trail alignment within the Caltrans ROW.	None
Visual/Aesthetics		Removal of 5 willow trees on the ocean side of US 101, somewhat reducing the visual quality and character of an area designated visually sensitive. The embankments are not visible to the travelers on the off-ramp. This repair project will positively affect the aesthetics of the creek embankment. Landscaping will be replaced where possible.	The damaged area appears unkempt and in disarray.
Cultural Resources		No prehistoric or historic-period archaeological resources were identified during the survey of the study area. However, if previously unidentified cultural materials are unearthed during construction, it is Caltrans' policy that work be halted in that area until a qualified archaeologist can assess the significance of the find.	None
Hydrology and Floodplain		The addition of the center piers shows a localized increase to water surface elevation within the limits of the bridge but immediately up- and downstream there is no effect. The grouted rock slope	None

Potential Impact	Build Alternative	No-Build Alternative
	protection bank stabilization design option has no effect where the concrete apron shows a small drop in water surface elevation when compared to the existing conditions. The proposed project will have no significant effect on the existing floodplain or upstream floodway.	
Water Quality and Storm Water Runoff	Impacts can be mitigated via implementation of appropriate storm water best management practices. No long-term impacts to water quality are expected.	None
Geology, Soils, Seismicity and Topography	Before placing the concrete slope protection on re-graded creek banks, the creek banks should be cleared of all debris and loose materials. A layer of Class 8 rock slope protection fabric should be placed at the bottom before placing the rock slope protection.	None
Air Quality	Caltrans Standard Specifications pertaining to dust control and dust palliative requirements are a required part of all construction contracts and should effectively reduce and control emission impacts during construction.	None
Noise and Vibration	A combination of abatement techniques with equipment noise control and administrative measures can be selected to provide the most effective means to minimize effects of construction activity impacts. Application of abatement measures will reduce the construction impacts, though temporary increase in noise and vibration would likely occur.	None
Natural Communities	Environmentally Sensitive Area fencing would be installed along the maximum disturbance limits to minimize disturbance to habitats/ vegetation.	None

Potential Impact	Build Alternative	No-Build Alternative
Wetlands and Other Waters	The project has been designed to minimize impact as much as possible, including minimal creek entry and limiting access area. The repairs would be an overall improvement to the creek and floodplain. Caltrans will prepare a Mitigation and Monitoring Plan to mitigate impacts to vegetation and natural habitats.	None
Animal Species	Potential impact to the tidewater goby, South-Central California Coast Steelhead, and California red-legged frog.	None
Threatened and Endangered Species	Potential impact to the tidewater goby, South-Central California Coast Steelhead, and California red-legged frog.	None
Invasive Species	Potential spread of invasive plant species as a result of construction activities; however, during construction, Caltrans will ensure that the spread or introduction of invasive exotic plant species will be avoided to the maximum extent possible.	None
Construction Impacts	A construction noise and vibration-monitoring program to limit the temporary construction impacts will be implemented.	None

## 1.6 Permits and Approvals Needed

The following table shows the permits, reviews, and approvals required for project construction.

Agency	Permit/Approval	Status
Central Coast Regional Water Quality Control Board	Section 401 Certification for impacts to waters of the United States	To be obtained before construction
California Coastal Commission	Coastal Development Permit	To be obtained before construction
City of Pismo Beach	Local Development Permit	To be obtained before construction
U.S. Army Corps of Engineers	Section 404 Nationwide Permit for impacts to Waters of the United States	To be obtained before construction
U.S. Fish and Wildlife Service	Programmatic Biological Opinion for California Red-legged Frog	Obtain prior to completion of the final environmental document. Received on 6/30/2106
U.S. Fish and Wildlife Service	Biological Opinion for Tidewater Goby	Obtain prior to completion of the final environmental document. Received on 6/30/2106
National Marine Fisheries Service	Biological Opinion for South-Central California Coast Steelhead	Obtain prior to completion of the final environmental document. Received on 4/8/2106
California Department of Fish and Wildlife	Section 1602 Streambed Alteration Agreement for impacts to Pismo Creek	To be obtained before construction

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

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

- **Existing and Future Land Use:** The proposed bridge repair will not change or affect existing land uses because the project will only replace the damaged concrete embankment, columns and piers beneath the existing Pismo Creek Bridge. (Source: Project Description)
- **Wild and Scenic Rivers:** The project is not near or next to any wild and scenic rivers. The waterway that is a part of the project is classified as a blue line creek and not a river. (Source: Federal Emergency Management Act 2015 Map)
- **Growth:** The project does not add capacity to the roadway and will not affect the growth rate of the city or cause an increase in population as the project will involve only replacement of the creek embankments and bridge piers and columns underneath the existing Pismo Creek Bridge. (Source: Project Description)
- **Farmlands/Timberlands:** The project would not result in impacts to farmland or timberland because it is not near or next to any farmlands or timberlands. (Source: Project Description)
- **Community Character and Cohesion:** The project will not affect the character or cohesion of the community because it involves only replacement of the creek embankments and bridge piers and columns underneath the existing Pismo Creek Bridge. (Source: Project Description)
- **Relocations and Real Acquisition:** No business, residences or private property would be acquired for this project. The project and construction staging area will occur within the existing right-of-way. (Source: Project Description)
- **Environmental Justice:** No minority or low-income populations will be adversely affected by the project. Therefore, this project is not subject to the provisions of Executive Order 12898. (Source: Project Description)

- **Utilities/Emergency Services:** There would be no adverse impacts on utilities and emergency services associated with this project. There are no utility easements within the project area; therefore, there will be no temporary or permanent relocation or interruption in utility services during construction. The Pismo Street on-ramp to US 101 south will remain open during construction so there will be little to no disruption in traffic flow in cases of emergency access. (Source: Project Description)
- **Traffic and Transportation/Pedestrian and Bicycle Facilities:** There would be no adverse impacts on traffic and transportation because traffic volumes will not increase due to this project. The on-ramp/bridge over the creek will remain open during construction, and no prolonged lane closures are anticipated during construction. (Source: Project Description)
- **Paleontology:** Paleontological resources are not expected to be encountered or impacted during construction of the project. (Source: Paleontology Assessment, July 31, 2013)
- **Hazardous Waste Materials:** The project has very little risk of impacts due to unanticipated hazardous waste or other contamination related issues. (Source: Initial Site Assessment, March 28, 2012 and Supplemental Initial Site Assessment, September 16, 2015)
- **Plant Species:** The project will not affect any plant species within the area of potential impact. While potential habitat occurs within the Biological Study Area, none of these plant species were observed within the Biological Study Area during botanical surveys (see Appendix H of the Natural Environmental Study) and none are anticipated to occur. No federally designated critical habitat for federally listed plant species occurs within the Biological Study Area. (Source: Natural Environmental Study, August 2015)

## 2.1 Human Environment

### 2.1.1 Consistency with State, Regional and Local Plans

#### ***Affected Environment***

The Pismo Beach General Plan/Local Coastal Plan and Land Use Elements have jurisdiction near the project area. All applicable policies are listed and, per California Environmental Quality Act standards, potential consistencies and inconsistencies with local plans are discussed (see also Section 2.1.2, Coastal Zone).

The area along either side of Pismo Creek (within 200 feet) is mapped as original jurisdiction for the Coastal Commission. See Figure 2-1 showing the project area in

relation to the Coastal Zone. Because the project limits include a portion of Pismo Creek, both the City of Pismo Beach Planning Department and the California Coastal Commission must approve the project. The City of Pismo Beach and the California Coastal Commission have agreed to a consolidated permitting process, with the California Coastal Commission having permitting authority.

### **Environmental Consequences**

#### **Pismo Beach General Plan/Local Coastal Plan: (last updated in April 2014):**

*The Pismo Beach General Plan/Local Coastal Program is the City's constitution for physical development and change within the existing and future city limits. The Plan is a legal mandate that governs both private and public actions. The General Plan is atop the hierarchy of local government law regulation land use. Subordinate to the general plan are specific plans, ordinances and zoning laws. The adopted General Plan contains seven topics called "Elements"; Circulation, Conservation, Housing, Land Use, Noise, Open Space, Safety, Design, Facilities, Growth Management and Parks, Recreation and Access. The elements/topics carry equal weight and are designed to be consistent with each other. A large portion of Pismo Beach lies within the Coastal Zone. The Coastal Act of 1976 requires the City to have a local Coastal Plan certified by the State Coastal Commission. This Plan is a combined document meeting both the state General Plan requirements and Coastal Plan requirements.*

The following City of Pismo Beach General Plan/Local Coastal Plan Principles and Policies were selected because they apply to the proposed project. Following each principle/policy statement is a discussion of how the policy is consistent or inconsistent with the proposed project.

#### **Circulation Element:**

##### ***C-2 Freeway US 101 – 6 lanes***

*Caltrans shall be encouraged to expand US 101 to 6 lanes as early as possible, but no later than the year 2000. New lanes shall be added within the existing median whenever possible. All construction shall implement the scenic highway designation of the freeway.*

The project is not addressing the addition of travel lanes for US 101. The project addresses the deteriorating embankments and bridge support system under the Price Street on-ramp at US 101. The project is implementing the scenic highway designation of the freeway within the project description.

Conservation and Open Space Element:

*CO-3 Grading Construction, Demolition*

*The City shall require contractors to strictly adhere to Air Pollution Control District guidelines regarding dust and combustion emissions from construction and grading. Specifically, the City will ensure that the grading site is frequently watered, and that the netting is used until vegetation is established. Additionally, the City will require that dirt be transported in trucks with liners and covers over the loads. Construction work may be halted when excessive winds create air pollution problems.*

Caltrans Standard Specifications pertaining to dust control and dust palliative requirements are a required part of all construction contracts and should effectively reduce and control emission impacts during construction. Also, Caltrans Standard Specifications pertaining to foliage protection are required during plant establishment as a part of all landscape contracts.

*CO-5 Protect Archaeological Resources*

*Archaeological and paleontological resources are declared to be important to be conserved. The City shall have available a map that identifies the possible location of archeological resources. As part of the California Environmental Quality Act process for all new development projects, all known or potential archaeological resources shall be fully investigated by a qualified archaeologist recognized by the state Historic Preservation Office.*

An Archaeological Survey Report was prepared for the project. No prehistoric or historic-period archaeological resources were identified in the project area. If unidentified cultural materials are unearthed during construction, it is Caltrans' policy that work be halted in that area until a qualified archaeologist can assess the significance of the find (see also Section 2.1.5, Cultural Resources).

*CO-6 Construction Suspension*

*Should archaeological or paleontological resources be disclosed during any construction activity, all activity that could damage or destroy the resources shall be suspended until a qualified archaeologist has examined the site. Construction shall not resume until mitigation measures have been developed and carried out to address the impacts of the project on these resources.*

If previously unidentified cultural materials are unearthed during construction, it is Caltrans' policy that work be halted in that area until a qualified archaeologist can assess the significance of the find. If human remains are discovered, State Health and Safety Code Section 7050.5 states that further

disturbances and activities shall stop in any area or nearby area suspected to overlie remains, and the county coroner will be contacted. Pursuant to California Public Resources Code Section 5097.98, if the remains are thought to be Native American, the coroner will notify the Native American Heritage Commission, which will then notify the Most Likely Descendent. At this time, the person who discovered the remains will contact Caltrans District 5 Environmental Branch staff so that they may work with the Most Likely Descendent on the respectful treatment and disposition of the remains. Further provisions of Public Resources Code Section 5097.98 are to be followed as applicable.

#### *CO-21 Pismo Creek Protection*

*Pismo Creek shall be retained in its natural state and protected from significant alterations.*

The project is consistent with this policy because it includes repairing the Pismo Creek bridge piers and slope embankments. Avoidance, minimization, and mitigation measures would be used to minimize impacts to the creek during construction and to restore the native habitat to its original condition.

#### *CO-28 Natural Drainage Channels*

*Drainage channels shall remain in a natural open space state with minimal or no use of concrete channels. Dredging, filling and grading within stream corridors shall be limited to activities necessary for flood control purposed, bridge construction, water supply project, or laying of pipelines when an alternative route is feasible. Revegetation and restoration of the natural setting shall be required. Alteration of existing drainage patterns shall be prohibited unless special studies prove that the proposed alteration will not cause any adverse impacts down-stream or to other aspects of the environment. Prior to approval of any new development, a detailed analysis of surface water runoff patterns shall be undertaken to determine storm drain needs and identify mitigations for any with possible adverse environmental impacts. No runoff that will negatively affect the Pismo Marsh shall be permitted.*

The proposed work will require dewatering Pismo Creek within the area of potential impact. Dewatering will be necessary only during the removal and installation of slope paving and the installation of the outrigger bent with two additional piers (see Figure 1-4). Because activities will be conducted during seasonal low flows, it is anticipated that an in-stream diversion will be sufficient to remove surface waters from the channel.

Upon completion of diversion activities, the contractor must remove all equipment and infrastructure associated with the diversion in a manner that will not cause adverse impacts to water quality and its beneficial uses. The contractor will restore all diversion locations to pre-existing conditions.

Design Element:

Principle:

*P-7 Visual Quality is Important*

*The visual quality of the city's environment shall be preserved and enhanced for the aesthetic enjoyment of both residents and visitors and the economic well-being of the community. Development of neighborhood, streets and individual properties should be pleasing to the eye, rich in variety, and harmonious with existing development. The feeling of being near the sea should be emphasized even when it is not visible. Designs reflective of a traditional California seaside community should be encouraged.*

With implementation of the measures outlined in Section 2.1.4, the potential visual effects of the project would be minimized and no substantial visual impacts would occur.

Policies:

*D-13 Freeway Landscaping*

*The 101 Freeway cut and fill banks and median strips should be landscaped. The city shall develop jointly with CALTRANS a landscaping design and implementation program for these areas. See also: Circulation Element C-2, Freeway US 101.*

All disturbed areas shall be re-graded to their pre-construction profiles and contours, with the exception of the construction haul road which will be hydroseeded only and left graded to accommodate the De Anza Trail. New roadside landscaping shall be planted to the maximum extent possible within the following areas:

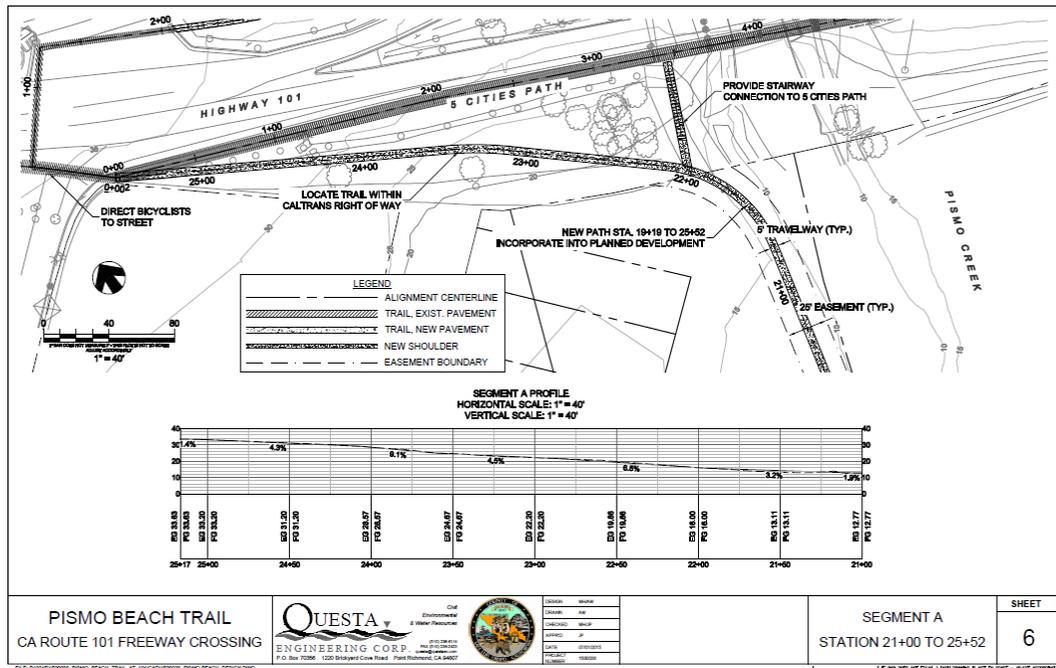
- Along the ocean side of Price Street and the southbound on-ramp, between Ocean View Street and Pismo Creek.
- Between the southbound on-ramp and the northbound off-ramp, between the gore and Pismo Creek.
- Between the southbound on-ramp and the US 101 mainline, east of Pismo Creek.

**Parks, Recreation and Access Element:**

*Table PR – 3. Pismo Creek/Price Canyon Regional Park and Open Space Features*

*12. Trails on both side of the creek tying to the ocean should be developed. CALTRANS should be requested to modify the freeway under-crossing in the area of Pismo Creek to accommodate the trails.*

The project is inconsistent because the low elevation of the northbound Price Street off-ramp/bridge makes a trail along that section of creek infeasible to construct. To make the trail passable, Caltrans would need to reconfigure the entire highway, bridge and interchange at this location. The De Anza Trail Draft Feasibility Study (San Luis Council of Governments, adopted March 2016) does not identify this trail alignment due to the difficulty of constructing the trail along the creek at this location. Instead, the trail alignment, circumvents this obstacle by turning west and climbing the slope within the Caltrans right of way near the project construction access and staging area. In discussion with the City of Pismo Beach and the San Luis Obispo Council of Governments, and per their request, Caltrans has agreed that after construction, the haul road will be left graded flat to accommodate construction of the trail. However, the haul road will be hydroseeded after construction for erosion control purposes. (See Figure I-7)



**Figure 1-7 Pismo Beach Trail-Segment A**

Courtesy of San Luis Obispo Council of Governments

Because the project does not change the land use, but rather repairs the deteriorating embankments center bent system of an existing bridge, it does not conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project.

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

The project is consistent with state, regional, and local plans and does not cause adverse impacts with respect to land use. Avoidance, minimization, and mitigation measures would be used to minimize impacts to the creek during construction and to restore the native habitat to its original condition.

Additional measures may be requested as part of the Coastal Development Permit process.

#### **2.1.2 Coastal Zone**

##### ***Regulatory Setting***

The Coastal Zone Management Act of 1972 is the main federal law enacted to preserve and protect coastal resources. The act sets up a program under which coastal states are encouraged to develop coastal management programs. States with an approved coastal management plan are able to review federal permits and activities to determine if they are consistent with the state's management plan.

California has developed a coastal zone management plan and has enacted its own law—the California Coastal Act of 1976—to protect the coastline. The policies established by the California Coastal Act are similar to those for the Coastal Zone Management Act. They include the protection and expansion of public access and recreation; the protection, enhancement, and restoration of environmentally sensitive areas; the protection of agricultural lands; the protection of scenic beauty; and the protection of property and life from coastal hazards. The California Coastal Commission is responsible for implementation and oversight under the California Coastal Act.

Just as the federal Coastal Zone Management Act delegates power to coastal states to develop their own coastal management plans, the California Coastal Act delegates power to local governments to enact their own local coastal programs. Local coastal programs determine the short- and long-term use of coastal resources in their jurisdiction consistent with the California Coastal Act goals. A federal consistency determination may be needed as well.

### ***Affected Environment***

Applicable policies of the City of Pismo Beach General Plan/Local Coastal Plan were reviewed. Applicable policies are summarized, per the California Environmental Quality Act standards, and consistencies and potential inconsistencies with the General Plan/Local Coastal Plan are discussed in Section 2.1.1, Consistency with State, Regional and Local Plans.

A large portion of Pismo Beach and the entire project area lies within the Coastal Zone (see Figure 2-1). The Coastal Act of 1976 requires the City of Pismo Beach to have a local Coastal Plan certified by the State Coastal Commission. The Pismo Beach General Plan/Local Coastal Program is a combined document meeting both the state General Plan requirements and Coastal Plan requirements. All development within the City of Pismo Beach within the Coastal Zone is required to obtain a Coastal Development Permit. However, because this project lies within the original jurisdiction of the California Coastal Commission, a Coastal Development Permit will be requested from the California Coastal Commission.

### ***California Coastal Act***

The California Coastal Act states the following: “The scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural land forms, to be visually compatible with the character of surrounding areas, and, where feasible, to restore and enhance visual quality in visually degraded areas.”

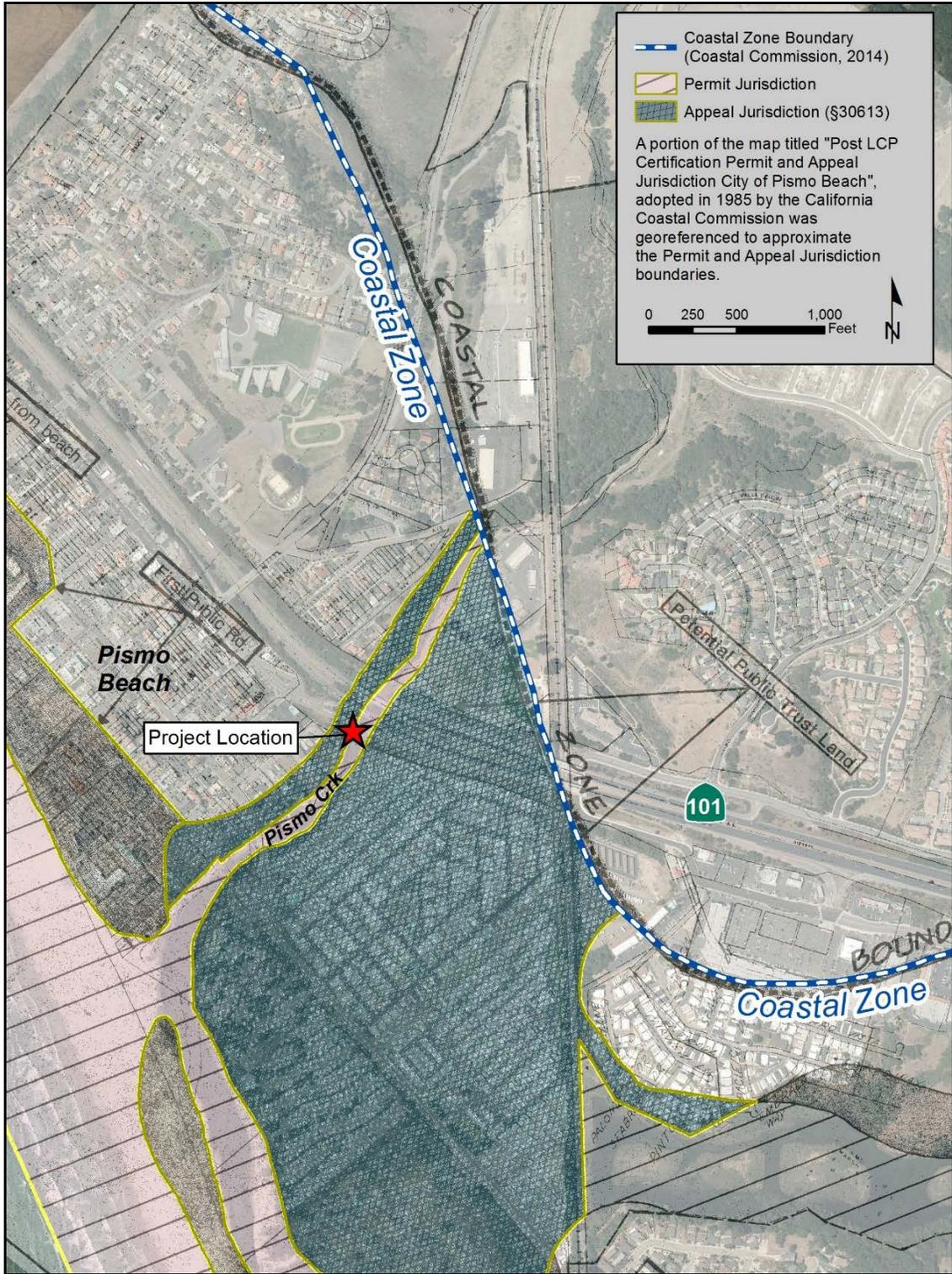


Figure 2-1 Coastal Zone Map

### ***Pismo Beach General Plan/Local Coastal Plan***

The Conservation and Open Space Element principles state that Pismo Creek is one of the “Big Three” elements considered essential to the quality of life in Pismo Beach. Policies further define Pismo Creek as a “key natural resource,” which “shall be retained in its natural state and protected from significant alterations.”

The Parks, Recreation and Access Element policy identifies the existing pedestrian and bike multi-use path on the Pismo Creek Bridge as part of the City’s Multi-Path/Trail System. The purpose of these public paths is to “connect the parks, scenic aspects and open space of the city.”

### ***Environmental Consequences***

The project will affect visual and biological resources. Section 2.3.2 states the project will affect potential U.S. Army Corps of Engineers/Regional Water Quality Control Board jurisdictional other waters, California Department of Fish and Wildlife jurisdictional areas, and California Coastal Commission coastal zone wetlands/environmentally sensitive habitat areas.

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

Mitigation measures to minimize impacts may be required for visual resources, wetlands and other waters, and biological resources as conditions of the Coastal Development Permit.

## **2.1.3 Parks and Recreational Facilities**

### ***Regulatory Setting***

This project will affect facilities that are protected by the Park Preservation Act (California Public Resources Code Sections 5400-5409). This act prohibits local and state agencies from acquiring any property that is in use as a public park at the time of acquisition unless the acquiring agency pays sufficient compensation or land, or both, to enable the operator of the park to replace the park land and any park facilities on that land.

### ***Affected Environment***

There are three parks within a half-mile radius of the project site. Pismo Beach Sports Complex to the north is a 5.5-acre public park with ball fields and play equipment. To the south, Ira Lease Park and Mary Herrington Park are both 1-acre parks along Pismo Creek. A pedestrian and bike multi-use path runs from the Pismo Creek Bridge southbound on-ramp and connects to Five Cities Drive.

### **Environmental Consequences**

No public recreational facilities or parks will be affected by the project, and no Section 4(f) resources will be affected.

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

No measures are required because the project does not affect the public park facilities and pedestrian and bike multi-use path and would not impede any future plans for pedestrian and bike facilities.

#### **2.1.4 Visual/Aesthetics**

##### **Regulatory Setting**

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

The California Environmental Quality Act 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” (California Public Resources Code Section 21001[b]).

Potential sensitivity regarding aesthetic issues is also reflected in applicable planning policies and guidelines. The proposed work lies within Pismo Beach city limits as well as the Coastal Zone. Though this state-owned route is not under the jurisdiction of the local planning authority, planning policies and guidelines are indicators of an overall high level of community sensitivity regarding the aesthetic character of the city (See Section 2.1.2 Coastal Zone-Affected Environment).

##### **Affected Environment**

A Visual Assessment for the project was completed in August 2015.

##### **Community and Surroundings**

The project site lies near the downtown core of Pismo Beach in San Luis Obispo County. Pismo Beach sits along a narrow coastal plateau between low-lying hills and the Pacific Ocean. The inland hills are visible as they rise above the community to the northeast and define the horizon in that direction.

US 101, the main north-south transportation corridor through San Luis Obispo County, somewhat bisects Pismo Beach along the base of the coastal hillsides. In the project vicinity, the highway is a four-lane divided facility. Price Street, which serves as one of the main streets through the Pismo Beach central business district, ends at the project site and transitions into the southbound on-ramp to US 101, crossing Pismo Creek. North of the project, the US 101 corridor is generally well-landscaped, and throughout the downtown area the existing vegetation screens many of the views to and from adjacent development. Through the project area and to the south, US 101 is somewhat elevated above the surrounding community, and less landscaping exists along the roadside, allowing greater visibility to and from the freeway.

Within the project limits, the Pacific Ocean can be seen in the distance from the elevated highway mainline; from the lower elevation of the creek and on-ramp bridges, no ocean views are available. Throughout the highway corridor, blue-water ocean views and the inland hillsides play an important role in establishing the visual character and quality of the area.

#### *Project Site*

At this highway configuration, the northbound and southbound lanes cross separate bridge structures as they cross above Pismo Creek and the ramps. The northbound off-ramp exits the highway and curves back under the two elevated mainline bridges before connecting to Price Street. In doing so, the northbound off-ramp also crosses Pismo Creek via its own bridge. The southbound on-ramp runs generally parallel to the highway mainline, crosses Pismo Creek and converges with the highway to the south. This close proximity to the highway mainlines, ramps and creek results in four highly visible existing bridge structures in the immediate area of the project.

A separated pedestrian/bicycle path occupies the southbound on-ramp bridge along with the vehicle-travel lane. Pismo Creek has flowing water much of the year, which can be seen from both of the ramp bridges. The highway mainline also has a glimpse of creek water, though from that vantage point the creek is mostly noticeable by its swath of riparian vegetation. Both upstream and downstream of the project area, the creek supports dense willow growth, though vegetation has been substantially cleared from a section directly south of the bridge.

In the immediate project area, the creek channel is lined with concrete to protect the bridge structures. Much of the concrete lining is intact; in the vicinity of the southbound on-ramp bridge, the lining has broken up and concrete slabs are cracked and in substantial disrepair. In some areas where the concrete has broken up, vegetation has sprouted between the slabs. In the vicinity of the project within Caltrans right-of-way, a moderate amount of mostly native vegetation exists along the

creek banks above the concrete channel. Outside of the creek zone, highway landscaping including trees, shrubs and groundcovers are seen.

The on- and off-ramp bridge structures over Pismo Creek were originally built with an open-style concrete bridge rail. Solid concrete rail has since been added to the southbound bridge adjacent to the original rail along the inland side and between the shoulder and the multi-use path along the ocean side. A chain link safety fence with decorative arched posts defines the bridge's edge along the multi-use path.

Viewer sensitivity at the project is considered moderately high. The proximity to the creek and the location in the Coastal Zone increase viewer expectations at the site. In addition, the northbound off-ramp serves as a popular gateway to the downtown area. Highway traffic volumes are relatively high throughout the project vicinity, which increases potential visual exposure. The multi-use path along the bridge brings additional viewers to the site. Viewer sensitivity and expectations in the immediate area are somewhat moderated by the close proximity and visual context of substantial freeway infrastructure.

### ***Environmental Consequences***

The existing visual character and quality of the site are defined somewhat equally by the highway bridge structures, roadway embankments, and creek. The surrounding area is mostly developed, with retail, commercial and residential, industrial and recreational uses within sight of the project. Pismo Creek, with its flowing water and riparian vegetation, provides a mostly green swath through the otherwise built context of the ramps and bridges. Where visible, the concrete creek lining, including the broken-up section between the on- and off-ramp bridges, diminishes the natural appearance of the creek.

Overall viewer expectations are likely moderated somewhat by the freeway context and semi-urban environment. The visual value of the creek, though beneficial, is somewhat compromised in the project vicinity due to the broken-concrete channel as well as the denuded bank just downstream of the project.

The most noticeable aspects of the completed project would be the loss of vegetation on and above the creek banks and roadsides, the slope protection along the channel, and the outrigger bent cap and new columns at bent 3. These proposed elements would be most visible from the northbound off-ramp bridge. From the southbound on-ramp bridge, the slope protection and removal of vegetation would be seen, but the bent cap and new columns would be difficult to notice because of their location below the elevation of the bridge deck.

The project would cause a minor increase the amount of built elements in the immediate vicinity but it is expected that, to most viewers, these proposed elements would not appear out of place in this freeway/creek interface environment. The project site is currently recognized to some degree for its highway infrastructure function, as evidenced by the four bridge structures, roadways, highway embankments, abundance of moving vehicles, and other visual clues. The slope protection would basically replace the existing concrete lining, and in some respects would appear more natural than the concrete slab linings.

Project construction would necessitate the removal of a number of mature large shrubs, trees and groundcover. Access and staging would impact vegetation at the creek banks as well as the roadside landscaping along the southbound on-ramp and in the gore area between the two ramps. Grading would be required to create a construction access road from Park Avenue to the work site.

Loss of vegetation would have an effect on the spatial character of the creek and adjacent roadsides, and would open up views to the new slope protection, bridge bent cap and columns. As a result, the project would cause a moderate adverse effect on the visual character of the site and its surroundings. With appropriate replanting, the vegetated character of the channel and roadsides would be re-established and the visibility of the new slope protection and bridge elements would decrease.

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

With implementation of the following measures, the potential visual effects of the project would be minimized and no substantial visual impacts would occur:

Measures common to both Design Options:

1. All existing vegetation including roadside landscaping shall be protected to the greatest extent possible. Vegetation to be preserved shall be delineated by exclusionary fencing and other methods.
2. The two Mexican fan palms (*Washingtonia robusta*) located near the gore area between the northbound off-ramp and the southbound on-ramp shall be protected and saved.
3. New roadside landscaping shall be planted to the maximum extent possible within the following areas:
  - a. Along the ocean side of Price Street and the southbound on-ramp, between Ocean View Street and Pismo Creek.
  - b. Between the southbound on-ramp and the northbound off-ramp, between the gore and Pismo Creek.

- c. Between the southbound on-ramp and the US 101 mainline, east of Pismo Creek.
4. Appropriate native vegetation shall be planted along the creek banks above the slope protection. The specific types of creek bank vegetation shall be determined by the Caltrans Biologist in coordination with the Caltrans District Landscape Architect.
5. All disturbed areas except the access/haul road shall be re-graded to their pre-construction profiles and contours.
6. If down-drain pipes are required, they shall be substantially hidden from view and not placed on top of the proposed slope protection or existing slope lining.

Additional Measure for Design Option 2:

7. Concrete slope paving shall include aesthetic treatment.

### **2.1.5 Cultural Resources**

#### ***Regulatory Setting***

The term “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. The following laws and regulations deal with cultural resources.

The National Historic Preservation Act of 1966, as amended, sets forth national policy and procedures for historic properties, defined as districts, sites, buildings, structures, and objects included in or eligible for listing in the National Register of Historic Places. Section 106 of the National Historic Preservation Act requires federal agencies to take into account the effects of their undertakings on historic 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 Code of Federal Regulations 800).

On January 1, 2004, a Section 106 Programmatic Agreement between the Advisory Council, the Federal Highway Administration, State Historic Preservation Officer (SHPO), and Caltrans went into effect for Caltrans projects, both state and local, with Federal Highway Administration involvement. The Programmatic Agreement implements the Advisory Council’s regulations, 36 Code of Federal Regulations 800, streamlining the Section 106 process and delegating certain responsibilities to Caltrans. The Federal Highway Administration’s responsibilities under the

Programmatic Agreement have been assigned to Caltrans as part of the Surface Transportation Project Delivery Program (23 U.S. Code 327).

Historical resources are considered under the California Environmental Quality Act, as well as California Public Resources Code Section 5024.1, which established the California Register of Historical Resources. Public Resources Code Section 5024 requires state agencies to identify and protect state-owned resources that meet the National Register of Historic Places listing criteria. It further specifically requires Caltrans 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 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***

A records search of the Caltrans District 5 cultural resources archives revealed 14 studies previously conducted within half a mile of the Area of Potential Effect. These studies found two previously recorded prehistoric archaeological resources—CA-SL0-832 and CA-SL0-1420—just west of the project study area, outside the project’s Area of Potential Effect. A survey of the entire Area of Potential Effect done on April 14, 2015 found no archaeological resources within the study area. There were no constraints to the survey effort.

### ***Environmental Consequences***

The background archival research, previous studies, and current survey did not identify any archaeological resources in the Area of Potential Effect. Past disturbance from development and creek channeling and modern debris was observed throughout the study area. Much of the ground surface exhibited the presence of unconsolidated fill associated with the construction of the bridge.

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

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

If human remains are discovered, State Health and Safety Code Section 7050.5 states that further disturbances and activities shall stop in any area or nearby area suspected to overlie remains, and the county coroner will be contacted. Pursuant to California Public Resources Code Section 5097.98, if the remains are thought to be Native American, the coroner will notify the Native American Heritage Commission, which

will then notify the Most Likely Descendent. At this time, the person who discovered the remains will contact Caltrans District 5 Environmental Branch staff so that they may work with the Most Likely Descendent on the respectful treatment and disposition of the remains. Further provisions of Public Resources Code Section 5097.98 are to be followed as applicable.

## **2.2 Physical Environment**

### **2.2.1 Hydrology and Floodplain**

#### ***Regulatory Setting***

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

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

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

Code of Federal Regulations 23 Section 650 defines significant encroachments and risks for the base floodplain. An encroachment is any work done within the limits of the floodplain. A significant encroachment is one that could significantly interrupt a route required for emergency operations, pose a significant risk, or significantly impact natural and beneficial floodplain values. Risks are consequences of encroachments that could lead to flooding that would cause property loss or hazard to life.

#### ***Affected Environment***

A Floodplain Evaluation Report Summary for the project was completed on August 7, 2015. A Location Hydraulic Study for the Pismo Creek Bridge Scour Mitigation was completed on July 29, 2015.

The Floodplain Evaluation Report describes the Pismo Creek floodplain as stretching from Edna Valley north of Highway 227 down Price Canyon Road to Pismo Beach. The upper reaches of the Pismo Creek floodplain consist of three creeks—East and West Corral de Piedra and Canada Verde—that converge to create Pismo Creek. A floodway is designated on the FEMA Flood Insurance Rate Map to the north of US 101 and runs about 0.85 mile upstream. The Pismo Creek floodplain widens downstream of US 101 where it joins the Meadow Creek floodplain.

The 100-year peak discharge at US 101 for Pismo Creek reported in the Federal Emergency Management Agency Flood Insurance Study, dated November 16, 2012, is 14,700 cubic feet per second (see Figure 2-2, Flood Insurance Rate Map).

### ***Environmental Consequences***

This project will replace the damaged concrete slope pavement on both banks with either concrete-grouted rock slope protection using 200-pound rocks or a 6-inch-thick concrete slope paving. The concrete slope paving would connect to the existing concrete slope pavement upstream of the project area. Downstream, the concrete slope paving will terminate at the natural creek embankment reinforce with willow and wetland planting. Both design options will include sheet piles at the toe of the slopes and slope pavement repair, and 3-foot-diameter piers will be added to both ends of the center bent.

The addition of these piers shows a localized increase to water surface elevation within the limits of the bridge, but just upstream and downstream there is no effect. The grouted reinforced rock slope protection bank stabilization design option has no effect where the concrete apron shows a small drop in water surface elevation when compared to the existing conditions.

The conclusion is that the project will have no significant effect on the existing floodplain or upstream floodway.

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

The project will have no significant effect on the existing floodplain or upstream floodway, so no mitigation is necessary.

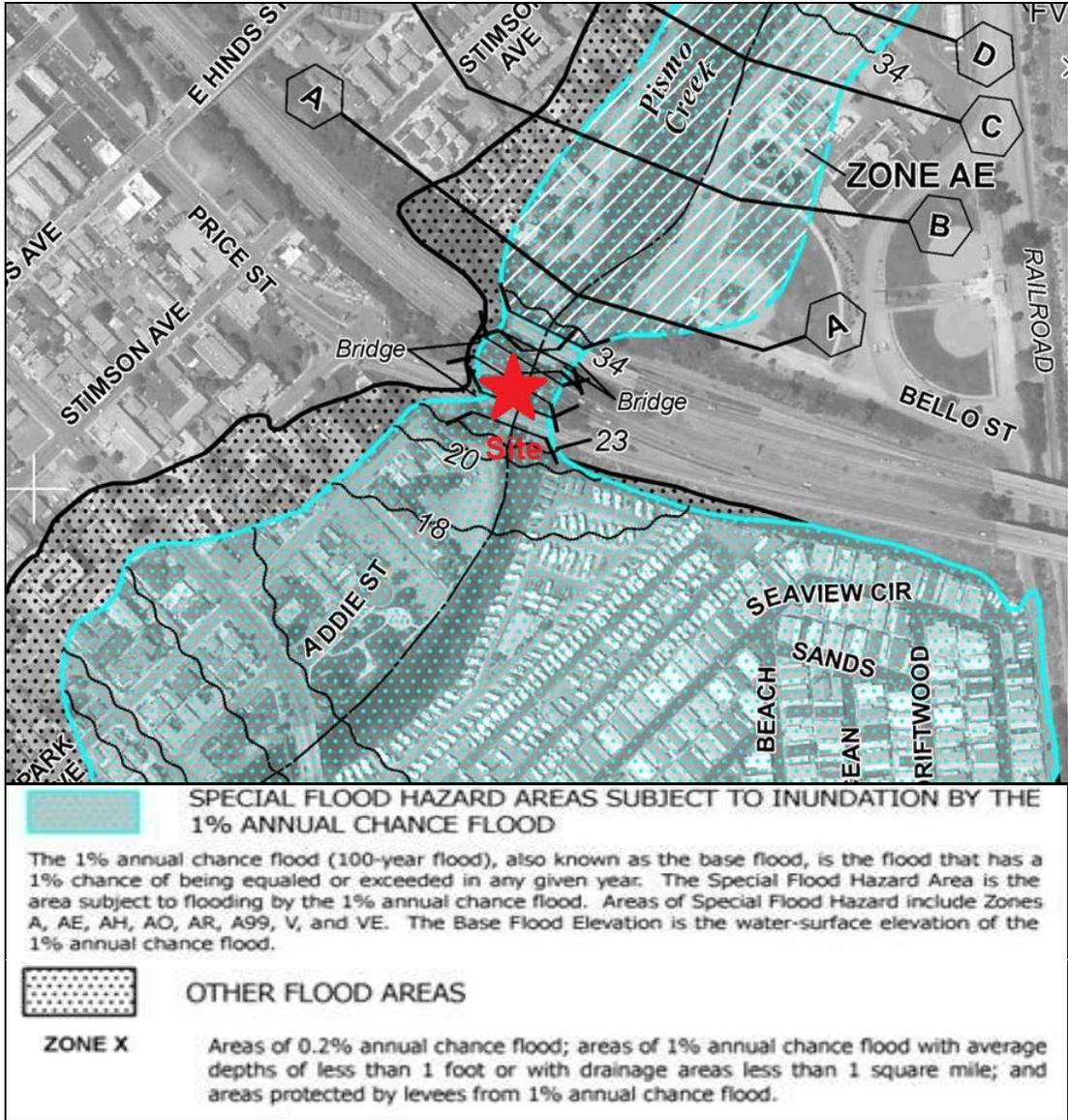


Figure 2-2 Flood Insurance Rate Map

## 2.2.2 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<sup>1</sup> unlawful unless the discharge is in compliance with a National Pollutant Discharge Elimination System permit. This act and its amendments are known today as the

<sup>1</sup> A point source is any discrete conveyance such as a pipe or a human-made ditch.

Clean Water Act. Congress has amended the act several times. In the 1987 amendments, Congress directed dischargers of storm water from municipal and industrial/construction point sources to comply with the National Pollutant Discharge Elimination System permit scheme. The following are important Clean Water Act sections:

- Sections 303 and 304 require states to issue water quality standards, criteria, and guidelines.
- Section 401 requires an applicant, for a federal license or permit, to conduct any activity that may result in a discharge to waters of the U.S., to obtain certification from the state that the discharge will comply with other provisions of the act. This is most frequently required in tandem with a Section 404 permit request (see below).
- Section 402 establishes the National Pollutant Discharge Elimination System, 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 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 U.S. This permit program is administered by the U.S. Army Corps of Engineers.

The goal of the Clean Water Act is “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.”

The U.S. Army Corps of Engineers issues two types of 404 permits: General and Standard 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 allow 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 the U.S. Army Corps of Engineers’ Standard permits. There are two types of Standard permits: Individual permits and Letters of Permission. For Standard permits, the U.S. Army Corps of Engineers decision to approve is based on compliance with U.S. Environmental Protection Agency’s Section 404 (b) (1) Guidelines (U.S. EPA Code of Federal Regulations 40 Part 230), and whether the

permit approval is in the public interest. The Section 404(b) (1) Guidelines were developed by the U.S. Environmental Protection Agency in conjunction with the U.S. Army Corps of Engineers 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 the U.S. Army Corps of Engineers may not issue a permit if there is a least environmentally damaging practicable alternative to the proposed discharge that would have lesser effects on waters of the U.S. and not have any other significant adverse environmental consequences. According to the guidelines, documentation is needed that a sequence of avoidance, minimization, and compensation measures has been followed, in that order.

The guidelines also restrict permitting activities that violate water quality or toxic effluent<sup>2</sup> 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 U.S. Army Corps of Engineers, even if not subject to the Section 404(b) (1) Guidelines, must meet general requirements. See 33 Code of federal Regulations 320.4. A discussion of the least environmentally damaging practicable alternative determination, if any, for the document is included in the Section 2.3.2 Wetlands and Other Waters.

#### *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 Clean Water Act 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.

Also, the act prohibits discharges of “waste” as defined, and this definition is broader than the Clean Water Act definition of “pollutant.” Discharges under the Porter-Cologne Act are permitted by Waste Discharge Requirements and may be required even when the discharge is already permitted or exempt under the Clean Water Act.

The State Water Resources Control Board and Regional Water Quality Control Boards are responsible for establishing the water quality standards (objectives and beneficial uses) required by the Clean Water Act and regulating discharges to ensure

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<sup>2</sup> The U.S. EPA defines “effluent” as “wastewater, treated or untreated, that flows out of a treatment plant, sewer, or industrial outfall.”

compliance with the water quality standards. Details about water quality standards in a project area are included in the applicable Regional Water Quality Control Boards Basin Plan.

In California, Regional Boards designate beneficial uses for all water body segments in their jurisdictions and then set criteria necessary to protect these uses. As a result, the water quality standards developed for particular water segments are based on the designated use and vary depending on that use. Also, each state identifies waters failing to meet standards for specific pollutants. These waters are then state-listed in accordance with Clean Water Act Section 303(d). If a state determines that waters are impaired for one or more constituents and the standards cannot be met through point source or non-point source controls (National Pollutant Discharge Elimination System permits or Waste Discharge Requirements), the Clean Water Act requires the establishment of Total Maximum Daily Loads. Total Maximum Daily Loads 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 State Water Resources Control Board administers water rights, sets water pollution control policy, and issues water board orders on matters of statewide application, and oversees water quality functions throughout the state by approving Basin Plans, Total Maximum Daily Loads, and National Pollutant Discharge Elimination System permits. Regional Water Quality Control Boards are responsible for protecting beneficial uses of water resources within their regional jurisdiction using planning, permitting, and enforcement authorities to meet this responsibility.

#### *National Pollutant Discharge Elimination System (NPDES) Program*

##### Municipal Separate Storm Sewer Systems (MS4)

Section 402(p) of the Clean Water Act requires the issuance of National Pollution Discharge Elimination System permits for five categories of storm water discharges, including Municipal Separate Storm Sewer Systems. A Municipal Separate Storm Sewer System is defined as “any conveyance or system of conveyances (roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, human-made channels, and storm drains) owned or operated by a state, city, town, county, or other public body having jurisdiction over storm water, that is designed or used for collecting or conveying storm water.” The State Water Resources Control Board has identified Caltrans as an owner/operator of an MS4 under federal regulations. The Caltrans Municipal Separate Storm Sewer Systems permit covers all department rights-of-way, properties, facilities, and activities in the state. The State Water

Resources Control Board or the Regional Water Quality Control Board issues National Pollution Discharge Elimination System permits for five years, and permit requirements remain active until a new permit has been adopted.

The Caltrans MS4 Permit (Order No. 2012-0011-DWQ) was adopted on September 19, 2012 and became effective on July 1, 2013. The permit has three basic requirements:

- Caltrans must comply with the requirements of the Construction General Permit (see below).
- Caltrans must implement a year-round program in all parts of the state to effectively control storm water and non-storm water discharges.
- The Caltrans storm water discharges must meet water quality standards through implementation of permanent and temporary (construction) Best Management Practices, to the Maximum Extent Practicable, and other measures as the State Water Resources Control Board determines to be necessary to meet the water quality standards.

To comply with the permit, Caltrans developed the Statewide Storm Water Management Plan to address storm water pollution controls related to highway planning, design, construction, and maintenance activities throughout California. The Storm Water Management Plan assigns responsibilities within Caltrans 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 Storm Water Management Plan describes the minimum procedures and practices Caltrans 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. The proposed project will be programmed to follow the guidelines and procedures outlined in the latest Storm Water Management Plan to address storm water runoff.

#### *Construction General Permit*

The 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 that result in a Disturbed Soil Area of 1 acre or greater, and/or smaller sites that are part of a larger common plan of development. By law, all storm water discharges associated with construction activity where clearing, grading, and excavation result in soil disturbance of at least 1 acre must comply with the provisions of the General Construction Permit. Construction activity

that results in soil disturbances of less than 1 acre is subject to the Construction General Permit if there is potential for significant water quality impairment resulting from the activity as determined by the Regional Water Quality Control Board. 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, and 3. Risk levels are determined during the planning and design phases 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. In accordance with Caltrans' Standard Specifications, a Water Pollution Control Plan is necessary for projects with Disturbed Soil Area less than 1 acre.

#### ***Section 401 Permitting***

Under Section 401 of the Clean Water Act, any project requiring a federal license or permit that may result in a discharge to a water of the U.S. 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 Clean Water Act Section 404 permits issued by the U.S. Army Corps of Engineers. The 401 permit certifications are obtained from the appropriate Regional Water Quality Control Board, depending on the project location, and are required before the U.S. Army Corps of Engineers issues a 404 permit.

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

#### ***Affected Environment***

A Water Quality Memorandum was completed for the project on July 13, 2015. The results are summarized below.

The Pismo Creek watershed area is about 47 square miles and attains a maximum elevation of almost 2,865 feet above sea level. The watershed, identified as the Pismo Hydrologic Unit 310.26, is about 54 percent mountainous and foothill area and 46 percent valley area. Pismo Creek runs about 13 miles in length from its headwaters to its confluence with the Pacific Ocean.

There is no stream gauge in Pismo Creek, so no long-term hydrologic data are available; peak flow measured during a 2006 storm was 98 cubic feet per second. Data available for input to a widely used hydrologic model (U.S. Army Corps of Engineers HEC-RAS) yielded a bank full flow of 530 cubic feet per second. This flow is equal to the 2-year reoccurrence internal flow and typically measures the flow before the stream enters the floodplain.

Pismo Creek watershed is known to contain naturally occurring inorganic constituents at levels exceeding drinking water standards and contain naturally occurring oil and gas seeps that can result in detectable concentrations of total petroleum hydrocarbons (TPH), volatile organic compounds (VOCs) and regulated metals in surface and groundwater. These compounds were also identified at concentrations above the Basin Plan water quality objectives.

The project will not increase any net area of impervious surfaces from the original design, so consideration of permanent storm water treatment Best Management Practices is not required.

The project will not involve dewatering of groundwater. The only potential threat to groundwater would be a substantial chemical spill (i.e., fuel, solvent, etc.) during construction. Hazardous materials handling and spill prevention and control will be addressed by the Job Site Management contract bid item. Potential impacts to groundwater quality from the project are less than significant.

### ***Environmental Consequences***

Repairing the stream channel scour will stabilize the creek banks and not alter storm water runoff patterns or increase flow concentrations. The project is not expected to cause significant environmental impacts to current stream flow patterns because the stream channel cross section and alignment will not be significantly changed.

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

Stream bank support, in the form of concrete or rock slope protection, is recommended along the stream banks in the main channel and should extend downstream and upstream of the existing bridges. This measure will minimize stream bank erosion from hydraulic deflection scour from the bridge piles if any may occur.

Grading and paving could generate storm water pollutants. By implementing standard construction methods, waste management procedures, and storm water best management practices, the project will not generate significant levels of storm water pollutants. Temporary construction site bid items expected to be included for the project to reduce or eliminate temporary water quality impacts during construction include the following: Water Pollution Control Program, Job Site Management (non-storm water and waste management and materials pollution control Best Management Practices), Temporary Large Sediment Barrier, Temporary Concrete Washout, and Temporary Environmentally Sensitive Area Fence. Permanent erosion and sediment control Best Management Practices will be applied to all disturbed soil areas when soil-disturbing activities are complete.

Caltrans has a well-developed storm water program that, under most circumstances, addresses all potentially significant impacts to water quality during storm events. This program is primarily intended to comply with the Caltrans Statewide National Pollution Discharge Elimination System Storm Water Permit and ensures that all construction, design and treatment Best Management Practices are implemented and that they comply with the Regional Water Quality Control Board requirements.

These potential impacts can be mitigated via implementation of appropriate storm water best management practices and modification of the project design. No long-term impacts to water quality are expected.

### **2.2.3 Geology, Soils, Seismicity and Topography**

#### ***Regulatory Setting***

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

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

### **Affected Environment**

A Structures Preliminary Geotechnical Report for Pismo Creek Bridge Scour Mitigation was completed on November 17, 2015.

The project site lies in the Coast Ranges Geomorphic Province of California on a gently sloping wave-cut terrace. The San Luis Range is northeast of the project site and the Pacific Ocean is southwest of the project. The site is on relatively flat ground at an approximate elevation of 25 feet above mean sea level. The project area sits in Quaternary alluvium soils. At elevation -20 to -30 feet, all geologic borings encountered green weathered fine-grained sandstone and siltstone soils.

#### *Groundwater*

Groundwater measurements are relatively consistent across many years. Groundwater lies approximately at the creek level, at about 5 feet in elevation (see Table 2.1).

**Table 2.1 Groundwater Levels**

<b>Date</b>	<b>Borehole</b>	<b>Elevation, feet</b>
August 1953	B-3 (CDT)	5
January 1974	B-2 (CDT)	4.5
May 2001	B-2-01 (Augur) 81 feet left of Pismo Creek CL	4.1

#### *Seismicity*

The site is less than 330 feet from the San Luis Range fault. Due to proximity to this fault, the potential damage due to fault rupture is considered. According to the Evaluation of Fault Rupture Potential Memorandum dated September 24, 2015, the San Luis Range fault is a late Quaternary fault and has not been active in the last 11,000 years; it is not zoned as active for fault rupture by the California Geological Survey. Therefore, surface rupture at the site is considered very unlikely.

#### *Liquefaction*

Liquefaction is the sudden loss of soil strength from a rapid increase in soil-pore water pressure resulting from seismic ground-shaking. In simple terms, the soil turns to a jellylike form. Potential for liquefaction depends on factors such as soil type and density, depth to groundwater, and the intensity of the seismic shaking. Loose soils with minimal cohesion such as sands and gravel soils can become saturated by a high water table. These soils are prone to liquefy during earthquake activity. Embankments built on liquefiable soils may settle during a seismic event. Structures may settle or overturn if the soils beneath them liquefy. According to past geologic boring information at the project site, there is a layer of medium dense sand and gravel at the toe of west bank which is liquefiable. This liquefaction may cause lateral movement of the west bank.

### ***Environmental Consequences***

Although the 2001 Preliminary Geotechnical Report stated that there is potential for fault rupture at this site, fault rupture is not an issue for this bridge because the fault located near the project site has not been active in the last 11,000 years and is not zoned as active for fault rupture by the California Geological Survey.

Lateral spreading is a potential concern for this bridge. According to past geologic boring information, there is a layer of medium dense sand and gravel at the toe of west bank which is liquefiable. This liquefaction may cause lateral movement of the west bank depending on detailed evaluation of the lateral spreading potential.

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

Before placing the slope protection on re-graded creek banks, the banks should be cleared of all debris and loose materials. A layer of Class 8 Reinforced Slope Protection fabric should be placed at the bottom before placing the slope protection. To avoid potential lateral movement, the project embankments will be designed to handle the anticipated maximum displacement.

The project design would incorporate Caltrans standards and construction methods to minimize potential risks associated with strong ground shaking and potential liquefaction hazards.

## **2.3 Biological Environment**

### **2.3.1 Natural Communities**

This section of the document discusses natural communities of concern, with a focus on biological communities, not individual plant or animal species. This section also addresses 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 in the Threatened and Endangered Species (Section 2.3.4). Wetlands and other waters are discussed in Section 2.3.2.

### ***Affected Environment***

A Natural Environmental Study (NES) was completed for the project in September 2015. As a part of the study, a Biological Study Area (BSA) for the project was defined using the following criteria: the elements of the proposed project and the expected level and extent of environmental effects. The Biological Study Area is about 2 acres, occurs along US 101 at Pismo Creek in Pismo Beach, and is about 0.8

mile upstream from the Pacific Ocean in an area with relatively level topography. (Figure 2-3 shows the Biological Study Area for the project).

Habitat within the Biological Study Area is divided into five communities: arroyo willow thicket, heavily altered/disturbed, ornamental vegetation, ice plant mats, and active stream channel/lagoon (discussed in Section 2.3.2 under Wetlands and other Waters).

The vegetative communities in the Biological Study Area along this section of Pismo Creek are heavily altered/disturbed. Both sides of the channel support mainly ornamental landscaping and/or exotic weedy species, including spider gum (*Eucalyptus conferruminata*) and silk oak (*Grevillea robusta*). Chilean fig (*Carpobrotus chilensis*) is also abundant in patches along the bank slopes. A small patch of native arroyo willow (*Salix lasiolepis*) with an understory of California blackberry (*Rubus urinus*) occurs along the eastern bank downstream from the bridges. Lesser amounts of other exotic species also occur along the banks, including white sweet clover (*Melilotus albus*), sweet fennel (*Foeniculum bulgare*), pampas grass (*Cortaderia jubata*), and various non-native grasses.

Very small amounts of hydrophytic species such as rabbit's foot grass (*Polypogon monspeliensis*), silverweed (*Potentilla anserine*) and marsh jaumea (*Jaumea carnosa*) were found growing along the toe of the slope near the water's edge on the southwestern portion of Pismo Creek. No aquatic vegetation was observed growing in the channel within the Biological Study Area, though broadleaf cattail (*Typha latifolia*) and other emergent species occur within the channel in some areas upstream and downstream from the Biological Study Area.

The Biological Study Area within Pismo Creek supports un-vegetated open water stream habitat. While the water quality observed in August 2014 and May 2015 was turbid and contained visible algal growth, it is suitable for fish and other aquatic species.

Wetland and riparian vegetation is not present around the bridge, but occurs upstream and downstream of the bridge. Existing habitat just upstream and downstream of the project Biological Study Area contains remnants of arroyo willow thicket. Native plants found along the creek in these areas are sparse but include arroyo willow, horsetail (*Equisetum sp.*), and cattail (*Typha sp.*).

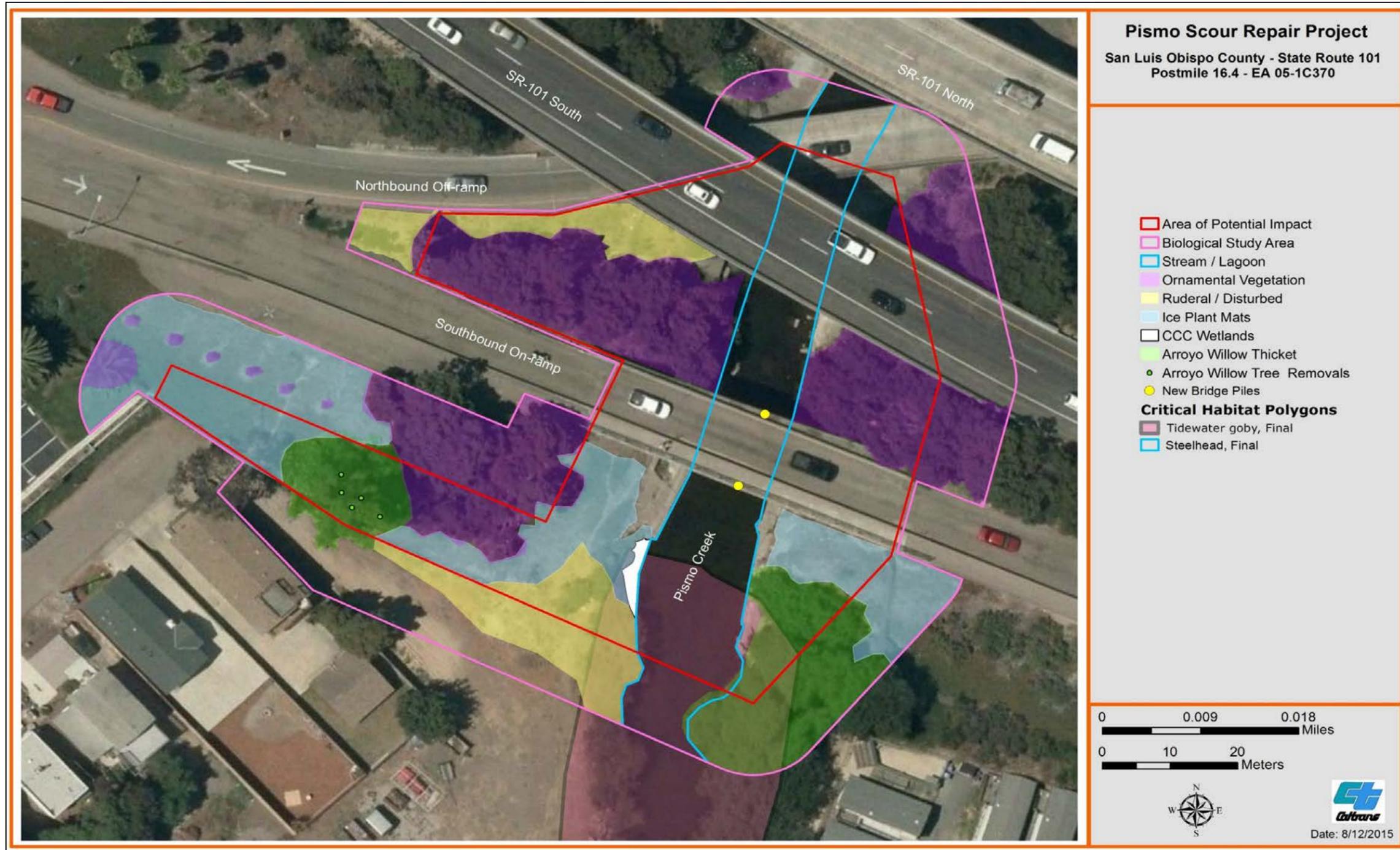


Figure 2-3 Biological Study Area

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Heavily altered/disturbed areas, ice plant mats, and ornamental vegetation are not considered sensitive natural communities and are not discussed any further in this section.

Certain special-status species may have the potential to occur in one or more of the habitats described and these species are discussed later in this document. The Biological Study Area does not occur within a known wildlife corridor, and no wildlife connectivity impacts are anticipated. Certain invasive/weedy plants occur within the Biological Study Area, and measures will be implemented to avoid or minimize the spread of these species throughout the Biological Study Area.

### *Arroyo Willow Thicket*

Arroyo willow (*Salix lasiolepis*) in the Biological Study Area corresponds to arroyo willow thicket habitat and Central Coast arroyo willow riparian forest. This habitat type can be found throughout most of California along stream banks, benches, slope seeps, and stringers along drainages. The main species is arroyo willow with more than 50 percent coverage.

In the Biological Study Area, arroyo willow thicket occurs along the eastern bank downstream from the bridge and a small stand of five arroyo willow trees is located between the southbound onramp and the house at the end of Park Avenue. Various bird species use arroyo willow as foraging and nesting habitat, and arroyo willow has the potential to support habitat for special-status species. About 8,725 square feet (0.200 acre) of arroyo willow thicket was mapped within the project Biological Study Area (see Figure 2-3).

### **Environmental Consequences**

Impacts to natural communities/habitats have been quantified based on estimated ground disturbance, disturbed vegetation, and so on. Estimated impacts include potential disturbance areas for both permanent and temporary impacts. Estimated impacts to vegetation communities are shown in Table 2.2.

**Table 2.2 Estimated Impacts to Natural Communities/Habitats of Concern**

Community/Habitat	Permanent Impacts		Temporary Impacts	
	Square Feet	Acres	Square Feet	Acres
Stream/Lagoon	16	< 0.001	11,103	0.255
Arroyo Willow Thicket	0	0	4,189	0.096
Ornamental Vegetation	11,704	0.269	0	0
Ruderal/Disturbed	3,356	0.077	0	0
Ice Plant Mats	6,793	0.156	0	0
USACE/RWQCB Other Waters <sup>1</sup>	16	< 0.001	14,041	0.322
CDFW Jurisdiction <sup>2</sup>	16	< 0.001	25,997	0.597
CCC Coastal Stream <sup>3</sup>	16	< 0.001	25,997	0.597
CCC Wetlands <sup>4</sup>	0	0	224	0.005
Steelhead Critical Habitat	16	< 0.001	11,103	0.255
Tidewater Goby Critical Habitat	0	0	2,792	0.064

<sup>1</sup> Includes the Stream/Lagoon and areas up to the ordinary high water marks (OHWMs).

<sup>2</sup> Includes/overlaps areas of USACE other waters but extends above the OHWMs to the tops of the stream banks or outer edge of riparian vegetation (whichever is greater).

<sup>3</sup> Includes coastal aquatic features and/or wetlands that may be regulated by the California Coastal Commission (CCC) as, at a minimum, single-parameter wetlands.

<sup>4</sup> Includes marsh wetlands and riparian wetlands.

Permanent impacts will occur during installation of two 36-inch pilings in the creek channel and will result in the loss of approximately 16 square feet (less than 0.001 acre) of Stream/Lagoon habitat. Other permanent impacts will involve removal of ornamental vegetation, ice plant mats, and heavily altered/disturbed areas. Removal of this non-native vegetation will be beneficial, and replacement plantings of arroyo willow and other native plants will help to restore the project area to its original native state.

Temporary impacts to native trees include removal of five arroyo willow trees on the west side of the creek and the trimming of a few arroyo willow branches on the east side of the creek. There will be a temporary loss of approximately 4,189 square feet (0.096 acre) of arroyo willow thicket habitat.

Main sources of impacts would be construction equipment use and worker foot-traffic. Trucks, bulldozers, backhoes, compactors, concrete equipment, clamshells, excavators, compressors, man lifts, scrapers, pavers, water trucks, sweepers, and other equipment needed for construction would be used. Construction equipment would be temporarily staged in areas where native and non-native vegetation has been removed at the end of Park Street.

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

Environmentally Sensitive Area (ESA) fencing would be installed along the maximum disturbance limits to minimize disturbance to habitat/vegetation. Special Provisions for the installation of ESA fencing and silt fencing would be included in the Construction Contract and be identified on the project plans. Two weeks before the start of construction, ESA areas would be delineated in the field and be approved by the Caltrans Environmental Division.

The five arroyo willows removed within the project area will be re-established at a 3:1 replacement ratio with annual monitoring and reporting for a minimum of five (5) years post construction.

### **2.3.2 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, commonly referred to as the Clean Water Act (33 U.S. Code 1344), is the main law regulating wetlands and surface waters. The Clean Water Act regulates the discharge of dredged or fill material into waters of the U.S., including wetlands. Waters of the U.S. include navigable waters, interstate waters, territorial seas and other waters that may be used in interstate or foreign commerce. To classify wetlands for the purposes of the Clean Water Act, 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 Clean Water Act.

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

The U.S. Army Corps of Engineers issues two types of 404 permits: General and Standard 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 allow 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 the U.S. Army Corps of Engineers Standard permits. There are two types of Standard permits: Individual permits and Letters of Permission. For Standard permits, the U.S. Army Corps of Engineers decision to approve is based on compliance with U.S.

Environmental Protection Agency's Section 404(b) (1) Guidelines (U.S. EPA 40 Code of Federal Regulations Part 230), and whether permit approval is in the public interest. The Section 404 (b) (1) Guidelines were developed by the U.S. Environmental Protection Agency in conjunction with the U.S. Army Corps of Engineers and allow the discharge of dredged or fill material into the aquatic system (waters of the U.S.) only if there is no practicable alternative which would have less adverse effects. The guidelines state that the U.S. Fish and Wildlife Service may not issue a permit if there is a least environmentally damaging practicable alternative 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 (Executive Order 11990) also regulates the activities of federal agencies with regard to wetlands. This order states that a federal agency, such as the Federal Highway Administration, and 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 mainly by the State Water Resources Control Board, Regional Water Quality Control Boards and California Department of Fish and Wildlife. 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 the California Department of Fish and Wildlife before beginning construction. If the California Department of Fish and Wildlife determines that the project may substantially and adversely affect fish or wildlife resources, a Lake or Streambed Alteration Agreement will be required.

California Department of Fish and Wildlife 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 U.S. Fish and Wildlife Service may or may not be included in the area covered by a Streambed Alteration Agreement obtained from the California Department of Fish and Wildlife.

The Regional Water Quality Control Boards were established under the Porter-Cologne Water Quality Control Act to oversee water quality. Discharges under the Porter-Cologne Act are permitted by Waste Discharge Requirements and may be required even when the discharge is already permitted or exempt under the Clean Water Act. In compliance with Section 401 of the Clean Water Act, the Regional Water Quality Control Boards also issue water quality certifications for activities that may result in a discharge to waters of the U.S.

This is most frequently required in tandem with a Section 404 permit request. See the Water Quality section for additional details.

### **Affected Environment**

Caltrans biologists delineated potential jurisdictional waters on August 10, 2015.

Approximately 17,837 square feet (0.409 acre) of potential U.S. Army Corps of Engineers/Regional Water Quality Control Board other waters were delineated within the Biological Study Area along Pismo Creek. No federal jurisdictional wetlands were delineated because there were no locations where all three wetland parameters (hydrophytic vegetation, hydric soils, and wetland hydrology) were present in the same location.

A total of 39,746 square feet (0.912 acre) of California Department of Fish and Wildlife jurisdictional areas and 224 square feet (0.005 acre) of California Coastal Commission single-parameter coastal zone wetlands/Environmentally Sensitive Habitat Areas (supporting the presence of at least one of the following: dominant hydrophytic vegetation, hydric soils, or wetland hydrology) were delineated within the Biological Study Area along Pismo Creek. This small area identified as California Coastal Commission wetlands included both marsh wetlands and riparian wetlands that were next to and overlapping each other.

Due to breaching of the Pismo Lagoon sand bar from the 2015-2016 winter rains, the water level within the BSA has fallen approximately 2 feet. The area of coastal wetland found near the water's edge that contained wetland hydrology has been drained of water. This is the result of lower water levels in Pismo Lagoon. As seasonal changes affect the water level in Pismo Creek, this is expected to change as the Pismo lagoon sand bar rebuilds and water levels in the channel rise. Portions of the coastal wetland still contain hydrophytic plant species and are thus still considered single parameter wetlands and jurisdictional to the California Coastal Commission.

The Preliminary Jurisdictional Determination Map is shown in Figure 2-4. See also Appendix D of the Natural Environmental Study for the ordinary high water mark datasheets and Arid West Determination data forms to support the delineated ordinary high water mark and the overall jurisdictional waters delineation. A Preliminary Jurisdictional Form will be submitted to U.S. Army Corps of Engineers during the permitting phase for the project verification process.

### **Environmental Consequences**

Estimates of impacts to potentially jurisdictional waters were determined by overlaying the project area of potential impact with the Preliminary Jurisdictional Determination Map prepared for the Wetland Assessment (refer to Natural Environmental Study, Appendix D, and Figure 2-4 of this document). Impact quantities for jurisdictional waters are shown in Table 2.2.

Total estimated impacts to U.S. Army Corps of Engineers jurisdictional other waters within the area of potential impact would be 16 square feet (less than or equal to 0.001 acre) of permanent impact and 14,041 square feet (0.322 acre) of temporary impact. Total estimated impacts to California Department of Fish and Wildlife jurisdictional areas would be 16 square feet (less than or equal to 0.001 acre) of permanent impact and 25,997 square feet (0.597 acre) of temporary impact. Total estimated impacts to California Coastal Commission wetlands/coastal zone Environmental Sensitive Habitat Areas would be 224 square feet (0.005 acre) of temporary impact.

Five native arroyo willow trees (*Salix lasiolepis*), all of which measure 6 inches or greater diameter at breast height, would be removed. These impacts would not only affect individual arroyo willow trees, but the wildlife species that may use these trees as foraging, nesting, roosting, and/or denning habitat (see Figure 2-4)

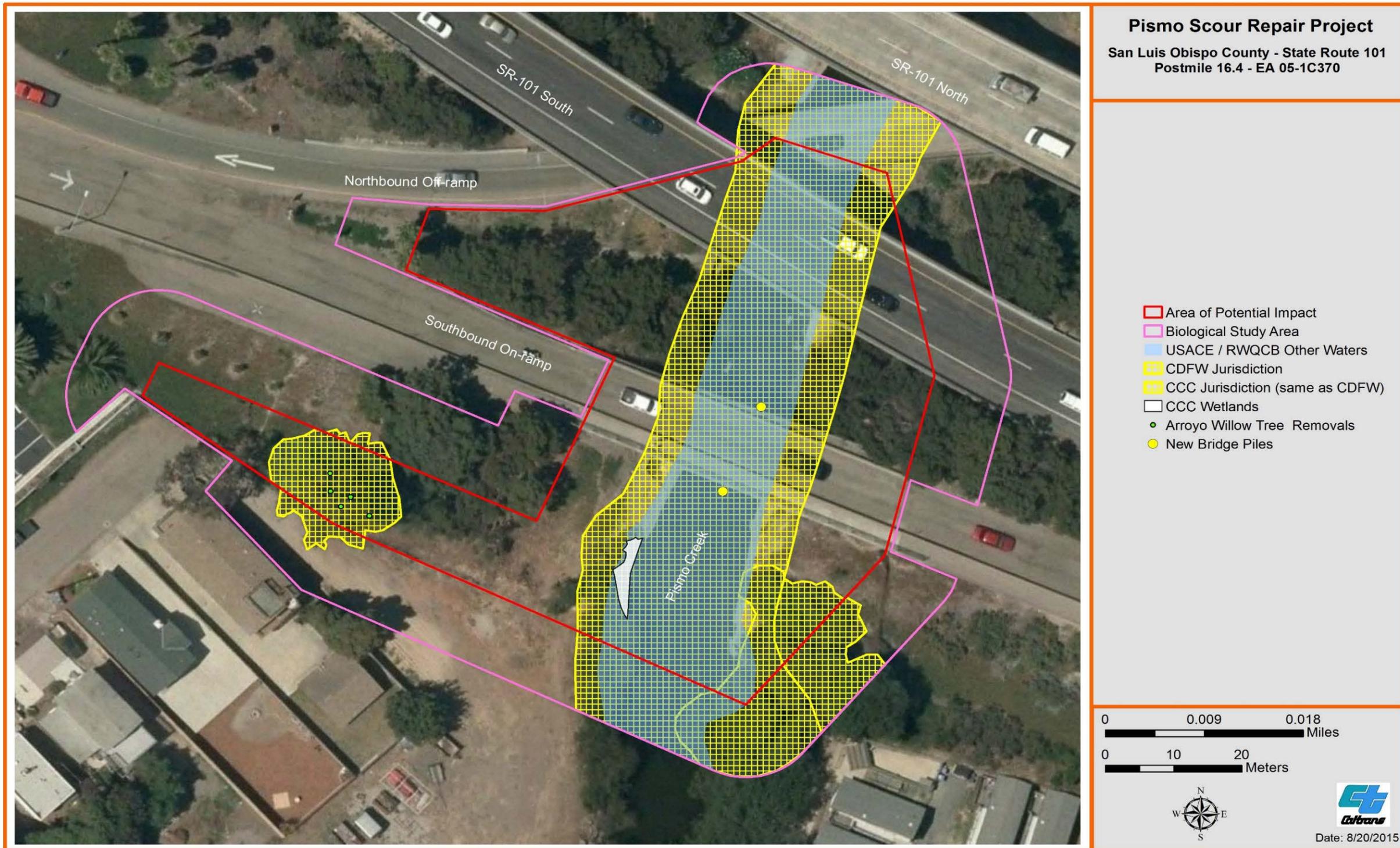


Figure 2-4 Preliminary Jurisdictional Determination Map

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

The project will affect potential U.S. Army Corps of Engineers/Regional Water Quality Control Board jurisdictional other waters, California Department of Fish and Wildlife jurisdictional areas, and California Coastal Commission coastal zone wetlands/environmentally sensitive habitat areas within the area of potential impact. Avoidance and minimization measures will be implemented for potential impacts to jurisdictional waters.

1. Prior to construction, Caltrans shall obtain a Section 404 Nationwide Permit from U.S. Army Corps of Engineers, a Section 401 Water Quality Certification from Regional Water Quality Control Board, a Section 1602 Streambed Alteration Agreement from California Department of Fish and Wildlife, and a Coastal Development Permit (or Waiver) from the California Coastal Commission.
2. Prior to construction, Caltrans will prepare a Mitigation and Monitoring Plan to mitigate impacts to vegetation and natural habitats. The Mitigation and Monitoring Plan shall be consistent with federal and state regulatory requirements and will be amended with any regulatory permit conditions, as required. Caltrans shall implement the Mitigation and Monitoring Plan as necessary during construction and immediately following project completion.
3. Caltrans shall ensure that the spread or introduction of invasive exotic plant species will be avoided to the maximum extent possible. When practicable, invasive exotic plants in the project site shall be removed and properly disposed. All sea fig (*Carpobrotus chilensis*) and any other invasive plant species shall be carefully removed by hand from the 224 ft<sup>2</sup> (0.005 ac) California Coastal Commission single-parameter coastal zone wetland and the area surrounding the wetland up to 20 feet.

To prevent the spread of invasive species, all vegetation removed from the construction site shall be taken to a landfill and not used as mulch on site. If soil from weedy areas must be removed off-site, the top six inches containing the seed layer in areas with weedy species shall be disposed of at a landfill.

4. Construction activities in jurisdictional waters shall be timed to occur between June 1 and October 30 in any given year, or as otherwise directed by the regulatory agencies, when the surface water is likely to be dry or at seasonal minimum. Deviations from this work window will be made only with permission from the relevant regulatory agencies.
5. All project-related hazardous materials spills within the project site shall be cleaned up immediately. Readily accessible spill prevention and cleanup materials shall be kept by the contractor onsite at all times during construction.

6. During construction, erosion control measures shall be implemented. Silt fencing, fiber rolls, and barriers shall be installed as needed. At a minimum, erosion controls shall be maintained by the contractor on a daily basis throughout the construction period.
7. During construction, the cleaning and refueling of equipment and vehicles shall occur only within a designated staging area and at least 65 feet from wetlands, other waters, or other aquatic areas. The staging areas shall conform to Best Management Practices applicable to attaining zero discharge of storm water runoff. Equipment and vehicles shall be checked and maintained by the contractor on a daily basis to ensure proper operation and avoid potential leaks or spills.
8. Stream contours shall be restored as close as possible to their original condition.
9. Prior to any ground-disturbing activities and after invasive plants have been removed from the 224 ft<sup>2</sup> (0.005 ac) California Coastal Commission single-parameter coastal zone wetland, ESA fencing shall be installed around the wetland and the drip-line of all trees to be protected within project limits. These areas shall be completely excluded from all activities of the project. Caltrans-defined ESAs shall be noted on design plans and delineated in the field prior to the start of construction activities.
10. The five arroyo willows removed within the project area will be re-established at a 3:1 replacement ratio with annual monitoring and reporting for a minimum of five (5) years post construction.

### 2.3.3 Animal Species

#### **Regulatory Setting**

Many state and federal laws regulate impacts to wildlife. The California Department of Fish and Wildlife, U.S. Fish and Wildlife Service, and National Marine Fisheries Service are responsible for implementing these laws. This section discusses potential impacts and permit requirements associated with wildlife not listed or proposed for listing under state and federal Endangered Species Acts (those species therefore have no protected status under these laws). Species listed or proposed for listing as threatened or endangered are discussed in Section 2.3.5. All other special-status animal species are discussed here, including California Department of Fish and Wildlife fully protected species and species of special concern and U.S. Fish and Wildlife Service or National Oceanographic and Atmospheric Administration Fisheries candidate species.

State laws and regulations relevant to wildlife include the following:

- California Environmental Quality Act
- Sections 1600–1603 of the California Fish and Game Code
- Migratory Bird Treaty Act and California Fish and Game Code Section 3503
- Sections 4150 and 4152 of the California Fish and Game Code

#### **Affected Environment**

The Natural Environmental Study (August 2015) provided information on special-status species known to occur within the Biological Study Area.

Table 2.3 shows the animal species that have the potential to be effected by the proposed project.

**Table 2.3 Special-Status Animals – Presence within the Biological Study Area**

<b>Invertebrates</b>	<b>Status</b>	<b>Presence</b>
San Luis Obispo pyrg and mimic tryonia (snails)	California Species of Special Concern	No confirmed presence; suitable aquatic-habitat present
<b>Fish</b>		
Tidewater goby*	California Species of Special Concern; federally threatened	Inferred presence; critical habitat present
South-Central California Coast Steelhead*	California Species of Special Concern; federally endangered	Inferred presence; critical habitat present
<b>Amphibians</b>		

California red-legged frog*	California Species of Special Concern; federally threatened	Inferred presence; suitable aquatic habitat present
<b>Reptiles</b>		
Western pond turtle	California Species of Special Concern	Inferred presence; suitable aquatic habitat present
Two-striped garter snake	California Species of Special Concern	Inferred presence; suitable aquatic habitat present
<b>Birds</b>		
Cooper's hawk	California Species of Special Concern	Inferred presence; suitable nesting habitat present
White-tailed kite	California Department of Fish and Wildlife Fully Protected Species	Inferred presence; suitable nesting habitat present
Merlin	California Department of Fish and Wildlife Watch List Species	No confirmed presence; suitable nesting habitat present
Yellow breasted chat	California Species of Special Concern	No confirmed presence; suitable nesting habitat present
Purple martin	California Species of Special Concern	No confirmed presence; suitable nesting habitat present
American yellow warbler*	California Species of Special Concern	No confirmed presence; suitable nesting habitat present
Loggerhead shrike	California Species of Special Concern	No confirmed presence; suitable nesting habitat present
<b>Mammals</b>		
Pallid and western mastiff bat	California Species of Special Concern	Currently unknown which bat is nesting under bridge; critical habitat present

\*Species listed or proposed for listing as threatened or endangered are discussed in Section 2.3.4

Tidewater goby and South-Central California Coast Steelhead, have been confirmed as present within the Biological Study Area. California red-legged frog is inferred to be present in the Biological Study Area, based on nearby occurrence records and suitable aquatic habitat. Two bat species—pallid and western mastiff bats—have the potential to roost under the bridge, but have not specifically been confirmed. Because of their threatened and/or endangered status, the tidewater goby, California red-legged frog and South-Central California Coast Steelhead are discussed in Section 2.3.4, Threatened and Endangered Species.

### *Aquatic Snails*

The San Luis Obispo pyrg (*Pyrgulopsis taylori*) and mimic tryonia (*Tryonia imitator*—also known as the California Brackishwater snail) are aquatic snails discussed together in this section. Both the San Luis Obispo pyrg and the mimic tryonia are included on the California Natural Diversity Database Special Animals List (California Department of Fish and Wildlife 2015). Very little published information exists on these invertebrate species. The genera *Pyrgulopsis* and *Tryonia* occur

throughout parts of eastern and western America and northern Mexico and are a major faunal element of North American freshwaters.

The California Natural Diversity Database indicates the San Luis Obispo pyrg occurs in freshwater habitats in San Luis Obispo County, with occurrence records in the vicinity of northeastern San Luis Obispo. Pismo Creek appears to support marginal habitat for the San Luis Obispo pyrg and mimic tryonia. While these species were not observed, most of the inundated areas of the creek were not thoroughly surveyed due to deep water conditions.

### *Western Pond Turtle*

The western pond turtle (*Emys marmorata*) is considered a Species of Special Concern by the California Department of Fish and Wildlife. It is a medium-sized (to 8.5 inches) olive, brown, or blackish turtle with a relatively low shell. Western pond turtles have been found in Pacific slope drainages between the Oregon and Mexican borders. Pond turtles live where water persists year-round in ponds along foothill streams or in broad washes near the coast. Ponds favored by turtles typically support emergent and floating vegetation such as cattails and algal mats. These turtles also bask on half-submerged logs, rocks, or flat shorelines close to the edge of water. The western pond turtle is mostly aquatic, leaving its aquatic site to reproduce, estivate, and overwinter. It may overwinter on land or in water, but may remain active in water during the winter season. In warmer areas along the Central and Southern California Coast, pond turtles may be active all year.

Breeding for western pond turtles occurs typically in late April to July. Upland nesting sites are required near the aquatic site and are typically found in open clay or silt slopes to ensure proper incubation temperature. Nesting typically occurs in sunny areas within 15 to 330 feet of water. Eggs hatch in late fall or overwinter and hatch in early spring of the following year. Some females double-clutch during the year.

The western pond turtle was not observed during the surveys, but suitable habitat occurs within the Biological Study Area. There are California Natural Diversity Database occurrence records for the western pond turtle in Pismo Creek and within ponds in the watershed. Presence of western pond turtle is inferred within the Biological Study Area.

### *Two-striped Garter Snake*

The two-striped garter snake (*Thamnophis hammondi*) is considered a Species of Special Concern by the California Department of Fish and Wildlife. It is a medium-sized garter snake with a variable dorsal coloration of olive, brown, or brownish gray, with a single yellow-orange lateral stripe on each side of the body.

This snake occurs mainly along Coast Range streams from Monterey south to Baja California. An extremely aquatic species, it uses water for both predation and escape from predators. Its habitat includes perennial and intermittent streams with rocky substrate bordered by dense vegetation. It is generally found near streams or stock ponds in the summer and occupies upland coastal sage scrub and grassy locations near its summer range in the winter.

During the day, the two-striped garter snake often basks on streamside rocks or densely vegetated stream banks. In milder areas, mammal burrows and surface objects such as rocks and rotting logs serve as winter refuges. The species has been found up to a mile from aquatic areas and can disperse across ridges. Females are live-bearing, with 4 to 36 young born in the summer.

No two-striped garter snakes were seen during surveys, but suitable habitat occurs within the Biological Study Area. The closest California Natural Diversity Database record of a two-striped garter snake is 13 miles south in the Oso Flaco Lake area. Though this is not in the watershed, it is evidence that the species is in the region. Presence of the two-striped garter snake is inferred within the Biological Study Area.

### *Birds*

Potential nesting habitat for bird species occurs in trees, shrubs, and under bridges within the Biological Study Area. The species listed in Table 2.3 are protected by the Migratory Bird Treaty Act and California Fish and Game Code Section 3503. In addition to these species, numerous other nesting bird species protected by these two regulatory laws have the potential to nest in habitat within the Biological Study Area.

Though American cliff swallow (*Petrochelidon pyrrhonota*) mud nests were not observed under the southbound on-ramp bridge at Price Street, stains from previous mud nests were found. Mud nests were present during surveys done in 2015 under other bridges in the Biological Study Area.

Common birds observed included the American crow (*Corvus brachyrhynchos*) and mallard duck (*Anas platyrhynchos*). A red-shouldered hawk (*Bureo lineatus*) was observed in a spider gum tree within the Biological Study Area on August 3, 2015, and a belted kingfisher (*Megaceryle alcyon*) was observed flying through the Biological Study Area on August 10, 2015.

### *Bats*

Several species of bats are currently listed as California State Species of Concern. Bridges and snags are commonly used as bat roosts.

The pallid bat (*Antrozous pallidus*) is considered a Species of Special Concern by the California Department of Fish and Wildlife. Pallid bats range over much of the western United States, from central Mexico to British Columbia. They are found throughout California, especially in lowland areas below 6,400 feet (elevation).

The western mastiff bat (*Eumops perotis californicus*) is considered a Species of Special Concern by the California Department of Fish and Wildlife. Mastiff bats range from the western United States and Mexico to South America and are the largest bat native to North America. They occur in many open semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, grasslands, and chaparral. They roost in crevices in cliff faces, high buildings, trees, and tunnels.

Concrete flat-bottom bridges, such as the southbound on-ramp bridge proposed for repairs by the project, do not provide an under-side geometry best for roosting bats; instead, cast-in-place concrete bridges with cavities and acute angles, such as the northbound off-ramp bridge, are preferred by many species of bats.

Based on a bat survey on September 9, 2015, it was found that a limited number of bats used the northbound off-ramp bridge for night roosting. It is unlikely these are pallid bats because pallid bats roost in large colonies of 30 to 150 individuals, and it is unlikely these are western mastiff bats because western mastiff bats do not regularly night roost.

## ***Environmental Consequences***

### ***Snails***

Project construction could result in the injury or death of the San Luis Obispo pyrg and mimic tryonia (if present) during diversion/dewatering to accommodate the bridge improvements. The potential need to capture and relocate these snail species could subject these animals to stresses (temporary removal from aquatic habitat, desiccation, and relocation to unfamiliar aquatic habitat) that could result in adverse effects. Injury or death could also occur via accidental crushing by worker foot-traffic or construction equipment. Potential for these impacts is expected to be low due to no observations of the species within the Biological Study Area during surveys and no nearby California Natural Diversity Database occurrences for the species.

### ***Western Pond Turtle and Two-striped Garter Snake***

Project construction could result in the injury or death of the western pond turtle or two-striped garter snake during diversion/dewatering. The potential need to capture and relocate these species would subject individuals to stresses that could result in adverse effects. Injury or death could occur via accidental crushing by worker foot-traffic or construction equipment. Erosion and sedimentation could also occur, which

would directly or indirectly affect water quality. Potential for these impacts is expected to be low due to no observations of the species within the Biological Study Area during surveys.

### ***Birds***

Removal of vegetation could directly affect active bird nests and any eggs or young residing in nests. Indirect impacts could also result from noise and disturbance associated with construction, which could alter perching, foraging, and/or nesting behaviors. While temporary loss of vegetation supporting potential nesting habitat would occur, this would be mitigated by habitat restoration. Implementation of avoidance and minimization measures such as appropriate timing of vegetation removal, pre-activity surveys, and exclusion zones would reduce the potential for adverse effects to nesting bird species.

### ***Bats***

Because the southbound off-ramp bridge has a flat bottom, showed no sign of roosting by bats, and resulted in surveys (dusk flight survey and acoustic survey) that detected no bats nearby, it is unlikely that bats would use the bridge for roosting. Evidence of night roosting bats was discovered on the northbound off-ramp bridge; box cavities with acute angles under that bridge make it suitable for roosting, but the northbound off-ramp bridge will not be affected by the project.

With implementation of the avoidance and minimization efforts, it is unlikely that night-roosting bats on the northbound off-ramp bridge would be displaced as a result of the project. But if bats were displaced, other bridges both upstream and downstream of the Biological Study Area provide suitable roosting habitat. The Bello Street Bridge and Union Pacific railroad trestle are both about 0.29 mile upstream. The Dolliver Street Bridge is 0.17 mile downstream, and the Cypress Street Bridge is 0.22 mile downstream.

No direct or indirect impacts to bats are anticipated from the project.

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

### ***Snails***

Recommended avoidance and minimization measures for the San Luis Obispo pyrg and mimic tryonia include the following:

1. During pre-construction surveys and/or during construction, if biologists observe any *Pyrgulopsis* spp. or *Tryonia* spp., the species will be relocated to suitable aquatic habitat outside of the area of impact.

### *Western Pond Turtle and Two-striped Garter Snake*

The following avoidance and minimization measure is recommended:

1. Prior to construction, a biologist determined qualified by Caltrans shall survey the Biological Study Area and capture and relocate, if present, any western pond turtles or two-striped garter snake to suitable habitat upstream of the Biological Study Area. Observations of Species of Special Concern or other special-status species shall be documented on California Natural Diversity Database forms and submitted to the California Department of Fish and Wildlife upon project completion. If western pond turtles or other Species of Special Concern aquatic species are observed during construction, they will likewise be relocated to suitable upstream habitat by a qualified biologist.

### *Birds*

The following measures apply to all birds protected by the Migratory Bird Treaty Act and California Fish and Game Code. The list of birds protected by these regulatory laws is extensive, and not all birds protected by these laws are included in Table 2.3. There are no formal survey protocols for most of these bird species, but the California Department of Fish and Wildlife typically requires pre-construction nesting bird surveys and avoidance of impacts to active bird nests.

1. Tree removal shall be scheduled to occur from September 2 to February 14, outside of the typical nesting bird season, to avoid potential impacts to nesting birds. If construction activities are proposed to occur within 100 feet of potential habitat during the nesting season (February 15 to August 31), a nesting bird survey shall be conducted by a biologist determined qualified by Caltrans no more than two weeks (14 days) prior to construction. If an active nest is found, Caltrans shall coordinate with the California Department of Fish and Wildlife to determine an appropriate buffer based on the habits and needs of the species. The buffer area shall be avoided until a qualified biologist has determined that juveniles have fledged and are no longer dependent on the nest.
2. Active bird nests shall not be disturbed, and eggs or young of birds covered by the Migratory Bird Treaty Act and California Fish and Game Code shall not be killed, destroyed, injured, or harassed at any time. Readily visible exclusion zones where nests must be avoided shall be established by a qualified biologist using Environmentally Sensitive Area fencing
3. It is recommended that bird nests be excluded from the existing bridge. Nesting bird exclusion methods may include installing exclusion netting,

removing/knocking down nests before they contain eggs, or other methods approved by the California Department of Fish and Wildlife. The proper time for installation of bird exclusion netting is outside of the typical nesting season (i.e., implement exclusion methods from September 1 to February 14).

4. During construction, active bird nests shall not be disturbed and eggs or young of birds covered by the Migratory Bird Treaty Act and California Fish and Game Code shall not be killed, destroyed, injured, or harassed at any time. Readily visible exclusion zones where nests must be avoided within 100 feet of disturbance shall be established by a qualified biologist using Environmentally Sensitive Area fencing. Work in exclusion zones shall be avoided until young birds have fledged (permanently left the nest) or the qualified biologist has determined that nesting activity has otherwise ceased.
5. Trees to be removed shall be noted on design plans. Prior to any ground-disturbing activities, Environmentally Sensitive Area fencing shall be installed around the drip line of trees to be protected within project limits.

### *Bats*

The following measure applies to all bats protected by the California Department of Fish and Wildlife or under the California Environmental Quality Act and is intended to avoid disturbance to night-roosting bats that may use the northbound off-ramp bridge within the Biological Study Area.

1. Construction will be limited to daylight hours between sunrise and sunset, as defined by the U.S. Naval Observatory (<http://www.usno.navy.mil/USNO/astronomical-applications>).

The following measures apply to all bats protected by the California Department of Fish and Wildlife or under the California Environmental Quality Act. There are no formal survey protocols for most of these bat species, but pre-construction roosting bat surveys and avoidance of impacts to active bat roosts shall be implemented.

2. Bridges within the Biological Study Area shall be surveyed for roosting bats by a qualified biologist within 10 days prior to construction. If roosting bats are present, exclusion devices shall be installed as soon as possible after the bats have left the roost and those exclusion devices shall remain during the entire period of work activities.
3. Exclusion devices shall be placed over potential roosting sites within the Biological Study Area between September 1 and March 31.

4. Bat exclusion devices shall conform to the following materials and provisions:
  - a. Netting shall be a flexible, light-weight polypropylene fabric with a maximum mesh opening of 4.2 mm x 4.2 mm. Mesh fabric shall be furnished in one continuous width and shall not be spliced to conform to the specified width dimension.
  - b. Caulking to attach netting to the bridge shall be 100% silicone.
  - c. Vertical one-way exit tubes shall be 50 mm in diameter and 254 mm in length. Tube material shall be PVC or smooth-walled, flexible, plastic tubing.
  - d. Installation of bat exclusion devices shall be installed at the sides of bridges joints or hinges; netting shall be secured to the bridge along the top and sides of the opening. The netting should extend 460 mm to 610 mm below the bottom edge of the opening. At expansion joints and hinge joints, netting and vertical one-way exit tubes shall be placed as shown on the plans. Tubes shall be placed every 1.2 meters along the length of each joint. One-way exit tubes shall be inserted 6.5 mm into the joints.
  - e. When bat exclusion devices are no longer required, as determined by the engineer, the bat exclusion devices shall become the property of the contractor and shall be removed and disposed of in conformance with the provisions in Section 7-1.13, "Disposal of Material outside the Highway Right of Way," of the Standard Specifications.
  - f. Bat exclusion devices that are damaged during the progress of the work shall be repaired or replaced by the contractor the same day the damage occurs.

#### **2.3.4 Threatened and Endangered Species**

##### ***Regulatory Setting***

The main federal law protecting threatened and endangered species is the Federal Endangered Species Act: 16 U.S. Code Section 1531, et seq. See also 50 Code of Federal Regulations Part 402. This act and later amendments provide for the conservation of endangered and threatened species and the ecosystems upon which they depend. Under Section 7 of the act, federal agencies, such as the Federal Highway Administration, are required to consult with the U.S. Fish and Wildlife

Service and National Oceanic and Atmospheric Administration's National Marine Fisheries Service to ensure that they are not undertaking, funding, permitting, or authorizing actions likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat. Critical habitat is defined as geographic locations critical to the existence of a threatened or endangered species. The outcome of consultation under Section 7 may include a Biological Opinion with an Incidental Take statement, a Letter of Concurrence and/or documentation of a No Effect finding. Section 3 of Federal Endangered Species Act 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, California Fish and Game Code Section 2050, et seq. The California Endangered Species Act 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 is the agency responsible for implementing the California Endangered Species Act. Section 2081 of the Fish and Game Code prohibits "take" of any species determined to be an endangered species or a threatened species. Take is defined in Section 86 of the Fish and Game Code as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill."

The California Endangered Species Act allows for take incidental to otherwise lawful development projects; for these actions, an incidental take permit is issued by the California Department of Fish and Wildlife. For species listed under both the Federal Endangered Species Act and California Endangered Species Act requiring a Biological Opinion under Section 7 of the Federal Endangered Species Act, the California Department of Fish and Wildlife may also authorize impacts to California Endangered Species Act 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 following information came from the Natural Environmental Study (August 2015) prepared for the project.

Three federally listed animal species have the potential to occur within the project footprint: tidewater goby, South-Central California Coast Steelhead, and California red-legged frog.

Section 7 consultation with U.S. Fish and Wildlife Service will be necessary for potential impacts to the tidewater goby, tidewater goby critical habitat, and California red-legged frog. Consultation with the National Marine Fisheries Service will be necessary for potential impacts to the South-Central California Coast Steelhead and South-Central California Coast Steelhead critical habitat.

The project is anticipated to qualify for programmatic concurrence for the California red-legged frog for the purposes of U.S. Fish and Wildlife Service formal consultation (U.S. Fish and Wildlife Service 2011). Biological Assessments will be submitted to the U.S. Fish and Wildlife Service for the tidewater goby and the National Marine Fisheries Service for the South-Central California Coast Steelhead.

#### ***Tidewater Goby***

The tidewater goby (*Eucyclogobius newberryi*) is a small (rarely more than 2 inches long), gray-brown, euryhaline (salt-tolerant) fish. It is a federally endangered species and considered a California Species of Special Concern by California Department of Fish and Wildlife. The species is endemic to coastal lagoons, estuaries, and backwater marshes of California; very few tidewater goby have ever been captured in the marine environment, and this species rarely occurs in the open ocean. It historically occurred in at least 87 California coastal lagoons from San Diego County to Humboldt County, but has disappeared from most of these sites. Many populations are isolated along the California coast by open ocean and are subject to intermittent absences; populations with other nearby populations are able to be recolonized.

Though no tidewater gobies were seen in Pismo Creek during surveys in 2014 and 2015, no protocol surveys were conducted. According to the California Natural Diversity Database (2015), tidewater gobies have been collected during surveys along Pismo Creek since 1977, with the most recent record being from 2008 when gobies were reported as “common.” Tidewater gobies were present during surveys in 1996.

The Biological Study Area at Pismo Creek is about 0.8 mile upstream from the Pacific Ocean. Pismo Creek may be periodically occupied by the tidewater goby; based on the information provided above, presence is inferred.

Federally designated critical habitat for the tidewater goby occurs in the Biological Study Area at Pismo Creek. Tidewater goby critical habitat unit SLO-11 is found in lower Pismo Creek, and a 0.32 percent portion is in the Biological Study Area.

### *South-Central California Coast Steelhead*

South-Central California Coast Steelhead (*Oncorhynchus mykiss irideus*) is the anadromous (ocean-going) form of rainbow. Adults spawn in freshwater, and juveniles' rear in freshwater before out-migrating to the ocean to mature, and then returning to freshwater as adults to reproduce. Steelheads historically ranged from Alaska southward to the California-Mexico border and were the only abundant salmonid species that occurred naturally within the Coast Ranges of Southern California.

Between the initial listing in 1997 and a subsequent re-listing in 2006, the National Marine Fisheries Service adopted the “distinct population segment” (DPS) designation for South-Central California Coast Steelhead to replace the evolutionarily significant unit (ESU) designation to be consistent with the listing policies and practices of the U.S. Fish and Wildlife Service. The South-Central California Coast Steelhead distinct population segment is found from the Pajaro River (Monterey County) south to (but not including) the Santa Maria River (San Luis Obispo County).

Though no intensive survey methods (seine-netting or dip-netting) were used and no South-Central California Coast Steelhead was observed, Pismo Creek is known to support South-Central California Coast Steelhead and/or its critical habitat. Staff from the California Department of Fish and Wildlife observed young-of-the-year and age 1-plus and 2-plus South-Central California Coast Steelhead throughout the main stem of Pismo Creek in 2005, and sampling in the Pismo Creek lagoon in May 2005 produced one “smolt-sized steelhead”.

The Pismo Creek Biological Study Area was found to support South-Central California Coast Steelhead. Therefore South-Central California Coast Steelhead presence along Pismo Creek is inferred within the project Biological Study Area.

### Fish Passage

A Caltrans Fish Passage Analysis completed in August 2015 for the project has determined that there are no known fish passage barriers within the Biological Study Area. However, a fish-way near the railroad crossing over Pismo Creek, about 4 miles upstream of the Biological Study Area, is recognized as a fish passage barrier according to the California Fish Passage Assessment Database (CFPAD 2013) and California Department of Fish and Wildlife. This fish-way is regularly clogged by

debris, but efforts are underway to improve passage at the site. Excessive sedimentation, water withdrawals, as well as water quality issues, may limit the population of South-Central California Coast Steelhead in Pismo Creek. Analysis determined the existing bridge and concrete-lined channel do not negatively affect fish passage conditions, and the proposed project will maintain existing fish passage characteristics.

### ***California Red-legged Frog***

The California red-legged frog (*Rana draytonii*) is federally threatened and considered a Species of Special Concern by the California Department of Fish and Wildlife. It is recognized by the reddish color that forms on the underside of its legs and belly and the presence of a fold going across its back and sides. The California red-legged frog historically ranged from Marin County southward to northern Baja California; now, Monterey, San Luis Obispo, and Santa Barbara counties support the largest remaining California red-legged populations in California.

California red-legged frogs use a variety of areas, including aquatic, riparian, and upland habitats. They prefer aquatic habitats with little or no flow, the presence of surface water to at least early June, surface water depths to at least 2.3 feet, and the presence of sturdy underwater supports such as cattails. The largest densities of this species are associated with dense stands of overhanging willows and sturdy emergent vegetation. The California red-legged frog typically breeds from January to July, with peak breeding occurring in February and March. Softball-sized egg masses are attached to subsurface vegetation, and hatched tadpoles require 11 to 20 weeks to metamorphose. Metamorphosis typically occurs from July to September.

No protocol surveys were done for the California red-legged frog, and the species was not observed during reconnaissance surveys. Suitable in-stream aquatic habitat is present in the Biological Study Area but is of low quality, with minimal emergent vegetation or overhanging riparian vegetation for cover. Based on this information, presence within the Biological Study Area is inferred.

## ***Environmental Consequences***

### ***Tidewater Goby***

The bridge improvements will require stream diversion/dewatering, which could temporarily alter the quality of aquatic habitat and result in a temporary loss of service for tidewater goby. Diversion/dewatering and construction in aquatic areas inhabited by the tidewater goby could result in direct impacts to the species in the form of injury or death as tidewater goby stranded in residual wetted areas are captured, handled, and relocated. Erosion and sedimentation could also occur, which could directly or indirectly affect water quality for the tidewater goby.

The Federal Endangered Species Act Section 7 effects determination is that the proposed project may affect, and is likely to adversely affect, the tidewater goby. The basis for this determination is that presence has been inferred and there would be a potential for take of the species.

Based on the disturbance footprint of the area of potential impact, estimated permanent and temporary impacts to federally designated critical habitat for the tidewater goby include about 2,792 square feet (0.064 acre) of temporary impacts. No permanent impacts to tidewater goby critical habitat would occur as a result of the project.

On June 30, 2016, the U.S. Fish and Wildlife service issued a Biological Opinion that the project, as proposed, is not likely to jeopardize the continued existence of tidewater goby and permanent adverse effects to tidewater goby critical habitat are not anticipated. The Biological Opinion included an Incidental Take Statement.

### *South-Central California Coast Steelhead*

#### Construction Impacts to Fish Passage

Stream diversion/dewatering will be necessary to construct the proposed project. This process will temporarily alter the quality of aquatic habitat and result in a temporary loss of service for the South-Central California Coast Steelhead and other aquatic organisms.

Removal of vegetation to allow construction equipment access into the stream channels to do work could affect shading and microhabitat temperature regulation, but these effects would be temporary because removed vegetation would be replaced by in-kind re-plantings. Diversion/dewatering and construction in aquatic areas inhabited by South-Central California Coast Steelhead could result in direct impacts to the species in the form of injury or death as South-Central California Coast Steelhead stranded in residual wetted areas are captured, handled, and relocated. Erosion and sedimentation could also occur, which could directly or indirectly affect water quality for South-Central California Coast Steelhead.

While placement of cofferdams and dewatering would result in a temporary loss of service for South-Central California Coast Steelhead, the extent and effect of this are estimated to be minor in an area of about 11,103 square feet (0.255 acre) or 273 linear feet of Pismo Creek. The diversion/dewatering and eventual dismantling and restoration of normal flows could also produce direct or indirect effects that could

affect the structure of the streambed. These impacts would be temporary and rectified once pre-construction stream flow conditions are restored.

### Hydro-acoustic Impacts During Construction

Construction of the concrete slope paving on the creek embankments require sheet piling at the toe of the slope to hold the paving in place (see Figures 1-5 and 1-6). Installation of sheet piles can be disruptive to fish habitats. Unless mitigated, elevated sound levels generated by impact-hammer pile driving can affect the behavior and physical health of fish. The type and magnitude of these effects depend on the mass of the fish, anatomy of the fish, decibel level of pile driving, and location of the fish in relation to pile driving.

Pile driving proposed by the project would use vibration to initially sink the piles, then impact hammering would be used to achieve the total load resistance required. Pismo Creek would be dewatered at the time of pile driving (refer to Section 2.4 Construction Impacts; In-stream diversion and dewatering). Cofferdams<sup>3</sup> that have been completely dewatered substantially reduce underwater pile driving sound; this is the best sound isolation that can be provided. Peak sound levels can be substantially less with vibratory hammers than those produced by impact hammers. To minimize impacts to fish, vibratory pile driving would be used as much as possible. Sheet piles would require vibratory driving only.

Interim thresholds established by the National Marine Fisheries Service for hydro-acoustic impacts from impact hammer-driven piles are 206 decibels for the peak sound pressure and 187 decibels of cumulative Sound Exposure Level for fish weighing over 2 grams. For fish under 2 grams, 183 decibels of cumulative Sound Exposure Level is the impact threshold; the peak sound pressure threshold remains the same regardless of fish size.

A hydro-acoustic analysis of pile driving sound levels was conducted. In addition, the National Marine Fisheries Service Pile Driving Calculator for assessing the potential effect to fishes exposed to elevated sound levels was used to estimate the potential hydro-acoustic effects of the project. As a result of the analysis, the maximum number of piles strikes will be limited to no more than 300 pile strikes per day (for

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<sup>3</sup> A **cofferdam** is a temporary enclosure built within, or in pairs across, a body of water and constructed to allow the enclosed area to be pumped out, creating a dry work environment for the major work to proceed. Enclosed cofferdams are commonly used for construction and repair of bridge piers and other support structures built within or over water. Cofferdams are usually welded steel structures, such as sheet piles that are typically dismantled after the ultimate work is completed. Cofferdams are usually built, one upstream and one downstream of the proposed project area, after an alternative diversion tunnel or channel has been provided for the river flow to bypass the project's foundation area. Typically, upon completion of the dam and associated structures, the downstream coffer is removed and the upstream coffer is flooded as the diversion is closed and the reservoir begins to fill.

more information, refer to the Natural Environmental Study, Appendix G, National Marine Fisheries Service Pile Driving Calculator).

#### South-Central California Coast Steelhead Impacts Conclusion

The Federal Endangered Species Act Section 7 effects determination is that the project may affect, and is likely to adversely affect, the South-Central California Coast Steelhead. The basis for this determination is that South-Central California Coast Steelhead presence has been inferred, and there would be a considerable potential for take of the species during diversion/dewatering activities and pile driving to allow for the proposed bridge improvements.

Based on the disturbance footprint of the area of potential impact at Pismo Creek, estimated permanent and temporary impacts to federally designated critical habitat for South-Central California Coast Steelhead have been quantified in Table 2.2 and include less than 0.001 acre of permanent impacts and 0.255 acre of temporary impacts.

There are 13.7 total miles of South-Central California Coast Steelhead critical habitat designated along Pismo Creek. Permanent impacts from installation of two cast-in-steel-shell piles would be 16 square feet of this critical habitat and equates to less than 0.000083 percent of the South-Central California Coast Steelhead critical habitat designated for Pismo Creek. When considered in context with the amount of South-Central California Coast Steelhead critical habitat at Pismo Creek, this permanent impact to critical habitat is essentially zero. As this is combined with the total amount of South-Central California Coast Steelhead critical habitat that would be temporarily affected, these impacts represent less than 0.38 percent of the total amount of critical habitat designated at Pismo Creek. The Federal Endangered Species Act Section 7 effect determination is that the proposed project may affect, but is not likely to adversely affect, South-Central California Coast Steelhead critical habitat.

On April 8, 2016, the National Marine Fisheries Service issued a Biological Opinion that the project, as proposed, is not likely to jeopardize the continued existence of South-Central California Coast Steelhead and permanent adverse effects to steelhead critical habitat are not anticipated. The Biological Opinion included an Incidental Take Statement.

#### *California Red-legged Frog*

Project construction could result in the injury or death of California red-legged frogs (if present) during diversion/dewatering of Pismo Creek. The potential need to capture and relocate California red-legged frogs could subject these animals to stresses that could result in adverse effects. Injury or death could occur via accidental crushing by worker foot traffic or construction equipment. Erosion and sedimentation

could also occur, which could directly or indirectly affect water quality. An unknown number of California red-legged frogs could be subjected to take, but the potential for these impacts is expected to be low because no frogs were found in the Biological Study Area during surveys. This could change through time, where habitat conditions and/or California red-legged frog numbers fluctuate.

The Federal Endangered Species Act Section 7 effects determination is that the proposed project may affect, and is likely to adversely affect, the California red-legged frog. The basis for this determination is that California red-legged frog presence has been inferred and there would be potential for take of the species during construction. The avoidance and minimization measures below are the relevant Programmatic Biological Opinion measures to qualify a project for programmatic concurrence for the purposes of U.S. Fish and Wildlife Service formal consultation (U.S. Fish and Wildlife Service 2011).

On June 30, 2016, the U.S. Fish and Wildlife Service issued a statement that the proposed project satisfies all criteria for Federal Endangered Species Act incidental take coverage under the Programmatic Biological Opinion for Projects Funded or Approve under the Federal Highway Administration's Federal Aid Program (U.S. Fish and Wildlife Service 2011). The U.S. Fish and Wildlife Service concurred with Caltrans Section 7 determination that the project may adversely affect California red-legged frog.

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

#### ***Tidewater Goby***

In addition to the previously proposed measures, the following measures, including several adapted from U.S. Fish and Wildlife Service (R., Farris, personal communication, 2013), will serve to further avoid or minimize impacts to the tidewater goby within the area of potential Impact:

1. Prior to construction, Caltrans shall acquire incidental take authorization for the tidewater goby from the U.S. Fish and Wildlife Service through a Federal Endangered Species Act Section 7 Biological Opinion and Incidental Take Statement.
2. Prior to initiation of stream diversion/dewatering, a qualified biologist shall conduct an informal worker environmental training program, including a description of tidewater goby, its legal/protected status, proximity to the project site, avoidance/minimization measures to be implemented during the project, and the implications of violating Federal Endangered Species Act and permit conditions.

3. Dewatering shall be limited to the low-flow period between June 1 and October 31, thus avoiding storm events that may compromise the cofferdams and water diversion.
4. Prior to initiation of stream diversion/dewatering and before the cofferdams are installed, a U.S. Fish and Wildlife Service-approved biologist(s) shall install 0.125-inch (3.18-mm) block nets outside of the Area of Potential and across the stream, at minimum of 20 feet (6.1 meters) above and below the locations proposed for the cofferdams. The nets shall be installed on the first day of work and monitored thereafter for the duration of the work.
5. Once the block nets are secured, the U.S. Fish and Wildlife Service-approved biologist(s) shall remove as many tidewater gobies as feasible between the block nets using a 0.125-inch (3.18-mm) seine and dip nets, and relocate tidewater gobies to suitable habitat downstream of the proposed project site.
6. All tidewater goby relocation methods shall use a clean bucket partially filled with creek water that was collected within or adjacent to the capture site. Water in the bucket shall maintain the same temperature as water at the capture site and not contain turbidity greater than current conditions in the creek. Captured tidewater gobies shall be placed in the bucket, immediately relocated to suitable habitat downstream, and released. Should the relocation of tidewater gobies require more than 10 minutes from capture to release, the bucket containing tidewater gobies must be placed in the creek to keep the water from heating and harming tidewater gobies contained in the bucket.
7. Once as many tidewater gobies are removed from the block net enclosure as is feasible, the cofferdams maybe installed within the block net enclosure.
8. Before dewatering occurs, any pumps being used shall be fitted with intake screens no larger than 0.094 inch (2.38 mm) wire mesh to prevent tidewater gobies and other sensitive aquatic species from entering the pump system. Pumps shall release the additional water to a settling basin allowing the suspended sediment to settle out prior to re-entering the creek outside of the isolated area.
9. Because tidewater gobies often reside on the bottom, the pump intake shall be floated near the water surface as long as possible to prevent tidewater gobies from being entrapped on the screen. This can be accomplished with a weight on the intake nozzle (to keep it below the water surface), and a float attached to the hose just above the intake nozzle, that keeps the intake nozzle from

going all the way to the bottom. As dewatering proceeds, the U.S. Fish and Wildlife Service-approved biologist(s) shall remove by hand, dip net, or seine all tidewater gobies found and relocate them to suitable habitat downstream of the proposed project site.

10. A U.S. Fish and Wildlife Service-approved biologist shall remain onsite and observe for tidewater gobies and turbidity levels within the work areas during all creek dewatering activities, and shall capture and relocate tidewater gobies to suitable habitat (downstream) as necessary.
11. Caltrans shall provide the U.S. Fish and Wildlife Service a written summary of work performed (including biological survey and monitoring results), Best Management Practices implemented (i.e., use of biological monitor, flagging of project areas, erosion and sedimentation controls) and supporting photographs. Furthermore, the documentation describing listed species surveys and relocation efforts (if appropriate) shall include name(s) of the U.S. Fish and Wildlife Service-approved biologist(s), location and description of area surveyed, time and date of survey, all survey methods used, a list and tally of all sensitive animal species observed during the survey, a description of the instructions/ recommendations given to the applicant during the project, and a detailed discussion of capture and relocation efforts (if appropriate).
12. When driving piles, the contractor shall limit the number of daily strikes to no more than 300 to avoid physical impacts to tidewater gobies from underwater sound exposure, based on results of the hydroacoustic analysis (Section 4.1.1.4.; Appendix F).

#### *South-Central California Coast Steelhead*

The Caltrans Fish Passage Analysis prepared in August 2015 for the proposed project has determined that there are no known fish passage barriers within the Biological Study Area. The analysis determined that the existing bridge, piers, and concrete-lined channel do not negatively affect fish passage conditions. The Fish Passage Analysis concluded that the proposed project will maintain existing fish passage characteristics and that the proposed project would meet fish passage criteria in accordance with the National Marine Fisheries Service “Guidelines for Salmonid Passage at Stream Crossings” (National Marine Fisheries Service 2001).

In addition to the previously proposed measures, the following measures will serve to avoid or minimize impacts to the South-Central California Coast Steelhead within the area of potential impact:

1. Prior to construction, Caltrans shall acquire incidental take authorization for South-Central California Coast Steelhead from the National Marine Fisheries Service through a Federal Endangered Species Act Section 7 Biological Opinion and Incidental Take Statement.
2. Prior to initiation of stream diversion/dewatering, a qualified biologist shall conduct an informal worker environmental training program including a description of South-Central California Coast Steelhead, its legal/protected status, proximity to the project site, avoidance/minimization measures to be implemented during the project, and the implications of violating Federal Endangered Species Act and permit conditions.
3. During in-stream work, a National Marine Fisheries Service-approved biologist shall be retained with experience in South-Central California Coast Steelhead biology and ecology, aquatic habitats, biological monitoring (including diversion/dewatering), and capturing, handling, and relocating fish species. During in-stream work, the biological monitor(s) shall continuously monitor placement and removal of any required stream diversions to capture stranded South-Central California Coast Steelhead and other native fish species and relocate them to suitable habitat as appropriate. The biologist(s) shall capture (e.g., by hand, dip-net, seine-net, etc.) South-Central California Coast Steelhead stranded as a result of diversion/dewatering and relocate South-Central California Coast Steelhead to suitable in-stream habitat immediately downstream of the work area. The biologist shall note the number of South-Central California Coast Steelhead observed in the affected area, the number of South-Central California Coast Steelhead relocated, and the date and time of the collection and relocation.
4. During in-stream work, if pumps are incorporated to assist in temporarily dewatering the site, intakes shall be completely screened with no larger than 0.094-inch (2.38-mm) wire mesh to prevent South-Central California Coast Steelhead and other sensitive aquatic species from entering the pump system. Pumps shall release the additional water to a settling basin allowing the suspended sediment to settle out prior to re-entering the stream(s) outside of the isolated area. The form and function of all pumps used during the dewatering activities shall be checked daily, at a minimum, by a qualified biological monitor to ensure a dry work environment and minimize adverse effects to aquatic species and habitats.
5. The biological monitor shall monitor erosion and sediment controls to identify and correct any conditions that could adversely affect South-Central

California Coast Steelhead or South-Central California Coast Steelhead habitat. The biological monitor shall be granted the authority to halt work activity as necessary and to recommend measures to avoid/minimize adverse effects to South-Central California Coast Steelhead and South-Central California Coast Steelhead habitat.

6. Dewatering and pile driving with impact hammers shall be limited to the low-flow period between June 1 and October 31, thus avoiding adult South-Central California Coast Steelhead spawning migration and peak smolt emigration.
7. When driving piles, the contractor shall limit the number of daily strikes to no more than 300, based on results of the hydroacoustic analysis conducted for the project.
8. During pile driving, underwater sound levels shall be monitored within 2 feet of the downstream coffer dam, with a hydrophone, to verify that sound levels remain below the NMFS defined level considered harmful to fish under 2 grams (206 decibels of peak sound pressure and 183 decibels of cumulative sound exposure level).
9. Sound attenuating devices shall be utilized if possible.
10. Caltrans shall provide the National Marine Fisheries Service a written summary of work performed (including biological survey and monitoring results), Best Management Practices implemented (i.e., use of biological monitor, flagging of project areas, erosion and sedimentation controls) and supporting photographs. Furthermore, the documentation describing listed species surveys and relocation efforts (if appropriate) shall include name(s) of the Caltrans-approved biologist(s), location and description of area surveyed, time and date of survey, all survey methods used, a list and tally of all sensitive animal species observed during the survey, a description of the instructions/recommendations given to the applicant during the project, and a detailed discussion of capture and relocation efforts (if appropriate).

### *California Red-Legged Frog*

On June 30, 2016, the U.S. Fish and Wildlife Service issued a statement that the proposed project satisfies all criteria for Federal Endangered Species Act incidental take coverage under the Programmatic Biological Opinion for Projects Funded or Approved under the Federal Highway Administration's Federal Aid Program (U.S. Fish and Wildlife Service 2011). The U.S. Fish and Wildlife Service concurred with the Caltrans Section 7 determination that the project may adversely affect California

red-legged frog and that Caltrans must implement the following avoidance and minimization measures:

1. Only U.S. Fish and Wildlife Service-approved biologists shall participate in activities associated with the capture, handling, and monitoring of California red-legged frogs.
2. Ground disturbance shall not begin until written approval is received from the U.S. Fish and Wildlife Service that the biologist is qualified to conduct the work.
3. A U.S. Fish and Wildlife Service-approved biologist shall survey the project area no more than 48 hours before the onset of work activities. If any life stage of the California red-legged frog is found and these individuals are likely to be killed or injured by work activities, the approved biologist shall be allowed sufficient time to move them from the site before work begins. The U.S. Fish and Wildlife Service-approved biologist shall relocate the California red-legged frogs the shortest distance possible to a location that contains suitable habitat and will not be affected by the activities associated with the project. The relocation site shall be in the same drainage to the extent practicable. Caltrans shall coordinate with the U.S. Fish and Wildlife Service on the relocation site prior to the capture of any California red-legged frogs.
4. Before any activities begin on a project, a U.S. Fish and Wildlife Service-approved biologist shall conduct a training session for all construction personnel. At a minimum, the training shall include a description of the California red-legged frog and its habitat, the specific measures that are being implemented to conserve the California red-legged frog for the current project, and the boundaries within which the project may be accomplished. Brochures, books, and briefings may be used in the training session, provided that a qualified person is on hand to answer any questions.
5. A U.S. Fish and Wildlife Service-approved biologist shall be present at the work site until all California red-legged frogs have been removed, workers have been instructed, and disturbance of the habitat has been completed. After this time, Caltrans shall designate a person to monitor onsite compliance with all minimization measures. The U.S. Fish and Wildlife Service-approved biologist shall ensure that this monitor receives the training outlined in the bullet above and in the identification of California red-legged frogs. If the monitor or the U.S. Fish and Wildlife Service-approved biologist recommend that work be stopped because California red-legged frogs would be affected in

a manner not anticipated by Caltrans and U.S. Fish and Wildlife Service during review of the proposed action, he or she shall notify the resident engineer immediately. The resident engineer shall resolve the situation by requiring that all actions that are causing these effects be halted. When work is stopped, the U.S. Fish and Wildlife Service shall be notified as soon as possible.

6. During project activities, all trash that may attract predators or scavengers shall be properly contained, removed from the work site, and disposed of regularly. Following construction, all trash and construction debris shall be removed from work areas.
7. All refueling, maintenance and staging of equipment and vehicles shall occur at least 60 feet from the riparian habitat or water bodies and not in a location from where a spill would drain directly toward aquatic habitat. The monitor shall ensure contamination of habitat does not occur during such operations. Prior to the onset of work, Caltrans shall ensure that a plan is in place for prompt and effective response to any accidental spills. All workers shall be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.
8. Habitat contours shall be returned to a natural configuration at the end of the project activities. This measure shall be implemented in all areas disturbed by activities associated with the project, unless U.S. Fish and Wildlife Service and Caltrans determine that it is not feasible or modification of original contours would benefit the California red-legged frog.
9. The number of access routes, size of staging areas, and the total area of activity shall be limited to the minimum necessary to achieve the project. Environmentally Sensitive Areas shall be established to confine access routes and construction areas to the minimum area necessary to complete construction, and minimize the impact to California red-legged frog habitat; this goal includes locating access routes and construction areas outside of wetlands and riparian areas to the maximum extent practicable.
10. Caltrans shall attempt to schedule work for times of the year when impacts to the California red-legged frog would be minimal. For example, work that would affect large pools that may support breeding would be avoided, to the maximum degree practicable, during the breeding season (November through May). Isolated pools that are important to maintain California red-legged frogs through the driest portions of the year would be avoided, to the

maximum degree practicable, during the late summer and early fall. Habitat assessments, surveys, and technical assistance between Caltrans and the U.S. Fish and Wildlife Service during project planning shall be used to assist in scheduling work activities to avoid sensitive habitats during key times of year.

11. To control sedimentation during and after project completion, Caltrans shall implement Best Management Practices outlined in any authorizations or permits, issued under the authorities of the Clean Water Act received for the project. If Best Management Practices are ineffective, Caltrans shall attempt to remedy the situation immediately, in coordination with the U.S. Fish and Wildlife Service.
12. If a work site is to be temporarily dewatered by pumping, intakes shall be completely screened with wire mesh not larger than 0.092 inch (2.38 mm) to prevent California red-legged frogs from entering the pump system. Water shall be released or pumped downstream at an appropriate rate to maintain downstream flows during construction. Upon completion of construction activities, any diversions or barriers to flow shall be removed in a manner that would allow flow to resume with the least disturbance to the substrate. Alteration of the streambed shall be minimized to the maximum extent possible; any imported material shall be removed from the streambed upon completion of the project.
13. Unless approved by the U.S. Fish and Wildlife Service, water shall not be impounded in a manner that may attract California red-legged frogs.
14. A U.S. Fish and Wildlife Service-approved biologist shall permanently remove any individuals of exotic species, such as bullfrogs, signal and red swamp crayfish, centrarchid fishes (crappies, black bass, bluegills, etc.), and catfish from the project area, to the maximum extent possible. The U.S. Fish and Wildlife Service-approved biologist shall be responsible for ensuring his or her activities are in compliance with the California Fish and Wildlife Code.
15. If Caltrans demonstrates that disturbed areas have been restored to conditions that allow them to function as habitat for the California red-legged frog, these areas will not be included in the amount of total habitat permanently disturbed.
16. To ensure that diseases are not conveyed between work sites by the U.S. Fish and Wildlife Service-approved biologist, the fieldwork code of practice

developed by the Declining Amphibian Task Force shall be followed at all times.

17. Project sites shall be revegetated with an assemblage of native riparian, wetland, and upland vegetation suitable for the area. Locally collected plant materials shall be used to the extent practicable. Invasive, exotic plants shall be controlled to the maximum extent practicable. This measure shall be implemented in all areas disturbed by activities associated with the project, unless the U.S. Fish and Wildlife Service and Caltrans determine that it is not feasible or practical.
18. Caltrans shall not use herbicides as the primary method to control invasive, exotic plants. However, if it is determined that the use of herbicides is the only feasible method for controlling invasive plants at a specific project site, the following additional protective measures will be implemented for the California red-legged frog:
  - a. Caltrans shall not use herbicides during the breeding season for the California red-legged frog.
  - b. Caltrans shall conduct surveys for the California red-legged frog immediately prior to the start of herbicide use. If found, California red-legged frogs shall be relocated to suitable habitat far enough from the project area that no direct contact with herbicide would occur.
  - c. Giant reed and other invasive plants shall be cut and hauled out by hand and painted with glyphosate-based products, such as Aquamaster® or Rodeo®.
  - d. Licensed and experienced Caltrans staff or a licensed and experienced contractor shall use a hand-held sprayer for foliar application of Aquamaster® or Rodeo® where large monoculture stands occur at an individual project site.
  - e. All precautions shall be taken to ensure that no herbicide is applied to native vegetation.
  - f. Herbicides shall not be applied on or near open water surfaces (no closer than 60 feet from open water).
  - g. Foliar applications of herbicide shall not occur when wind speeds are in excess of 3 miles per hour.

- h. No herbicides shall be applied within 24 hours of forecasted rain.
- i. Application of all herbicides shall be done by qualified Caltrans staff or contractors to ensure that overspray is minimized, that all application is made in accordance with the label recommendations, and with implementation of all required and reasonable safety measures. A safe dye shall be added to the mixture to visually denote treated sites. Application of herbicides shall be consistent with the U.S. Environmental Protection Agency's Office of Pesticide Programs, Endangered Species Protection Program county bulletins.
- j. All herbicides, fuels, lubricants, and equipment shall be stored, poured, or refilled at least 60 feet from riparian habitat or water bodies in a location where a spill would not drain directly toward aquatic habitat. Prior to the onset of work, Caltrans shall ensure that a plan is in place for a prompt and effective response to accidental spills. All workers shall be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.
- k. Upon completion of the project, Caltrans shall ensure that a Project Completion Report is completed and provided to the U.S. Fish and Wildlife Service, following the template provided with the Programmatic Biological Opinion. Caltrans shall include recommended modifications of the protective measures if alternative measures would facilitate compliance with the provisions of this consultation.

### **2.3.5 Invasive Species**

#### ***Regulatory Setting***

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

### **Affected Environment**

A total of 15 invasive plant species identified by the online California Invasive Plant Council Database (Cal-IPC 2015) were observed within the Biological Study Area (see Table 2.4).

**Table 2.4 Invasive Plants Observed in the Area of Potential Impact**

<b>Scientific Name</b>	<b>Common Name</b>	<b>Cal-IPC Invasiveness Rating</b>	<b>Relative Density within the BSA</b>
<i>Avena barbata</i>	slender wild oat	Moderate	Low/Moderate
<i>Avena fatua</i>	common wild oat	Moderate	Low/Sparse
<i>Brassica nigra</i>	black mustard	Moderate	Low/Sparse
<i>Bromus diandrus</i>	ripgut brome	Moderate	Moderate
<i>Bromus hordeaceus</i>	soft chess brome	Limited	Low/Sparse
<i>Bromus madritensis</i> ssp. <i>rubens</i>	red brome	High	Low/Sparse
<i>Carduus pycnocephalus</i>	Italian thistle	Moderate	Moderate
<i>Carpobrotus chilensis</i>	sea fig	Moderate	Low/Sparse
<i>Conium maculatum</i>	poison hemlock	Moderate	Moderate
<i>Cortaderia jubata</i>	pampas grass	High	Low
<i>Festuca perennis</i>	Italian ryegrass	Moderate	Low/Sparse
<i>Foeniculum vulgare</i>	fennel	High	Low/Sparse
<i>Hordeum murinum</i>	foxtail barley	Moderate	Low/Sparse
<i>Nicotiana glauca</i>	tree tobacco	Moderate	Low
<i>Polypogon monspeliensis</i>	rabbitsfoot grass	Limited	Low

Three exotic plant species with an invasiveness rating of “High” were observed in the Biological Study Area: pampas grass (*Cortaderia jubata*), red brome (*Bromus madritensis* ssp. *rubens*), and fennel (*Foeniculum vulgare*). A total of 10 plant species were observed within the Biological Study Area with a Cal-IPC invasiveness rating of “Moderate,” and two species were observed with an invasiveness rating of “Limited.” The distribution of these invasive plant species is mainly along the banks of Pismo Creek within the Biological Study Area.

### **Environmental Consequences**

Ground disturbance and other aspects of project construction (e.g., erosion control, landscaping) could potentially spread or introduce invasive species within the Biological Study Area. As noted in Chapter 3, the distribution of these invasive plant species is mainly along the banks of Pismo Creek in the Biological Study Area.

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

The following avoidance and minimization measures are recommended:

1. During construction, Caltrans will ensure that the spread or introduction of invasive exotic plant species will be avoided to the maximum extent possible.
2. Only clean fill shall be imported. When practicable, invasive exotic plants in the project site shall be removed and properly disposed. All vegetation removed from the construction site shall be taken to a certified landfill to prevent the spread of invasive species. If soil from weedy areas must be removed offsite, the top 6 inches containing the seed layer in areas with weedy species shall be disposed of at a certified landfill. Inclusion of any species that occurs on the Cal-IPC Invasive Plant Inventory in the Caltrans erosion control seed mix or landscaping plans for the project shall be avoided.
3. Construction equipment shall be certified as “weed-free” by Caltrans before entering the construction site. If necessary, wash stations onsite shall be established for construction equipment under the guidance of Caltrans in order to avoid/minimize the spread of invasive plants and/or seed within the construction area.

## 2.4 Construction Impacts

Construction is projected to begin in August 2019 and end in August 2021.

Construction staging and storage for equipment would be located within the current alignment and Caltrans right-of-way. To access the project site, contractors will use the northern end of Park Avenue to reach the Caltrans right-of-way at US 101 and then use the right-of-way to approach the work area.

Environmentally Sensitive Area fencing would be installed throughout areas of the project to limit construction activities and protect habitats of concern. Special Provisions for the installation of Environmentally Sensitive Area fencing and silt fencing shall be included in the construction contract for this project and also identified on the project plans. Although all Environmentally Sensitive Areas would be delineated on the plans, Environmentally Sensitive Areas must also be delineated in the field and shall be approved by the project environmental division prior to beginning any construction activities, including equipment storage.

The proposed work will require dewatering of Pismo Creek within the area of potential impact. Although dewatering is not expected to be necessary throughout the duration of the project, it will be necessary during the removal and installation of slope paving. Because activities will be conducted during seasonal low flows, it is

anticipated that an in-stream diversion will be sufficient to remove surface waters from the channel. Creek diversion and dewatering methods are discussed below.

### ***Affected Environment***

#### ***Traffic and Transportation/Pedestrian and Bicycle Facilities***

A pedestrian/bike path runs along the shoulder of the southbound Price Street on-ramp and continues along the US 101 to the Five Cities Drive off-ramp.

#### ***Air Quality***

Certain construction activities can be the source of temporary impacts to air quality. These potential impacts include dust-producing activities that occur during demolition, grading, and slope paving. Standard provisions included on all Caltrans projects would address potential emissions and dust generated by construction equipment, grading activities, and use of various construction materials.

#### ***Noise***

While this project will not produce long-term noise impacts due to increases in traffic, it is important to look at potential short-term noise impacts caused by construction of the concrete embankment walls and installation of the outer piers of the center bridge bent.

#### ***Vibration***

The project would not produce any long-term impacts from vibration, but certain construction activities can be the source of heavy vibrations, which tend to at a minimum be annoying and at worst have potential to cause damage to homes and other structures. Effects can be caused by vibrations that are continuous over long periods of time or short individual events.

#### ***Wetlands and Other Waters***

Five native arroyo willow trees (*Salix lasiolepis*), all of which measure 6 inches or greater in diameter at breast height, would be removed as a result of the construction/haul road that will be installed during construction of the project.

### ***Environmental Consequences***

#### ***Traffic and Transportation/Pedestrian and Bicycle Facilities***

The southbound Price Street on-ramp will remain open during construction. Therefore, there will be no adverse impacts on traffic or the pedestrian/bicycle path facilities. In cooperation with San Luis Council of Governments and the City of Pismo Beach, Caltrans has agreed that after construction, the project's haul road will be left graded flat for a segment of the future De Anza trail system.

### *Air Quality*

During construction, the project would generate air pollutants. The exhaust from construction equipment contains hydrocarbons, oxides of nitrogen, carbon monoxide, suspended particulate matter, and odors. Use of concrete and other chemicals during construction activities would emit organic gases and other potentially harmful compounds. However, the largest percentage of pollutants would be windblown dust generated during excavation, grading, hauling, demolition, and various other activities. The impacts of these activities would vary each day as construction progresses. Dust and odors occurring very close to the right-of-way could potentially cause occasional annoyance and complaints from nearby residences.

### *Noise*

Construction projects need to be evaluated for their temporary noise impacts. The project would be under construction for about 5-6 months. During this period, it is expected that local noise levels would increase when and where construction equipment is operating.

Construction and demolition of the concrete embankments and installation of the outrigger bents may generate noise at a level considered disruptive to nearby receptors. Visitors to the Holiday RV Park and Ocean Palms Motel on Price Street and residents on Park Avenue are within 300 feet of the project. Noise and vibration from a pile driver striking a steel beam or reinforced concrete pile, or a jackhammer breaking up pavement, cannot be muffled. Pile driving would be limited to daytime hours.

Normal construction activity can generate noise levels from 85 to 90 decibels at a distance of 50 feet<sup>4</sup>, with the noise levels dropping off at a rate of 6 to 7.5 dBA per distance doubled. This suggests that residences within 800 feet of where construction equipment is operating may notice elevated noise levels during construction. Noise levels for residences and businesses, including hotels and motels within 200 feet of the highway may double (increase by 10 decibels) during project construction.

Noise at the construction site will be intermittent, and its intensity will vary; the degree of construction noise impacts may vary for different areas of the project site and also vary depending on the construction activities.

### *Vibration*

Vibration is the result of the propagation of energy waves through a medium. The medium can be solid, liquid, or gas; vibration can be ground borne or airborne. Noise

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<sup>4</sup> Pile driving, pavement breaking, jackhammering and vibratory rolling can generate noise levels near 110 dBA Leq at 50.0 feet.

is a type of vibration because it is created by energy waves striking a sensitive medium—the eardrum. In transportation-related activities, these waves can be generated by tires crossing uneven pavement or construction activities like pile driving and pavement breaking, both of which are proposed for this project.

Three zones of lessening intensity classify the expected impacts from proposed construction activities. These zones of influence are general in nature and defined as follows:

- Perception—A 300-foot-radius zone within which residents would begin to perceive vibrations.
- Annoyance—A 100-foot-radius zone within which continuous vibrations begin to annoy people.
- Damage—A generalized 60-foot-radius zone within which continuous vibrations may cause architectural damage.

To assess the potential for damage to structures from activities such as pile driving, a minimum safe distance for existing structures was calculated using factors such as soil type, pile type, and pile hammer strength. This includes assuming default values for unknown soil types, and a conservative energy rating for a driving hammer at just below the point of damage based on standard plan driven piles of 15-inch diameter (see Table 2.5).

**Table 2.5 Minimum Safe Distance for Existing Structures**

Structure Type	Minimum Safe Distance from Vibration Source (feet)	Maximum Peak Particle Velocity (inches per second)
Historic, extremely fragile structures	179	0.08
Historic, fragile structures	147	0.10
Historic old structures	64	0.25
Old Structures	53	0.30
New or modern structures	34	0.50

Using this methodology, specific properties and structure types that are within or next to the zones of concerns were further evaluated to determine their risk of architectural damage or human annoyance. There were no historic properties within the zone of concern, only new or modern structures and mobile homes. As shown in Table 2.6 no structures would be affected by construction-related vibration.

**Table 2.6 Structures within Zones of Concern**

<b>Structure Type</b>	<b>Number of Structures within Zone of Concern</b>	<b>Safe Distance Threshold used for Analysis (feet)</b>
Newer (1970 to present)	0	34
Mobile home	0	64

The closest residential structure is 140 feet from the zone of concern, and the mobile homes are 100 feet from there.

Noise and vibration at the construction site will be intermittent and its intensity will vary. The degree of construction noise and vibration impacts may vary for different areas of the project site and also vary depending on the construction activities. Therefore, during the construction period, receptors that are close to the construction site may be impacted by noise and vibration.

*Wetlands and Other Waters*

The project will not only affect the five native arroyo willow trees (*Salix lasiolepis*), that will be removed as a result of the construction/haul road, but the wildlife species that may use these trees as foraging, nesting, roosting, and or denning habitat.

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

*Traffic and Transportation/Pedestrian and Bicycle Facilities*

No lane closures are anticipated during construction, but if lane closures were to become necessary, the bike and pedestrian path that is part of the on-ramp/bridge would remain accessible to bikes and pedestrians going to and from Five Cities Drive, over the project construction site.

*Air Quality*

Caltrans Standard Specification sections pertaining to dust control and dust palliative applications are required for all construction contracts and would effectively reduce and control construction-emission impact. The provisions of Caltrans Standard Specifications, Section 14 “Air Pollution Control” and Section 10 “Dust Control,” require the contractor to comply with all California Air Resources Board and San Luis Obispo County Air Pollution Control District rules, ordinances and regulations.

*Noise and Vibration*

The following control measures shall be implemented to minimize noise and vibration disturbances at sensitive receptors during periods of construction.

### **Equipment Noise Control**

1. Use newer equipment with improved muffling and ensure that all equipment items have the manufacturers' recommended noise abatement measures, such as mufflers, engine enclosures, and engine vibration isolators intact and operational. Newer equipment will generally be quieter in operation than older equipment. All construction equipment should be inspected at periodic intervals to ensure proper maintenance and presence of noise control devices (e.g., mufflers and shrouding, etc.).
2. Use construction methods or equipment that will provide the lowest level of noise and ground vibration impact, such as alternative low noise pile installation methods.
3. Turn off idling equipment.
4. Temporary noise barriers shall be used and relocated, as needed, to protect sensitive receptors against excessive noise from construction activities. Noise barriers can be made of heavy plywood or moveable insulated sound blankets.

### **Administrative Measures**

1. Implement a construction noise and vibration-monitoring program to limit the impacts.
2. Plan noisier operations during times of least sensitivity to receptors.
3. Keep noise levels relatively uniform and avoid impulsive noises.
4. Maintain good public relations with the community to minimize objections to the unavoidable construction impacts. Provide frequent activity update of all construction activities.

A combination of abatement techniques with equipment noise control and administrative measures can be selected to provide the most effective means to minimize effects of construction activity impacts. Application of abatement measures will reduce the construction impacts; however, a temporary increase in noise and vibration would likely occur.

### ***Wetlands and Other Waters***

The five arroyo willows removed within the project area will be re-established at a 3:1 replacement ratio with annual monitoring and reporting for a minimum of five (5) years post construction.

## 2.5 Cumulative Impacts

### **Regulatory Setting**

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

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

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

### **Affected Environment**

Identification of the resources to consider is the first step in preparing a cumulative impact analysis<sup>5</sup>. The proposed project would result in impacts to visual resources and Southern California steelhead, California red-legged frog, tidewater goby, western pond turtle, and two-striped garter snake as well as their associated riparian and/or aquatic habitats. All of these species are dependent on riparian and aquatic habitat therefore, consideration of the effects of past, present and reasonably foreseeable activities on these habitats and hence these species provided the basis for selection of these resources in this cumulative impact analysis.

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<sup>5</sup> Guidance for Preparers of Cumulative Impact Analysis; developed by Federal Highway Administration California Division, Caltrans and the Environmental Protection Agency, Region IX.

The Resource Study Area was identified by considering the effects that past, current and reasonably foreseeable future projects have had or could have on local populations of steelhead, California red-legged frog, and tidewater goby, western pond turtle, and two-striped garter snake as well as their associated riparian and/or aquatic habitats. The Resource Study Area is defined by the Pismo Creek Watershed<sup>6</sup> from its headwaters to its confluence at the creeks estuary at the Pacific Ocean immediately south of the Pismo Creek Scour project area. The Pismo Creek Watershed occupies approximately 47 square miles within southern San Luis Obispo County, California. (See Figure 2-5)

Other projects within the vicinity of the proposed project and the Resource Study Area for which cumulative impacts were considered are:

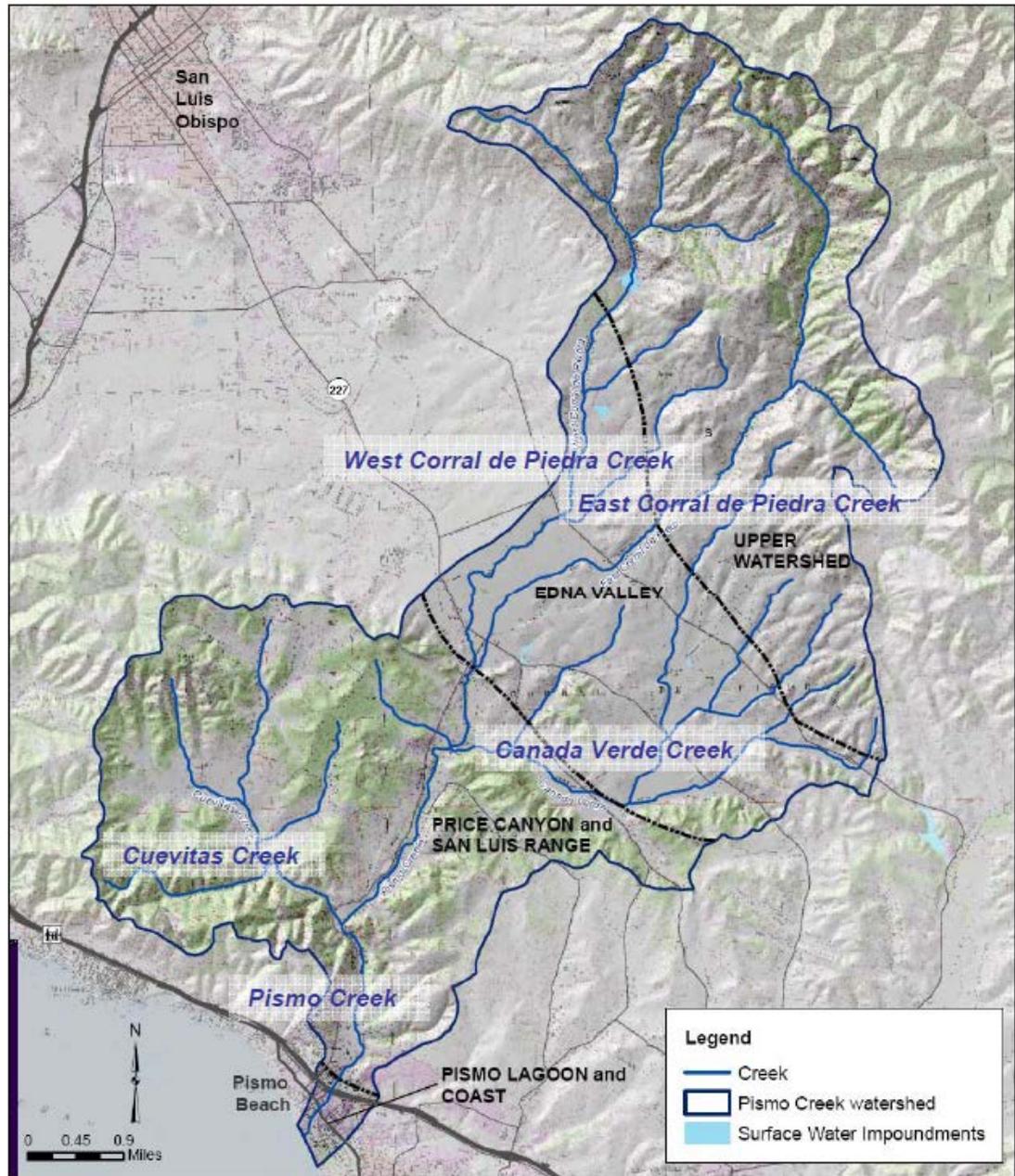
*Spanish Springs Specific Plan and EIR<sup>7</sup>, August 2012*

The Spanish Springs Specific Plan area is located north of the project area and within the Pismo Creek Watershed and Resource Study Area. The project proposes a mix of resort commercial, residential, senior living and recreational, conservation and agricultural open space uses on 961 acres. The Project was approved in 2012 and is currently under construction.

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<sup>6</sup> Pismo Creek/Edna Area Watershed Management Plan, 2009, Central Coast Salmon Enhancement, The Department of Fish and Game, State of California.

<sup>7</sup> Draft Environmental Impact Report-Price Canyon Planning Area-R, General Plan Update, Annexation and Spanish Springs Specific Plan, City of Pismo Beach, prepared by FIRMA, 2012.



**Figure 2-5 Pismo Creek Watershed**

Source: Pismo Creek/Edna Area Watershed Management Plan, 2009, Central Coast Salmon Enhancement, the Department of Fish and Game, State of California.

*The Beachwalk Inn, 147 Stimson and 150 Hinds, Nexus Companies, P14-000192:*

The proposed project is a 128 room hotel with conference rooms, fitness center, swimming pool, spa, meeting rooms, restaurant/bar, public access courtyard, a deck connecting the project courtyard to the City's promenade and underground parking. 147 Stimson and 150 Hinds are

located within the Central Commercial District of the Downtown Core Planning Area which includes the Pismo Creek Scour Repair project.

The project was approved by the Planning Commission on April 28, 2015 but was appealed to and approved by the City Council on June 2nd. The project is most likely to be built over the next several years and shares no sensitive resources with the Pismo Creek Scour Repair project and the project is not located within the Resource Study Area.

#### *US 101 Pismo Congestion Relief--Caltrans*

This project will improve operations on southbound US 101 during peak travel periods: weekday afternoon commutes, summer/seasonal and weekend traffic events. The project is in early analysis to better determine operations/efficiencies of the proposed improvements. There are several alternatives which may include either a climbing lane, a part-time travel lane during peak periods, and the reconfiguration of Mattie Road on and off-ramps. Estimated schedule for construction is summer 2023.

#### *Pismo Creek Estuary Enhancement Project, 2011*

The purpose of this project was to investigate the critical issues affecting the Estuary and to consider alternatives for improvements including; barrier dune stabilization, pedestrian beach access and creek bank stabilization and habitat enhancement.

The Estuary is at the bottom of a 37 square mile watershed, and is impacted by upstream and adjacent land uses which include the southern portion of the Pismo Creek Scour Repair Project.

### **Environmental Consequences**

#### *Spanish Springs Specific Plan*

A Program and Project Environmental Impact Report was prepared to address the all aspects of the projects development proposal and includes an evaluation of cumulative impacts. The projects planning area is known to support two federally-listed species: the California red-legged frog and the south-central California coast steelhead and provides suitable habitat for several other sensitive species.

In addition the Project will include a Watershed Management and Creek protection policies consistent with good watershed management principles such as Low Impact Development practices to manage storm water runoff and water quality, avoid placement of fish passage barriers, encourage riparian re-vegetation and bank stabilization , and working with appropriate agencies to further strategic goals for estuary water quality. Project mitigation measures include avoiding aquatic habitats, sensitive aquatic and semi-aquatic species within 100 feet of the Pismo Creek riparian corridor and 50-feet of its tributaries.

With the implementation of the mitigation measures describe in the Project's Environmental Impact Report, impacts to the riparian species (California Red-legged Frog and southern Steelhead and other Sensitive Aquatic and Semi aquatic ecological resources) will be less than significant.

The Visual Impact Assessment identifies no cumulative impacts of the Spanish Springs Project and the Pismo Creek Scour Repair Project.

#### *The US 101 Congestion Relief Project*

The US 101 Congestion Relief project has 6 alternatives, is in its early planning stage and environmental review has yet to begin. The project is projected to be completed in 2025, seven years after the completion of Pismo Creek Scour Repair project (in the fiscal year 2018/2019).

The Visual Impact Assessment identifies no cumulative impacts of the US 101 Congestion Relief Project and the Pismo Creek Scour Repair Project.

Many of the Projects listed above include activities similar to the proposed Scour Repair Project such as grading and removal of vegetation in and around the Pismo Creek banks and bed. Consequently, these projects have the potential for significantly adverse impacts on a number of environmental resources to which the proposed scour repair project could contribute. These include special status plants; California red-legged frog and South-Central California Coast steelhead, Tidewater goby, Western pond turtle and two-striped garter snake and their habitats: various bird species and their habitat; bat species and their habitat; native riparian habitat; jurisdictional water of the U.S. and wetlands regulated under Section 404 of the Clean Water Act; and upstream steelhead migration habitat. These projects also have the potential to increase sedimentation and turbidity of the Pismo Creek.

Though the years U. S. Fish and Wildlife and National Marine Fisheries have actively overseen and approved the channel activities and associated effects on species listed under the Federal Endangered Species Act., including the California red-legged frog, and South-Central California steelhead. These agencies have identified conditions for projects impacting creeks and the associated environs to follow for species protection.

U.S. Fish and Wildlife and National Marine Fisheries have consistently found that the channel maintenance activities were not likely to jeopardize the continued existence of listed species, or destroy or adversely modify designated critical habitat.

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

Considering the small, isolated area affected by the Pismo Creek Scour Repair project, as well as its incorporation into a larger, region-wide project, the proposed project is not expected to have a substantial contribution to cumulative impacts within the creek environment. No additional measures would be required beyond those already included for impacts to specific resources.

## **2.6 Climate Change**

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

While climate change has been a concern for several decades, the establishment of the Intergovernmental Panel on Climate Change by the United Nations and World Meteorological Organization in 1988 led to increased efforts devoted to greenhouse gas emissions reduction and climate change research and policy. These efforts are concerned mainly with the emissions of greenhouse gases generated by human activity, including carbon dioxide, methane, nitrous oxide, tetrafluoromethane, hexafluoroethane, sulfur hexafluoride (SF<sub>6</sub>), HFC-23 (fluoroform), HFC-134a (s, s, s, 2-tetrafluoroethane), and HFC-152a (difluoroethane).

In the U.S., the main source of greenhouse gas emissions is electricity generation, followed by transportation. In California, transportation sources (including passenger cars, light-duty trucks, other trucks, buses, and motorcycles make up the largest source of greenhouse gas-emitting sources. The dominant greenhouse gas emitted is carbon dioxide, mostly from fossil fuel combustion.

There are typically two terms used when discussing the impacts of climate change: "Greenhouse Gas Mitigation" and "Adaptation." "Greenhouse Gas Mitigation" is a

term for reducing greenhouse gas emissions to lessen or “mitigate” the impacts of climate change. “Adaptation” refers to the effort of planning for and adapting to impacts resulting from climate change (such as adjusting transportation design standards to withstand more intense storms and higher sea levels)<sup>8</sup>.

There are four main strategies for reducing greenhouse gas emissions from transportation sources: 1) improving the transportation system and operational efficiencies, 2) reducing travel activity, 3) transitioning to lower greenhouse gas - emitting fuels, and 4) improving vehicle technologies/efficiency. To be most effective, all four strategies should be pursued cooperatively.<sup>9</sup>

### **Regulatory Setting**

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

#### **State**

With 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.

**Assembly Bill 1493 (AB 1493), Pavley, Vehicular Emissions: Greenhouse Gases, 2002:** This bill requires the California Air Resources Board 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.

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

**Assembly Bill 32, the Global Warming Solutions Act of 2006, Núñez and Pavley:** This bill sets the same overall greenhouse gas emissions reduction goals as outlined in Executive Order S-3-05, while further mandating that the California Air Resources Board create a scoping plan (which includes market mechanisms) and implement rules to achieve “real, quantifiable, cost-effective reductions of greenhouse gases.”

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<sup>5</sup> [http://climatechange.transportation.org/ghg\\_mitigation/](http://climatechange.transportation.org/ghg_mitigation/)

<sup>6</sup> [http://www.fhwa.dot.gov/environment/climate\\_change/mitigation/](http://www.fhwa.dot.gov/environment/climate_change/mitigation/)

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

**Executive Order S-01-07 (signed on January 18, 2007):** This order set forth the low carbon fuel standard for California. Under this order, the carbon intensity of California’s transportation fuels is to be reduced by at least 10 percent by 2020.

**Senate Bill 97 (SB 97) Chapter 185, 2007:** This bill required the Governor’s Office of Planning and Research to develop recommended amendments to the California Environmental Quality Act Guidelines for addressing greenhouse gas emissions. The amendments became effective on March 18, 2010.

**Senate Bill 375 (SB 375), Chapter 728, 2008, Sustainable Communities and Climate Protection:** This bill requires the California Air Resources Board to set regional emissions reduction targets from passenger vehicles. The Metropolitan Planning Organization for each region must then develop a “Sustainable Communities Strategy” that integrates transportation, land-use, and housing policies to plan for the achievement of the emissions target for its region.

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

### ***Federal***

Although climate change and greenhouse gas reduction are a concern at the federal level, currently no regulations or legislation have been enacted specifically addressing greenhouse gas emissions reductions and climate change at the project level. Neither the U.S. Environmental Protection Agency nor the Federal Highway Administration has issued explicit guidance or methods to conduct project-level greenhouse gas analysis.<sup>10</sup> Federal Highway Administration supports the approach that climate change considerations should be integrated throughout the transportation decision-making process—from planning through project development and delivery. Addressing climate change mitigation and adaptation up front in the planning process will assist in decision-making and improve efficiency at the program level and will inform the analysis and stewardship needs of project-level decision-making. Climate change considerations can be integrated into many planning factors, such as supporting economic vitality and global efficiency, increasing safety and mobility,

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<sup>10</sup> To date, no national standards have been established regarding mobile source greenhouse gases, nor has U.S. EPA established any ambient standards, criteria or thresholds for greenhouse gases resulting from mobile sources.

enhancing the environment, promoting energy conservation, and improving the quality of life.

The four strategies outlined by the Federal Highway Administration to lessen climate change impacts correlate with efforts that the State is undertaking to deal with transportation and climate change; these strategies include improved transportation system efficiency, cleaner fuels, cleaner vehicles, and a reduction in travel activity.

Climate change and its associated effects are also being addressed through various efforts at the federal level to improve fuel economy and energy efficiency, such as the “National Clean Car Program” and Executive Order 13514 - *Federal Leadership in Environmental, Energy and Economic Performance*.

**Executive Order 13514 (October 5, 2009):** This order is focused on reducing greenhouse gases internally in federal agency missions, programs and operations, but also directs federal agencies to participate in the Interagency Climate Change Adaptation Task Force, which is engaged in developing a national strategy for adaptation to climate change.

The U.S. Environmental Protection Agency’s authority to regulate greenhouse gas emissions stems from the U.S. Supreme Court decision in *Massachusetts v. Environmental Protection Agency* (2007). The Supreme Court ruled that greenhouse gases meet the definition of air pollutants under the existing Clean Air Act and must be regulated if these gases could be reasonably anticipated to endanger public health or welfare. Responding to the court’s ruling, U.S. Environmental Protection Agency finalized an endangerment finding in December 2009. Based on scientific evidence, it found that six greenhouse gases constitute a threat to public health and welfare. Thus, it is the Supreme Court’s interpretation of the existing act and Environmental Protection Agency’s assessment of the scientific evidence that form the basis for Environmental Protection Agency’s regulatory actions. The U.S. Environmental Protection Agency in conjunction with the National Highway Traffic Safety Administration issued the first of a series of greenhouse gas emission standards for new cars and light-duty vehicles in April 2010.<sup>11</sup>

The U.S. Environmental Protection Agency and the National Highway Traffic Safety Administration are taking coordinated steps to enable the production of a new generation of clean vehicles with reduced greenhouse gas emissions and improved fuel efficiency from on-road vehicles and engines. These next steps include

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<sup>11</sup> <http://www.c2es.org/federal/executive/epa/greenhouse-gas-regulation-faq>

developing the first-ever greenhouse gas regulations for heavy-duty engines and vehicles, as well as additional light-duty vehicle greenhouse gas regulations.

The final combined standards that made up the first phase of this national program apply to passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012 through 2016. The standards implemented by this program are expected to reduce greenhouse gas emissions by an estimated 960 million metric tons and 1.8 billion barrels of oil over the lifetime of the vehicles sold under the program (model years 2012-2016).

On August 28, 2012, the U.S. Environmental Protection Agency and National Highway Traffic Safety Administration issued a joint Final Rulemaking to extend the National Program for fuel economy standards to model year 2017 through 2025 passenger vehicles. Over the lifetime of the model year 2017-2025 standards, this program is projected to save approximately four billion barrels of oil and two billion metric tons of greenhouse gas emissions.

The complementary U.S. Environmental Protection Agency and National Highway Traffic Safety Administration standards that make up the Heavy-Duty National Program apply to combination tractors (semi-trucks), heavy-duty pickup trucks and vans, and vocational vehicles (including buses and refuse or utility trucks). Together, these standards will cut greenhouse gas emissions and domestic oil use significantly. This program responds to President Barack Obama's 2010 request to jointly establish greenhouse gas emissions and fuel-efficiency standards for the medium- and heavy-duty highway vehicle sector. The agencies estimate that the combined standards will reduce carbon dioxide emissions by about 270 million metric tons and save about 530 million barrels of oil over the life of model year 2014 to 2018 heavy-duty vehicles.

### **Project Analysis**

An individual project does not generate enough greenhouse gas emissions to significantly influence global climate change. Rather, global climate change is a cumulative impact. This means that a project may contribute to a potential impact through its incremental change in emissions when combined with the contributions of all other sources of greenhouse gas.<sup>12</sup> In assessing cumulative impacts, it must be determined if a project's incremental effect is "cumulatively considerable" (California Environmental Quality Act Guidelines Sections 15064(h) (1) and 15130).

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<sup>12</sup> This approach is supported by the AEP: *Recommendations by the Association of Environmental Professionals on how to analyze greenhouse gas Emissions and Global Climate Change in CEQA Documents* (March 5, 2007), as well as the South Coast Air Quality Management District (Chapter 6: The CEQA Guide, April 2011) and the U.S. Forest Service (Climate Change Considerations in Project Level NEPA Analysis, July 13, 2009).

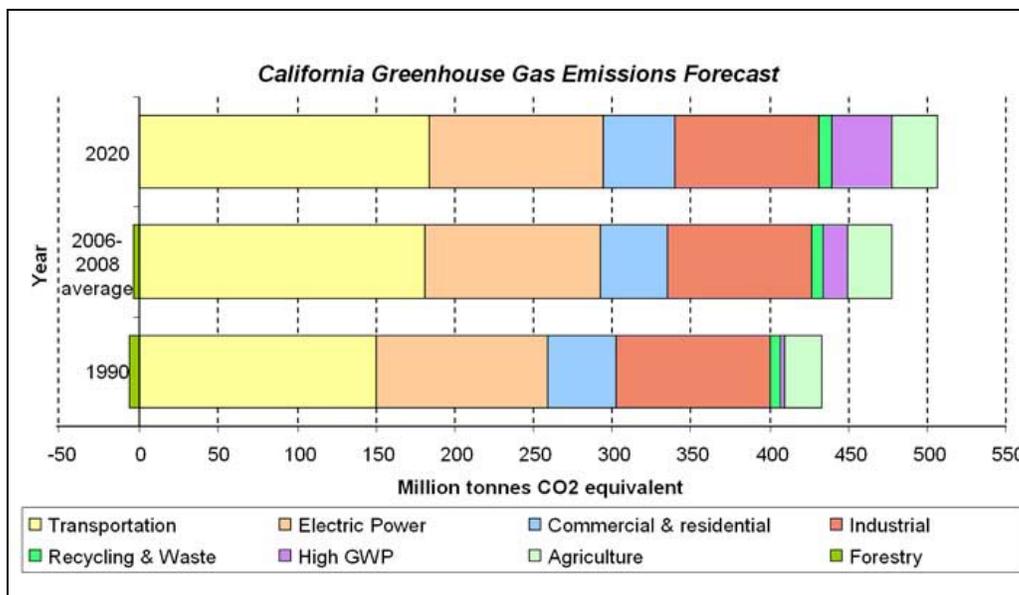
For one to make this determination, the incremental impacts of the project must be compared with the effects of past, current, and probable future projects. To gather sufficient information on a global scale of all past, current, and future projects to make this determination is a difficult, if not impossible, task.

The AB 32 Scoping Plan mandated by AB 32 contains the main strategies California will use to reduce greenhouse gas emissions. As part of its supporting documentation for the Draft Scoping Plan, the California Air Resources Board released the greenhouse gas inventory for California (forecast last updated: October 28, 2010). See Figure 2-6.

The forecast is an estimate of the emissions expected to occur in 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 greenhouse gas inventory for 2006, 2007 and 2008. Caltrans and its parent agency, the Transportation Agency, have taken an active role in addressing greenhouse gas emission reduction and climate change. Recognizing that 98 percent of California's greenhouse gas emissions are from the burning of fossil fuels and 40 percent of all human made greenhouse gas emissions are from transportation, Caltrans has created and is implementing the Climate Action Program at Caltrans that was published in December 2006.<sup>13</sup>

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<sup>13</sup> 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](http://www.dot.ca.gov/hq/tpp/offices/ogm/key_reports_files/State_Wide_Strategy/Caltrans_Climate_Action_Program.pdf)



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

**Figure 2-6 California Greenhouse Gas Forecast**

The purpose of the proposed project is to ensure the long-term serviceability of the Pismo Creek Bridge (Bridge No 49-0015K) and on-ramp by rehabilitating the embankments and protecting the bridge’s piers from further erosion and scouring. The project would not increase the capacity of the highway; it would maintain the same number of lanes and capacity as the existing roadway. Because the project would not increase capacity nor vehicle hours traveled, no increases in operational greenhouse gas emissions are anticipated.

### **Construction Emissions**

Greenhouse gas emissions for transportation projects can be divided into those produced during construction and those produced during operations. Construction greenhouse gas emissions include emissions produced as a result of material processing, emissions produced by onsite 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 greenhouse gas emissions produced during construction can be mitigated to some degree by longer intervals between maintenance and rehabilitation events.

Measures to address construction emissions for potential air quality impacts from construction activities have been included in the project, including the following that may have a co-benefit of reducing greenhouse gas emissions due to construction activities:

1. All portable construction equipment should be registered with the State's portable equipment registration program or permitted by the district by September 18, 2008.
2. Diesel construction equipment meeting the California Air Resources Board's Tier I emission standards for off-road heavy-duty diesel engines should be used. Equipment meeting Tier 2 or higher emission standards should be used to the maximum extent feasible.
3. The engine size of construction equipment should be the minimum practical size.
4. The number of construction equipment vehicles operating simultaneously should be minimized through efficient management practices to ensure that the smallest practical number is operating at any one time.
5. Construction equipment should be maintained in tune per the manufacturer's specifications.
6. Construction equipment operating onsite should be equipped with 2 to 4 degree engine timing retard or pre-combustion chamber engines.
7. Catalytic converters shall be installed on gasoline-powered equipment, if feasible.
8. Diesel catalytic converters, diesel oxidation catalyst and diesel particulate filters as certified and/or verified by the Environmental Protection Agency or California Air Resources Board should be installed on equipment whenever feasible.
9. Diesel-powered equipment should be replaced by electric equipment whenever feasible.
10. Idling of heavy-duty diesel trucks during loading and unloading should be limited to 5 minutes.

11. To the extent possible, route and schedule construction traffic to reduce congestion and related air quality caused by idling vehicles and along local roads during peak travel times.
12. Gasoline-dispensing equipment must have local air district permits, be certified by the California Air Resources Board, and operated in accordance with local air district rules and the Air Board certification requirements. Periodic maintenance and testing are specified under the California Air Resources Board executive order that was issued for the certification and by many local air district rules. Equipment repairs and testing must be performed by trained personnel with proper certifications by the manufacturers and, depending on the air pollution control district, by the International Code Council. In addition, local air pollution control districts generally require records of all repair and testing activities to be maintained onsite.

### ***California Environmental Quality Act 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 greenhouse gas emissions associated with the 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***

#### ***Assembly Bill 32 Compliance***

Caltrans continues to be involved on the Governor's Climate Action Team as the California Air Resources Board works to implement Executive Orders S-3-05 and S-01-07 and help to achieve the targets set forth in Assembly Bill 32. Many of the strategies Caltrans is using to help meet the targets in Assembly Bill 32 come from the Strategic Growth Plan for California. The Strategic Growth Plan targeted a significant decrease in traffic congestion below 2008 levels and a corresponding reduction in greenhouse gas emissions, while accommodating growth in population and the economy. The plan relies on a complete systems approach to attain carbon dioxide reduction goals: system monitoring and evaluation, maintenance and preservation, smart land use and demand management, and operational improvements as shown in Figure 2-7, Mobility Pyramid.



**Figure 2-7 Mobility Pyramid**

Caltrans continues to be involved on the Governor’s Climate Action Team as the Air Resources Board works to implement 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 then-Governor Arnold Schwarzenegger’s Strategic Growth Plan for California. The plan targeted a significant decrease in traffic congestion below 2008 levels and a corresponding reduction in greenhouse gas emissions, while accommodating growth in population and the economy.

The Strategic Growth Plan relies on a complete systems approach to attain CO<sub>2</sub> reduction goals: system monitoring and evaluation, maintenance and preservation, smart land use and demand management, and operational improvements.

Caltrans 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. Caltrans works closely with local jurisdictions on planning activities, but does not have local land use planning authority. Caltrans assists efforts to improve the energy efficiency of the transportation sector by increasing vehicle fuel economy in new cars, light and heavy-duty trucks; Caltrans is doing this by supporting ongoing research efforts at universities, by supporting legislative efforts to increase fuel economy, and by participating on the Climate Action Team. It is important to note, however, that control of fuel economy standards is held by the U.S. EPA and Air Resources Board.

Caltrans is also working toward enhancing the State’s transportation planning process to respond to future challenges. Similar to requirements for regional transportation

plans under Senate Bill 375 (Steinberg 2008), Senate Bill 391 (Liu 2009) requires the State's long-range transportation plan to meet California's climate change goals under Assembly Bill 32.

The California Transportation Plan is a statewide, long-range transportation plan to meet our future mobility needs and reduce greenhouse gas emissions. The California Transportation Plan defines performance-based goals, policies, and strategies to achieve our collective vision for California's future, statewide, integrated, multimodal transportation system.

The purpose of the California Transportation Plan is to provide a common policy framework that will guide transportation investments and decisions by all levels of government, the private sector, and other transportation stakeholders. Through this policy framework, the California Transportation Plan 2040 will identify the statewide transportation system needed to achieve maximum feasible greenhouse gas emission reductions while meeting the State's transportation needs.

Table 2.7 shows the departmental and statewide efforts that Caltrans is implementing to reduce greenhouse gas emissions. More detailed information about each strategy is included in the *Climate Action Program at Caltrans* (December 2006).

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

*Caltrans Activities to Address Climate Change* (April 2013)<sup>14</sup> provides a comprehensive overview of activities undertaken by Caltrans statewide to reduce greenhouse gas emissions resulting from agency operations.

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<sup>14</sup> [http://www.dot.ca.gov/hq/tpp/offices/orip/climate\\_change/projects\\_and\\_studies.shtml](http://www.dot.ca.gov/hq/tpp/offices/orip/climate_change/projects_and_studies.shtml)

**Table 2.7 Climate Change/CO<sub>2</sub> Reduction Strategies**

Strategy	Program	Partnership		Method/ Process	Estimated CO <sub>2</sub> Savings Million Metric Tons (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 and other stakeholders	Competitive selection process	Not estimated	Not estimated
	Regional Plans and Blueprint Planning	Regional Agencies	Caltrans	Regional plans and application process	0.975	7.8
Operational Improvements & Intelligent Transportation System (ITS) Deployment	Strategic Growth Plan	Caltrans	Regions	State ITS; Congestion Management Plan	0.07	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, ARB, 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	0.0045	0.0065 0.045 0.0225
Non-vehicular Conservation Measures	Energy Conservation Program	Green Action Team		Energy Conservation Opportunities	0.117	0.34
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 0.36	4.2 3.6
Goods Movement	Office of Goods Movement	Cal EPA, ARB, BT&H, MPOs		Goods Movement Action Plan	Not estimated	Not estimated
<b>Total</b>					<b>2.72</b>	<b>18.18</b>

To the extent that is applicable or feasible for the project and through coordination with the project development team, the following measures will also be included in the project to reduce the greenhouse gas emissions and potential climate change impacts from the project:

1. The project proposes to re-vegetate all disturbed soil areas following completion of construction. Landscaping reduces surface warming and through photosynthesis, removes carbon dioxide from the atmosphere.
2. In addition, the Council of San Luis Obispo County Governments provides ridesharing services and park-and-ride facilities to help manage the growth in demand for highway capacity.
3. According to the Department's Standard Specifications, the contractor must comply with all local Air Pollution Control District rules, ordinances, and regulations for air quality restrictions.

### **Adaptation Strategies**

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

At the federal level, the Climate Change Adaptation Task Force, co-chaired by the White House Council on Environmental Quality (CEQ), the Office of Science and Technology Policy (OSTP), and the National Oceanic and Atmospheric Administration (NOAA), released its interagency task force progress report on October 28, 2011<sup>15</sup>, outlining the federal government’s progress in expanding and strengthening the nation’s capacity to better understand, prepare for, and respond to extreme events and other climate change impacts. The report provides an update on actions in key areas of federal adaptation, including building resilience in local

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<sup>15</sup> <http://www.whitehouse.gov/administration/eop/ceq/initiatives/adaptation>

communities, safeguarding critical natural resources such as freshwater, and providing accessible climate information and tools to help decision-makers manage climate risks.

Climate change adaptation 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, then-Governor Arnold 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 order set in motion several agencies and actions to address the concern of sea level rise.

In addition to addressing projected 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 (December 2009)<sup>16</sup>, 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 the California Environmental Protection Agency; Business, 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.

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<sup>16</sup> <http://www.energy.ca.gov/2009publications/CNRA-1000-2009-027/CNRA-1000-2009-027-F.PDF>

The National Academy of Science was directed to prepare a Sea Level Rise Assessment Report<sup>17</sup> to recommend how California should plan for future sea level rise. The report was released in June 2012 and included:

- 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.
- Range of uncertainty in selected sea level rise projections.
- 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.
- Discussion of future research needs regarding sea level rise.

In 2010, interim guidance was released by the Coastal Ocean Climate Action Team (CO-CAT) as well as Caltrans as a method to initiate action and discussion of potential risks to the states infrastructure due to projected sea level rise. Later, CO-CAT updated the Sea Level Rise guidance to include information presented in the National Academy's Study.

All state agencies that are planning to construct projects in areas vulnerable to future sea level rise are directed to consider a range of sea level rise scenarios for the years 2050 and 2100 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 on local uplift and subsidence, coastal erosion rates, predicted higher high water levels, storm surge and storm wave data.

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

Executive Order S-13-08 also directed the Business, Transportation, and Housing Agency to prepare a report to assess vulnerability of transportation systems to sea level rise affecting safety, maintenance and operational improvements of the system, and economy of the state. Caltrans continues to work on assessing the transportation system vulnerability to climate change, including the effect of sea level rise.

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<sup>17</sup> *Sea Level Rise for the Coasts of California, Oregon, and Washington: Past, Present, and Future* (2012) is available at [http://www.nap.edu/catalog.php?record\\_id=13389](http://www.nap.edu/catalog.php?record_id=13389).

Caltrans continues to assess which transportation facilities are at greatest risk from climate change effects. But, without statewide planning scenarios for relative sea level rise and other climate change effects, Caltrans 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, Caltrans will be able to review its current design standards to determine what changes, if any, may be needed 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. Caltrans 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 Sea Level Rise Assessment Report.

## **2.7 Sea Level Rise**

Sea level rise poses a serious threat to residents and the built environments (including transportation assets) along the California coast. In an effort to better understand potential amounts of rise and the associated impacts, then-Governor Arnold Schwarzenegger signed Executive Order S-13-08. The former governor called for a proactive approach by directing agencies that are planning construction projects in areas vulnerable to sea level rise scenarios for the years 2050 and 2100. Although Executive Order S-13-08 allowed for some exemptions for routine maintenance projects and projects programmed for construction through 2013, the intent was to plan ahead to assess project vulnerability and reduce anticipated risks associated with sea level rise. Other California state agencies, commissions and climate action teams are already moving forward to implement guidance on how to address this issue.

Planning for potential impacts to California's infrastructure due to sea level rise requires addressing and including in our planning documents, the costs, scope and schedule of including these measures in our projects. Items that will need to be considered (in addition to enhancing the design of structures) include the potential increased cost of permit fees and mitigation to implement the enhanced designs. It's important to include these considerations in current project planning to reduce the cost and impacts to future project delivery.

### ***Impacts of Sea Level Rise on the California Coast***

The Ocean Protection Council adopted statewide sea level rise guidelines and developed interim guidance in March 2011 from published sea level rise scenarios

from a 2010 National Research Council study. Using these adopted guidelines, the statewide sea level rise scenarios were developed by the California Climate Action Team, which included Caltrans, the California Coastal Commission, and 14 other state agencies whose efforts led to the Caltrans “Guidance on Incorporating Sea Level Rise” (March 2011). This common set of values allows all California state agencies to plan for sea level rise with the same assumptions.

The sea level rise projections developed from this effort estimate a 40- to 55-inch increase in mean sea level by 2100 from 2000 levels, using the March 2011 guidelines. Assuming a 55-inch sea level rise, Caltrans prepared mapping to allow those areas at risk.<sup>18</sup>

The 100-year flood elevations base flood elevation from flood insurance studies published by the Federal Emergency Management Agency were used as the base elevations for comparisons against additional sea level rise projections.

It is important to note the map shown in Figure 2-8 is not the result of detailed site studies and was created to quantify potential risk over a large geographic area and should not be used to assess actual coastal hazards. In addition, the mapping did not include localized uplift or subsidence, bathymetry, or geological conditions as part of the analysis. However, there is currently no officially accepted mapping available to date. Therefore, this mapping was generated as a rough estimate of potential sea level rise impacts to the infrastructure being proposed with this project assuming that the Public Interest Energy Research numbers are correct for the worst-case scenario.

### ***Impacts from 55-inch Sea Level Rise in 2100***

Mapping prepared by Caltrans is based on data used by the California Climate Action Team that developed interim sea level rise scenarios for the state. The mapping determined the project area is almost completely outside the 55-inch sea level rise area and is not at risk for coastal erosion predicted to occur by 2100 (see Figure 2-8).

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<sup>18</sup> Caltrans acknowledges that an update to this guidance, released in March 2013, uses updated analysis from the 2012 National Research Council study (<http://www.opc.ca.gov/2013/04updated-to-the-sea-level-rise-guidance-document/>). The March 2103 OPC update cited a 16.6- to 65.8-inch increase in mean sea level by 2100 from 2000 levels. As the impacts were estimated here for a 55-inch sea level rise and given the range of uncertainty of future sea-level rise estimates, Caltrans has decided to keep the original sea-level rise analysis using 55-inch rise estimates.

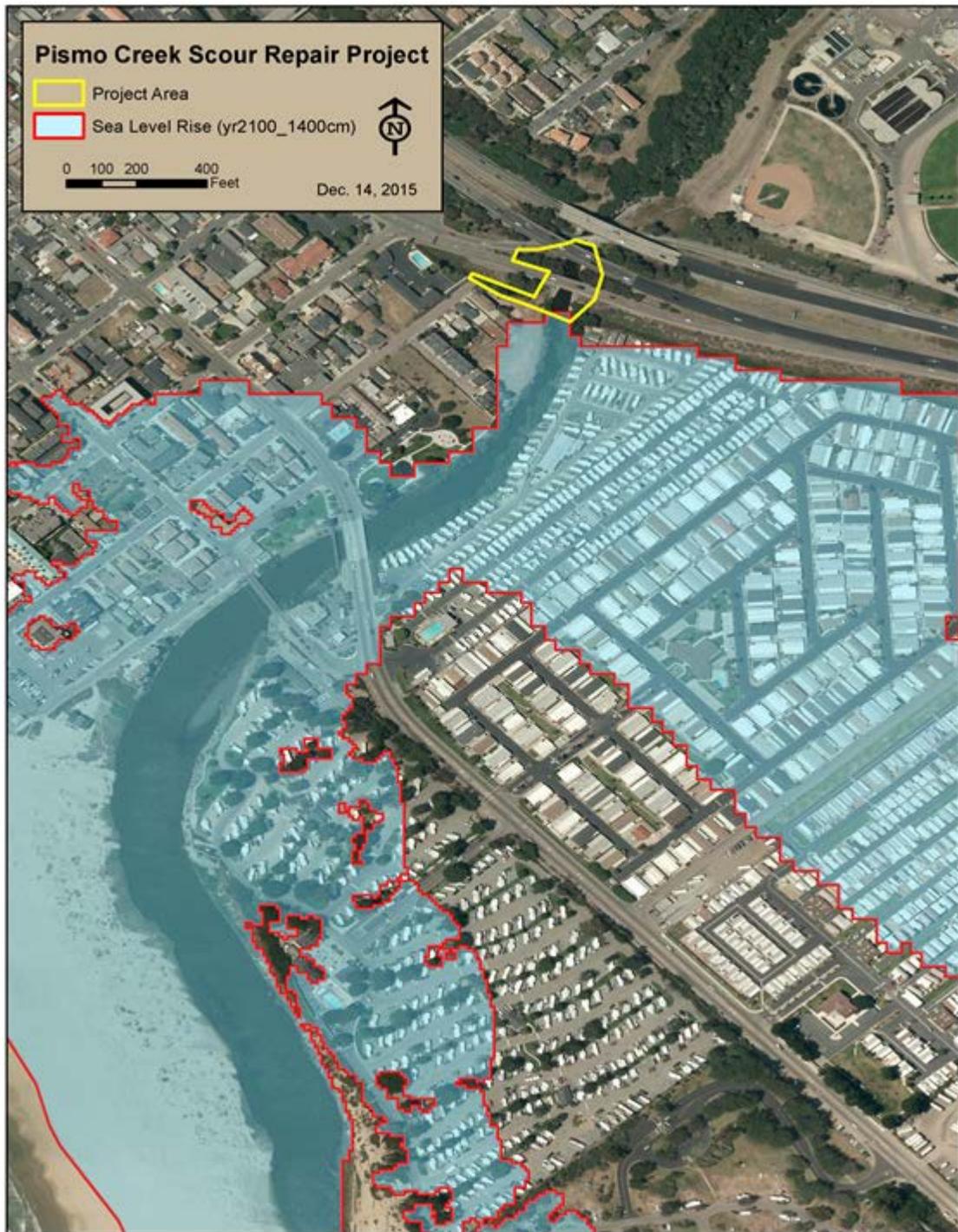


Figure 2-8 Sea Level Rise by 2100

The proposed design alternative of an outrigger bent and embankment protection will withstand and accommodate the 2100 sea level rise projection. The geometry and capacity of the channel will be unchanged and can accommodate the additional volume of water due to sea level rise.

The outrigger bent and embankment protection will protect the structure foundation from scour that occurs during high-velocity flows. The variation in the type of embankment protection (concrete lining versus concrete grouted Reinforced Slope Protection) will have no significant differences in performance in terms of withstanding sea level rise.

There will be no adverse effects to sea level rise due to the construction of the proposed project.

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## Chapter 3      Comments and Coordination

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Early and continuing coordination with the general public and public agencies is an essential part of the environmental process to determine the scope of environmental documentation, the level of analysis required, potential impacts and avoidance, minimization and/or mitigation measures and related environmental requirements. Agency consultation for this project has been accomplished through a variety of formal and informal methods, including Project Development Team meetings, interagency coordination meetings, and so on. Public participation will be sought through the release and review of this Initial Study/Proposed Mitigated Negative Declaration. This chapter summarizes the results of Caltrans' efforts to identify, address, and resolve project-related issues through early and continuing coordination.

### ***Biological Resource Coordination***

#### ***Pismo Creek Slope Repair (Formerly Proposed Project)***

**January 8, 1997:** A Biological Assessment was prepared by Caltrans, and a Biological Opinion was issued by the U.S. Fish and Wildlife Service (Ventura office 1-8-97-F-9), but the project was never built.

#### ***Price Street Extension (Formerly Proposed Project)***

**February 2002:** An official species list was requested and received from the U.S. Fish and Wildlife Service.

**March 2002:** Informal consultation and technical assistance from resource agencies (U.S. Fish and Wildlife Service, California Department of Fish and Game, National Marine Fisheries Service, and U.S. Army Corps of Engineers) occurred during the planning stages of the project in the form of email correspondence, telephone conversations and onsite field reviews.

**April 2001, June 18, 2002 and March 10, 2003:** Early coordination meetings with agency personnel were held in the field to discuss the proposed project in and around Pismo Creek. This is a known location for several special-status wildlife species (South-Central California Coast Steelhead, tidewater goby, western pond turtle, and potentially California red-legged frog).

**June 2002:** Presence of the federally endangered tidewater goby and federally threatened South-Central California Coast Steelhead had been established through research and past field surveys. Presence was also verified during conversations with National Marine Fisheries Service Biologist Anthony Spina and U.S. Fish and Wildlife Service Biologist Carol Tyson (Spina 2001-2003; Tyson 2002-2003).

***Pismo Creek Scour Repair (Proposed Project)***

**July 29, 2014:** Caltrans Senior Environmental Planner Larry Bonner made a written request to National Marine Fisheries Service Biologist Jay Ogawa for an official project area species list.

**July 30, 2014:** Caltrans Biologist Geoff Hoetker submitted an online request through the U.S. Fish and Wildlife Service Information, Planning and Conservation System (IPaC) website for an official U.S. Fish and Wildlife Service species list for the project area. Mr. Hoetker received the official species list via email the same day.

**August 18, 2014:** The official National Marine Fisheries Service species list was received by Caltrans and included the South-Central California Coast Steelhead as well as South-Central California Coast Steelhead critical habitat (Appendix A of the Biological Assessment for South-Central California Steelhead).

**October 15, 2015:** The official National Marine Fisheries Service species list was re-validated by Mr. Ogawa at the request of Caltrans Biologist John Moule. That official National Marine Fisheries Service species list is included as Appendix A of the Biological Assessment for South-Central California Steelhead.

**January 27, 2015:** Field visit with Caltrans Design and Environmental team and Jay Ogawa with National Marine Fisheries Service, Paula Richter with Regional Water Quality Control Board, Laura Peterson-Diaz with California Department of Fish and Wildlife, and Mike Gruver and Carolyn Johnson with the City of Pismo Beach. The team discussed potential noise and vibration from pile driving, RSP versus smooth concrete on the embankments, water quality, potential impacts to swallows, archaeology sites and a joint (consolidated) permit with the CCC and the City of Pismo Beach.

**July 15, 2015:** A request for an updated official U.S. Fish and Wildlife Service species list from the Ventura Fish and Wildlife Service Office was made online by Caltrans Biologist John Moule via the U.S. Fish and Wildlife Service IPaC website (USFWS 2015). The most recent official U.S. Fish and Wildlife Service list is included as Appendix A of the Biological Assessment for South-Central California Steelhead.

**December 21, 2015:** Caltrans submitted a Biological Assessment of the project's effects on south-central California coast steelhead (*Oncorhynchus mykiss irideus*) and steelhead critical habitat to the National Marine Fisheries Service (NMFS) requesting initiation of formal consultation under Section 7 of the Federal Endangered Species Act (FESA).

**January 26, 2016:** The NMFS deemed the steelhead Biological Assessment complete and initiated formal FESA Section 7 consultation on the proposed project.

**January 28, 2016:** A Biological Assessment of the project's effect on multiple federally listed species, including tidewater goby (*Eucyclogobius newberryi*) and tidewater goby critical habitat, was submitted to the U.S. Fish and Wildlife Service (USFWS) requesting initiation of formal consultation under Section 7 of the FESA. In this submission, Caltrans also requested programmatic concurrence and FESA incidental take coverage for California red-legged frog (*Rana draytonii*) under the "Programmatic Biological Opinion for Projects Funded or Approved under the Federal Highway Administration's Federal Aid Program" (USFWS 2011).

**April 8, 2016:** Caltrans received a Biological Opinion from the NMFS addressing the proposed project's effects on south-central California coast steelhead and steelhead critical habitat. The Biological Opinion concluded that the project is not likely to jeopardize the continued existence of south-central California coast steelhead, or destroy, or adversely modify designated critical habitat for the species. An incidental take statement for juvenile steelhead was included in the NMFS Biological Opinion.

**April 19, 2016:** John Moule (Caltrans Project Biologist) spoke to Mark Elvin (USFWS) via telephone about questions Mr. Elvin had on the Biological Assessment Caltrans submitted to the USFWS. Mr. Elvin provided information supporting the USFWS opinion that all temporary impacts to critical habitat are likely to adversely affect that critical habitat. The Caltrans determination on tidewater goby critical habitat had been that the project may affect, but is not likely to adversely affect tidewater goby critical habitat. Though impacts to tidewater goby critical habitat would be temporary, and the habitat will be restored to pre-existing conditions, Mr. Elvin's interpretation was that any impact to critical habitat is likely to adversely affect that critical habitat. Mr. Moule agreed to change the determination on tidewater goby critical habitat to "may affect, and is likely to adversely affect".

**May 9, 2016:** The USFWS deemed the Biological Assessment complete and initiated formal FESA Section 7 consultation on the proposed project.

**June 30, 2016:** Caltrans received a Biological Opinion from the USFWS addressing the proposed project's effects on tidewater goby and tidewater critical habitat. The Biological Opinion concluded that the project is not likely to jeopardize the continued existence of tidewater goby, or result in the destruction or adversely modification of designated critical habitat for the species. An incidental take statement for tidewater goby was included in the NMFS Biological Opinion.

### **Agency Coordination and Professional Contacts**

The following summarizes other agency coordination and professional contacts in addition to the U.S. Fish and Wildlife Service consultation summarized in Chapter 1.3 of the Biological Assessment submitted to the U.S. Fish and Wildlife Service.

**January 27, 2015:** An early coordination meeting was conducted at the project site and included Caltrans staff, representatives from the California Department of Fish and Wildlife, National Marine Fisheries Service, Regional Water Quality Control Board and City of Pismo Beach. The scope of work, area of work, impacts, jurisdictional waters, special-status species, and mitigation were discussed.

**June 1, 2015:** A conference call was made to National Marine Fisheries Service Biologist Jay Ogawa and included Caltrans project team members John Moule (Biology), Ben Erchul (Hydraulics), and Wes Thompson (Design). The discussion included fish passage in the Biological Study Area, hydrology of the creek, and design options.

**September 24, 2015:** National Marine Fisheries Service Biologist Jay Ogawa visited the Caltrans District 5 offices. Caltrans Senior Environmental Planner Larry Bonner and Biologist John Moule met with Mr. Ogawa and discussed the project's hydro acoustic analysis and dewatering.

**December 2015:** With the submission of the Biological Assessment, Caltrans initiated a request for formal Section 7 consultation with the National Marine Fisheries Service to obtain concurrence with the determinations made in the Biological Assessment for potential impacts to South-Central California Coast Steelhead and South-Central California Coast Steelhead critical habitat.

**March 23, 2016:** Caltrans Environmental with Project Management, Design and Enhancement, held a public information meeting at the Pismo Beach Veteran's Hall. No feedback/comment cards were completed, but several people attended; a consultant representing the Mobil Home Park, a resident concerned about hydraulics, and Jeff Brubaker with SLOCOG, who wants to incorporate a portion of the De Anza Trail.

**April 2016:** Caltrans Environmental with Project Management and Design met with SLOCOG representative Jeff Brubaker and the City Planning Manager to discuss incorporating a segment of the De Anza Trail within the project area. Ongoing discussions and coordination efforts are expected.

**April 2016:** Email request to Matt Everling, Community Planning Manager for the preparation of a consolidated permit process with the Coastal Commission.

**July 15, 2016:** The California Coastal Commission notified Caltrans that they had received the consolidation permit request letters from the City of Pismo Beach and Caltrans and approved the request.

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## Chapter 4 List of Preparers

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This document was prepared by the following Caltrans Central Region staff:

Carr, Robert. Associate Landscape Architect. B.S., Landscape Architecture, California Polytechnic State University, San Luis Obispo; 20 years of experience preparing Visual Impact Assessments. Contribution: Visual Impact Study.

Bevk, Alexandra. Associate Environmental Planner – Architectural History. M.S., Historic Preservation, University of Pennsylvania, Philadelphia; 8 years of experience preparing built environment cultural resource reports. Contribution: Cultural Resources Review.

Chafi, Abdul Rahim, P.E., Civil/Environmental Engineer. Ph.D., Environmental Engineering Management, California Coast University at Santa Ana; M.S., Civil Engineering, California State University Fresno; 18 years of experience in environmental engineering conducting air, noise and water quality analysis. Contribution: Air Quality and Noise Reviews.

Donatello, Allison. Associate Environmental Planner, B.S., Landscape Architecture, California Polytechnic State University, San Luis Obispo; 25 years of experience in environmental land planning, and design. Contribution: Prepared the Mitigated Negative Declaration/Initial Study.

Donatello, Amy. P.E. B.S., Civil Engineering, California Polytechnic State University, San Luis Obispo; 27 years of experience in civil and transportation engineering. Contribution: Project Manager.

Erchul, Benedict, P.E., Civil/Transportation Engineer. B.S., Civil Engineering, California Polytechnic State University, San Luis Obispo; 14 years of experience performing highway design, hydraulic, hydrologic and fish passage analysis. Contribution: Location Hydraulic Study and Fish Passage Analysis.

Fouche, John. Senior Transportation Engineer. Registered Professional Engineer. B.S., Civil Engineering; more than 23 years of experience as a Design Engineer. Contribution: Design Manager.

- Haydu, Damon M. Associate Environmental Planner (Archaeology). M.A., Cultural Resources Management, Sonoma State University, Rohnert Park; 25 years of experience in all phases of cultural resources management. Contribution: Archaeological Survey Report (ASR)/Historic Properties Survey Report (HPSR).
- Leyva, Isaac. Engineering Geologist. B.S., Geology, California State University, Bakersfield; A.S., Cuesta College, San Luis Obispo; 20 years of experience in petroleum geology, environmental, geotechnical engineering. Contribution: Paleontology technical report, Water Quality and Hazardous Waste and Initial Site Assessment.
- Moule, John. Associate Biologist/Environmental Planner. B.S., Biology, Humboldt State University; 22 years of experience in natural resources and biology. Contribution: Natural Environment Study.
- Schefter, Ed. Senior Transportation Surveyor. B.S., Surveying; 20 years of GPS/GIS (Global Position System/Geographical Information System) experience. Contribution: Prepared mapping for Environmental Assessment/Initial Study and Natural Environment Study.
- Sojourner, Anna. Engineering Geologist. B.Sc., Geology, San Francisco State University, M.Sc., Geology, San Jose State University, CA Professional Geologist #7537, CA Certified Engineering Geologist #2562; 15 years of experience in Caltrans Geotechnical Design-West conducting geotechnical investigations. Contribution: Preliminary Foundation Report.
- Thompson, Wesley, Project Engineer, B.S., Civil Engineering, California Polytechnic State University, San Luis Obispo; 8 years of design experience, 1 year of construction experience, and 6 months of field surveys experience. Contribution: District Project Design.
- Wilkinson, Jason. Senior Environmental Planner. B.S., Natural Resource Management, California Polytechnic State University, San Luis Obispo; 9 years of environmental planning experience. Contribution: Supervised the preparation of the Mitigated Negative Declaration/Initial Study.
- Yang, Sunny, Transportation Engineer. Ph.D., Columbia University; 15 years of experience in geotechnical engineering and earthquake engineering. Contribution: Foundation Design.

## Chapter 5      Distribution List

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<p>Shell Beach Main Library 230 Leeward Avenue Pismo Beach, CA 93449</p>	<p>San Luis Obispo County Planning and Building Department 976 Osos Street #200 San Luis Obispo, CA 93401</p>
<p>Arroyo Grande Library 800 W. Branch Street Arroyo Grande, CA 93420</p>	<p>Mike Gruver Community Development Department 760 Mattie Road Pismo Beach, CA 93449</p>
<p>U.S. Army Corps of Engineers 1325 J Street, Room 1513 Sacramento, CA 95814</p>	<p>California Coastal Commission 725 Front Street Santa Cruz, CA 95060 Attention: Yair Chaver</p>
<p>U.S. Fish and Wildlife Service Ventura Fish and Wildlife Office 2493 Portola Road, Suite B Ventura, CA 93003</p>	<p>Native American Heritage Commission 1560 Harbor Boulevard, Room 100 West Sacramento, CA 95691</p>
<p>Laura Peterson Diaz California Department of Fish and Wildlife South Coast Region 1234 East Shaw Ave. Fresno, CA 93710</p>	<p>Central Coast RWQCB 895 Aerovista Place, Suite 101 San Luis Obispo, CA 93401-7906</p>
<p>San Luis Obispo Council of Governments 1114 Marsh Street San Luis Obispo, CA 43401</p>	<p>Jay Ogawa National Marine Fisheries Service 501 West Ocean Boulevard, Suite 4200 Long Beach, CA 90802-4213</p>

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# Appendix A California Environmental Quality Act Checklist

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The following checklist identifies physical, biological, social and economic factors that might be affected by the project. The California Environmental Quality Act impact levels include “potentially significant impacts,” less than significant impact with mitigation,” less than significant impact,” and “no impact.”

Supporting documentation of all California Environmental Quality Act (CEQA) checklist determinations is provided in Chapter 2 of this Initial Study. Documentation of “No Impact” determinations is provided at the beginning of Chapter 2. Discussion of all impacts, avoidance, minimization, and/or mitigation measures is under the appropriate topic headings in Chapter 2.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
<b>I. AESTHETICS:</b> 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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input 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"/>
<b>II. AGRICULTURE AND FOREST RESOURCES:</b> 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"/>

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	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"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<b>III. AIR QUALITY:</b> 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"/>
<b>IV. BIOLOGICAL RESOURCES:</b> Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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	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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input 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:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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 type="checkbox"/>	<input checked="" 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 greenhouse gas 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"/>

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	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"/>

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	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 ground borne vibration or ground borne 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:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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
<b>XV. RECREATION:</b>				
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"/>
<b>XVI. TRANSPORTATION/TRAFFIC:</b> 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 checked="" type="checkbox"/>	<input type="checkbox"/>
<b>XVII. UTILITIES AND SERVICE SYSTEMS:</b> 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"/>

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	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"/>

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STATE OF CALIFORNIA—BUSINESS, TRANSPORTATION AND HOUSING AGENCY

EDMUND G. BROWN Jr., Governor

## DEPARTMENT OF TRANSPORTATION

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March 2013

### NON-DISCRIMINATION POLICY STATEMENT

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

For information or guidance on how to file a complaint based on the grounds of race, color, national origin, sex, disability, religion, sexual orientation, or age, please visit the following web page: [http://www.dot.ca.gov/hq/bep/title\\_vi/t6\\_violated.htm](http://www.dot.ca.gov/hq/bep/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 the California Department of Transportation, Office of Business and Economic Opportunity, 1823 14<sup>th</sup> Street, MS-79, Sacramento, CA 95811. Telephone: (916) 324-0449, TTY: 711, or via Fax: (916) 324-1949.

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

MALCOLM DOUGHERTY  
Director

*"Caltrans improves mobility across California"*

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# Appendix C Minimization and/or Mitigation Summary

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Below are summaries of the avoidance, minimization and/or mitigation measures that would be used in the project. For a detailed description of the following measures, please refer to the appropriate topic section in Chapter 2.

## **Visual and Aesthetics**

With implementation of the following measures the potential visual effects of the project would be minimized and no substantial visual impacts would occur.

### Measures common to both Design Options:

7. All existing vegetation including roadside landscaping shall be protected to the greatest extent possible. Vegetation to be preserved shall be delineated by exclusionary fencing and other methods.
8. The two Mexican fan palms (*Washingtonia robusta*) near the gore area between the northbound off-ramp and the southbound on-ramp shall be protected and saved.
9. New roadside landscaping shall be planted to the maximum extent possible within the following areas:
  - a. Along the ocean side of Price Street and the southbound on-ramp, between Ocean View Street and Pismo Creek.
  - b. Between the southbound on-ramp and the northbound off-ramp, between the gore and Pismo Creek.
  - c. Between the southbound on-ramp and the US 101 mainline, east of Pismo Creek.
10. Appropriate native vegetation shall be planted along the creek banks above the concrete slope protection. The specific types of creek bank vegetation shall be determined by the Caltrans Biologist in coordination with the Caltrans District Landscape Architect.
11. All disturbed areas except the access/haul road shall be re-graded to their pre-construction profiles and contours.
12. If down-drain pipes are required, they shall be substantially hidden from view and not placed on top of the proposed concrete slope protection or existing slope lining.

### Additional Measure for Design Option 2:

13. Concrete slope paving shall include aesthetic treatment.

## **Biological**

### *Wetlands and Other Waters*

The project will affect potential U.S. Army Corps of Engineers/Regional Water Quality Control Board jurisdictional other waters, California Department of Fish and Wildlife jurisdictional areas, and California Coastal Commission coastal zone wetlands/Environmentally Sensitive Habitat Areas within the area of potential impact. Avoidance and minimization measures will be implemented for potential impacts to jurisdictional waters:

1. Prior to construction, Caltrans shall obtain a Section 404 Nationwide Permit from U.S. Army Corps of Engineers, a Section 401 Water Quality Certification from Regional Water Quality Control Board, a Section 1602 Streambed Alteration Agreement from California Department of Fish and Wildlife, and a Coastal Development Permit (or Waiver) from the California Coastal Commission.
2. Prior to construction, Caltrans will prepare a Mitigation and Monitoring Plan to mitigate impacts to vegetation and natural habitats. The Mitigation and Monitoring Plan shall be consistent with federal and state regulatory requirements and will be amended with any regulatory permit conditions, as required. Caltrans shall implement the Mitigation and Monitoring Plan as necessary during construction and immediately following project completion.
3. Caltrans shall ensure that the spread or introduction of invasive exotic plant species will be avoided to the maximum extent possible. When practicable, invasive exotic plants in the project site shall be removed and properly disposed. All sea fig (*Carpobrotus chilensis*) and any other invasive plant species shall be carefully removed by hand from the 224 ft<sup>2</sup> (0.005 ac) California Coastal Commission single-parameter coastal zone wetland and the area surrounding the wetland up to 20 feet. To prevent the spread of invasive species, all vegetation removed from the construction site shall be taken to a landfill and not used as mulch on site. If soil from weedy areas must be removed off-site, the top six inches containing the seed layer in areas with weedy species shall be disposed of at a landfill.
4. Construction activities in jurisdictional waters shall be timed to occur between June 1 and October 30 in any given year, or as otherwise directed by the regulatory agencies, when the surface water is likely to be dry or at seasonal minimum. Deviations from this work window will be made only with permission from the relevant regulatory agencies.

5. All project-related hazardous materials spills within the project site shall be cleaned up immediately. Readily accessible spill prevention and cleanup materials shall be kept by the contractor onsite at all times during construction.
6. During construction, erosion control measures shall be implemented. Silt fencing, fiber rolls, and barriers shall be installed as needed. At a minimum, erosion controls shall be maintained by the contractor on a daily basis throughout the construction period.
7. During construction, the cleaning and refueling of equipment and vehicles shall occur only within a designated staging area and at least 65 feet from wetlands, other waters, or other aquatic areas. The staging areas shall conform to Best Management Practices applicable to attaining zero discharge of storm water runoff. Equipment and vehicles shall be checked and maintained by the contractor on a daily basis to ensure proper operation and avoid potential leaks or spills.
8. Stream contours shall be restored as close as possible to their original condition.
9. Prior to any ground-disturbing activities and after invasive plants have been removed from the 224 ft<sup>2</sup> (0.005 ac) California Coastal Commission single-parameter coastal zone wetland, ESA fencing shall be installed around the wetland and the drip-line of all trees to be protected within project limits. These areas shall be completely excluded from all activities of the project. Caltrans-defined ESAs shall be noted on design plans and delineated in the field prior to the start of construction activities.
10. The five arroyo willows removed within the project area will be re-established at a 3:1 replacement ratio with annual monitoring and reporting for a minimum of five (5) years post construction.

*San Luis Obispo Pyrg (Pyrgulopsis taylori ) and Mimic Tryonia (California Brackishwater Snail) (Tryonia imitator)*

Recommended avoidance and minimization measures for San Luis Obispo pyrg and mimic tryonia include the following:

1. During pre-construction surveys and/or during construction, if biologists observe any *Pyrgulopsis* spp. or *Tryonia* spp., the species will be relocated to suitable aquatic habitat outside of the area of impact.

*South-Central California Coast Steelhead (Oncorhynchus mykiss irideus)*

The following measures will serve to further avoid or minimize impacts to South Central California Coast Steelhead within the area of potential impact:

1. Prior to construction, Caltrans shall acquire incidental take authorization for South-Central California Coast Steelhead from the National Marine Fisheries Service through a Federal Endangered Species Act Section 7 Biological Opinion and Incidental Take Statement.
2. Prior to initiation of stream diversion/dewatering, a qualified biologist shall conduct an informal worker environmental training program including a description of South-Central California Coast Steelhead, its legal/protected status, proximity to the project site, avoidance/minimization measures to be implemented during the project, and the implications of violating Federal Endangered Species Act and permit conditions.
3. During in-stream work, a National Marine Fisheries Service-approved biologist shall be retained with experience in South-Central California Coast Steelhead biology and ecology, aquatic habitats, biological monitoring (including diversion/dewatering), and capturing, handling, and relocating fish species. During in-stream work, the biological monitor(s) shall continuously monitor placement and removal of any required stream diversions to capture stranded South-Central California Coast Steelhead and other native fish species and relocate them to suitable habitat as appropriate. The biologist(s) shall capture (e.g., by hand, dip-net, seine-net, etc.) South-Central California Coast Steelhead stranded as a result of diversion/dewatering and relocate South-Central California Coast Steelhead to suitable in-stream habitat immediately downstream of the work area. The biologist shall note the number of South-Central California Coast Steelhead observed in the affected area, the number of South-Central California Coast Steelhead relocated, and the date and time of the collection and relocation.
4. During in-stream work, if pumps are incorporated to assist in temporarily dewatering the site, intakes shall be completely screened with no larger than 0.094-inch (2.38-mm) wire mesh to prevent South-Central California Coast Steelhead and other sensitive aquatic species from entering the pump system. Pumps shall release the additional water to a settling basin allowing the suspended sediment to settle out prior to re-entering the stream(s) outside of the isolated area. The form and function of all pumps used during the dewatering activities shall be checked daily, at a minimum, by a qualified

biological monitor to ensure a dry work environment and minimize adverse effects to aquatic species and habitats.

5. The biological monitor shall monitor erosion and sediment controls to identify and correct any conditions that could adversely affect South-Central California Coast Steelhead or South-Central California Coast Steelhead habitat. The biological monitor shall be granted the authority to halt work activity as necessary and to recommend measures to avoid/minimize adverse effects to South-Central California Coast Steelhead and South-Central California Coast Steelhead habitat.
6. Dewatering and pile driving with impact hammers shall be limited to the low-flow period between June 1 and October 31, thus avoiding adult South-Central California Coast Steelhead spawning migration and peak smolt emigration.
7. When driving piles, the contractor shall limit the number of daily strikes to no more than 300, based on results of the hydroacoustic analysis conducted for the project.
8. During pile driving, underwater sound levels shall be monitored within 2 feet of the downstream coffer dam, with a hydrophone, to verify that sound levels remain below the NMFS defined level considered harmful to fish under 2 grams (206 decibels of peak sound pressure and 183 decibels of cumulative sound exposure level).
9. Sound attenuating devices shall be utilized if possible.
10. Caltrans shall provide the National Marine Fisheries Service a written summary of work performed (including biological survey and monitoring results), Best Management Practices implemented (i.e., use of biological monitor, flagging of project areas, erosion and sedimentation controls) and supporting photographs. Furthermore, the documentation describing listed species surveys and relocation efforts (if appropriate) shall include name(s) of the Caltrans-approved biologist(s), location and description of area surveyed, time and date of survey, all survey methods used, a list and tally of all sensitive animal species observed during the survey, a description of the instructions/recommendations given to the applicant during the project, and a detailed discussion of capture and relocation efforts (if appropriate).

*Tidewater Goby (Eucyclogobius newberryi)*

In addition to the previously proposed measures, the following measures, including several adapted from the U.S. Fish and Wildlife Service, will serve to further avoid or minimize impacts to the tidewater goby within the area of potential impact:

1. Prior to construction, Caltrans shall acquire incidental take authorization for the tidewater goby from the U.S. Fish and Wildlife Service through a Federal Endangered Species Act Section 7 Biological Opinion and Incidental Take Statement.
2. Prior to initiation of stream diversion/dewatering, a qualified biologist shall conduct an informal worker environmental training program, including a description of tidewater goby, its legal/protected status, proximity to the project site, avoidance/minimization measures to be implemented during the project, and the implications of violating Federal Endangered Species Act and permit conditions.
3. Dewatering shall be limited to the low-flow period between June 1 and October 31, thus avoiding storm events that may compromise the cofferdams and water diversion.
4. Prior to initiation of stream diversion/dewatering and before the cofferdams are installed, a U.S. Fish and Wildlife Service-approved biologist(s) shall install 0.125-inch (3.18-mm) block nets outside of the Area of Potential Impact and across the stream, at minimum of 20 feet (6.1 meters) above and below the locations proposed for the cofferdams. The nets shall be installed on the first day of work and monitored thereafter for the duration of the work.
5. Once the block nets are secured, the U.S. Fish and Wildlife Service-approved biologist(s) shall remove as many tidewater gobies as feasible between the block nets using a 0.125-inch (3.18-mm) seine and dip nets, and relocate tidewater gobies to suitable habitat downstream of the proposed project site.
6. All tidewater goby relocation methods shall use a clean bucket partially filled with creek water that was collected within or adjacent to the capture site. Water in the bucket shall maintain the same temperature as water at the capture site and not contain turbidity greater than current conditions in the creek. Captured tidewater gobies shall be placed in the bucket, immediately relocated to suitable habitat downstream, and released. Should the relocation of tidewater gobies require more than 10 minutes from capture to release, the bucket containing tidewater gobies must be placed in the creek to keep the water from heating and harming tidewater gobies contained in the bucket.

7. Once as many tidewater gobies are removed from the block net enclosure as is feasible, the cofferdams maybe installed within the block net enclosure.
8. Before dewatering occurs, any pumps being used shall be fitted with intake screens no larger than 0.094 inch (2.38 mm) wire mesh to prevent tidewater gobies and other sensitive aquatic species from entering the pump system. Pumps shall release the additional water to a settling basin allowing the suspended sediment to settle out prior to re-entering the creek outside of the isolated area.
9. Because tidewater gobies often reside on the bottom, the pump intake shall be floated near the water surface as long as possible to prevent tidewater gobies from being entrapped on the screen. This can be accomplished with a weight on the intake nozzle (to keep it below the water surface), and a float attached to the hose just above the intake nozzle, that keeps the intake nozzle from going all the way to the bottom. As dewatering proceeds, the U.S. Fish and Wildlife Service-approved biologist(s) shall remove by hand, dip net, or seine all tidewater gobies found and relocate them to suitable habitat downstream of the proposed project site.
10. A U.S. Fish and Wildlife Service-approved biologist shall remain onsite and observe for tidewater gobies and turbidity levels within the work areas during all creek dewatering activities, and shall capture and relocate tidewater gobies to suitable habitat (downstream) as necessary.
11. Caltrans shall provide the U.S. Fish and Wildlife Service a written summary of work performed (including biological survey and monitoring results), Best Management Practices implemented (i.e., use of biological monitor, flagging of project areas, erosion and sedimentation controls) and supporting photographs. Furthermore, the documentation describing listed species surveys and relocation efforts (if appropriate) shall include name(s) of the U.S. Fish and Wildlife Service-approved biologist(s), location and description of area surveyed, time and date of survey, all survey methods used, a list and tally of all sensitive animal species observed during the survey, a description of the instructions/ recommendations given to the applicant during the project, and a detailed discussion of capture and relocation efforts (if appropriate).
12. When driving piles, the contractor shall limit the number of daily strikes to no more than 300 to avoid physical impacts to tidewater gobies from underwater sound exposure, based on results of the hydroacoustic analysis (Section 4.1.1.4.; Appendix F).

*California Red-legged Frog (Rana draytonii)*

On June 30, 2016, the U.S. Fish and Wildlife Service issued a statement that the proposed project satisfies all criteria for Federal Endangered Species Act incidental take coverage under the Programmatic Biological Opinion for Projects Funded or Approved under the Federal Highway Administration's Federal Aid Program (U.S. Fish and Wildlife Service 2011). The U.S. Fish and Wildlife Service concurred with the Caltrans Section 7 determination that the project may adversely affect California red-legged frog and that Caltrans must implement the following avoidance and minimization measures:

1. Only U.S. Fish and Wildlife Service-approved biologists shall participate in activities associated with the capture, handling, and monitoring of California red-legged frogs.
2. Ground disturbance shall not begin until written approval is received from the U.S. Fish and Wildlife Service that the biologist is qualified to conduct the work.
3. A U.S. Fish and Wildlife Service-approved biologist shall survey the project area no more than 48 hours before the onset of work activities. If any life stage of the California red-legged frog is found and these individuals are likely to be killed or injured by work activities, the approved biologist shall be allowed sufficient time to move them from the site before work begins. The U.S. Fish and Wildlife Service-approved biologist shall relocate the California red-legged frogs the shortest distance possible to a location that contains suitable habitat and will not be affected by the activities associated with the project. The relocation site shall be in the same drainage to the extent practicable. Caltrans shall coordinate with the U.S. Fish and Wildlife Service on the relocation site prior to the capture of any California red-legged frogs.
4. Before any activities begin on a project, a U.S. Fish and Wildlife Service-approved biologist shall conduct a training session for all construction personnel. At a minimum, the training shall include a description of the California red-legged frog and its habitat, the specific measures that are being implemented to conserve the California red-legged frog for the current project, and the boundaries within which the project may be accomplished. Brochures, books, and briefings may be used in the training session, provided that a qualified person is on hand to answer any questions.
5. A U.S. Fish and Wildlife Service-approved biologist shall be present at the work site until all California red-legged frogs have been removed, workers have been instructed, and disturbance of the habitat has been completed. After

this time, Caltrans shall designate a person to monitor onsite compliance with all minimization measures. The U.S. Fish and Wildlife Service-approved biologist shall ensure that this monitor receives the training outlined in measure 4 above and in the identification of California red-legged frogs. If the monitor or the U.S. Fish and Wildlife Service-approved biologist recommend that work be stopped because California red-legged frogs would be affected in a manner not anticipated by Caltrans and the U.S. Fish and Wildlife Service during review of the proposed action, they shall notify the resident engineer immediately. The resident engineer shall resolve the situation by requiring that all actions that are causing these effects be halted. When work is stopped, the U.S. Fish and Wildlife Service shall be notified as soon as possible.

6. During project activities, all trash that may attract predators or scavengers shall be properly contained, removed from the work site, and disposed of regularly. Following construction, all trash and construction debris shall be removed from work areas.
7. All refueling, maintenance and staging of equipment and vehicles shall occur at least 60 feet from the riparian habitat or water bodies and not in a location from where a spill would drain directly toward aquatic habitat. The monitor shall ensure contamination of habitat does not occur during such operations. Prior to the onset of work, Caltrans shall ensure that a plan is in place for prompt and effective response to any accidental spills. All workers shall be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.
8. Habitat contours shall be returned to a natural configuration at the end of the project activities. This measure shall be implemented in all areas disturbed by activities associated with the project, unless the U.S. Fish and Wildlife Service and Caltrans determine that it is not feasible or modification of original contours would benefit the California red-legged frog.
9. The number of access routes, size of staging areas, and the total area of activity shall be limited to the minimum necessary to achieve the project. Environmentally Sensitive Areas shall be established to confine access routes and construction areas to the minimum area necessary to complete construction, and minimize the impact to California red-legged frog habitat; this goal includes locating access routes and construction areas outside of wetlands and riparian areas to the maximum extent practicable.
10. Caltrans shall attempt to schedule work for times of the year when impacts to the California red-legged frog would be minimal. For example, work that

would affect large pools that may support breeding would be avoided, to the maximum degree practicable, during the breeding season (November through May). Isolated pools that are important to maintain California red-legged frogs through the driest portions of the year would be avoided, to the maximum degree practicable, during the late summer and early fall. Habitat assessments, surveys, and technical assistance between Caltrans and the U.S. Fish and Wildlife Service during project planning shall be used to assist in scheduling work activities to avoid sensitive habitats during key times of year.

11. To control sedimentation during and after project completion, Caltrans shall implement Best Management Practices outlined in any authorizations or permits, issued under the authorities of the Clean Water Act received for the project. If Best Management Practices are ineffective, Caltrans shall attempt to remedy the situation immediately, in coordination with U.S. Fish and Wildlife Service.
12. If a work site is to be temporarily dewatered by pumping, intakes shall be completely screened with wire mesh not larger than 0.094 inch (2.38 mm) to prevent California red-legged frogs from entering the pump system. Water shall be released or pumped downstream at an appropriate rate to maintain downstream flows during construction. Upon completion of construction activities, any diversions or barriers to flow shall be removed in a manner that would allow flow to resume with the least disturbance to the substrate. Alteration of the streambed shall be minimized to the maximum extent possible; any imported material shall be removed from the streambed upon completion of the project.
13. Unless approved by the U.S. Fish and Wildlife Service, water shall not be impounded in a manner that may attract California red-legged frogs.
14. A U.S. Fish and Wildlife Service-approved biologist shall permanently remove any individuals of exotic species, such as bullfrogs (*Rana catesbeiana*), signal and red swamp crayfish (*Pacifasticus leniusculus*; *Procambarus clarkia*), centrarchid fishes (crappies, black bass, bluegills, etc.), and catfish from the project area, to the maximum extent possible. The U.S. Fish and Wildlife Service-approved biologist shall be responsible for ensuring his or her activities are in compliance with the California Fish and Game Code.
15. If Caltrans demonstrates that disturbed areas have been restored to conditions that allow them to function as habitat for the California red-legged frog, these

areas will not be included in the amount of total habitat permanently disturbed.

16. To ensure that diseases are not conveyed between work sites by the U.S. Fish and Wildlife Service-approved biologist, the fieldwork code of practice developed by the declining Amphibian Task Force shall be followed at all times.
17. Project sites shall be re-vegetated with an assemblage of native riparian, wetland, and upland vegetation suitable for the area. Locally collected plant materials shall be used to the extent practicable. Invasive, exotic plants shall be controlled to the maximum extent practicable. This measure shall be implemented in all areas disturbed by activities associated with the project, unless the U.S. Fish and Wildlife Service and Caltrans determine that it is not feasible or practical.
18. Caltrans shall not use herbicides as the primary method to control invasive, exotic plants. However, if it is determined that the use of herbicides is the only feasible method for controlling invasive plants at a specific project site, Caltrans will implement the following additional protective measures for the California red-legged frog:
  - a. Caltrans shall not use herbicides during the breeding season for the California red-legged frog.
  - b. Caltrans shall conduct surveys for the California red-legged frog immediately prior to the start of herbicide use. If found, California red legged frogs shall be relocated to suitable habitat far enough from the project area that no direct contact with herbicide would occur.
  - c. Giant reed and other invasive plants shall be cut and hauled out by hand and painted with glyphosate-based products, such as Aquamaster® or Rodeo®.
  - d. Licensed and experienced Caltrans staff or a licensed and experienced contractor shall use a hand-held sprayer for foliar application of Aquamaster® or Rodeo® where large monoculture stands occur at an individual project site.
  - e. All precautions shall be taken to ensure that no herbicide is applied to native vegetation.

- f. Herbicides shall not be applied on or near open water surfaces (no closer than 60 feet from open water).
- g. Foliar applications of herbicide shall not occur when wind speeds are in excess of 3 miles per hour.
- h. No herbicides shall be applied within 24 hours of forecasted rain.
- i. Application of all herbicides shall be done by qualified Caltrans staff or contractors to ensure that overspray is minimized, that all application is made in accordance with the label recommendations, and with implementation of all required and reasonable safety measures. A safe dye shall be added to the mixture to visually denote treated sites. Application of herbicides shall be consistent with the U.S. Environmental Protection Agency's Office of Pesticide Programs, Endangered Species Protection Program county bulletins.
- j. All herbicides, fuels, lubricants, and equipment shall be stored, poured, or refilled at least 60 feet from riparian habitat or water bodies in a location where a spill would not drain directly toward aquatic habitat. Prior to the onset of work, Caltrans shall ensure that a plan is in place for a prompt and effective response to accidental spills. All workers shall be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.
- k. Upon completion of the project, Caltrans shall ensure that a Project Completion Report is completed and provided to the U.S. Fish and Wildlife Service, following the template provided with the Programmatic Biological Opinion. Caltrans shall include recommended modifications of the protective measures if alternative measures would facilitate compliance with the provisions of this consultation.

*Western Pond Turtle (Emys marmorata) and Two-striped Garter Snake (Thamnophis hammondi)*

The following avoidance and minimization measure is recommended:

1. Prior to construction, a biologist determined qualified by Caltrans shall survey the Biological Study Area and capture and relocate, if present, any western

pond turtles or two-striped garter snake to suitable habitat upstream of the Biological Study Area. Observations of Species of Special Concern or other special-status species shall be documented on California Natural Diversity Database forms and submitted to the California Department of Fish and Wildlife upon project completion. If western pond turtles or other Species of Special Concern aquatic species are observed during construction, they will likewise be relocated to suitable upstream habitat by a qualified biologist.

*Cooper's Hawk (Accipiter cooperii), American Yellow Warbler (Setophaga petechia), White-tailed Kite (Elanus leucurus), Merlin (Falco columbarius), Yellow-breasted Chat (Icteria virens), Loggerhead Shrike (Lanius ludovicianus), Purple Martin (Progne subis), and Other Nesting Birds*

The following measures apply to all birds protected by the Migratory Bird Treaty Act and California Fish and Game Code. The list of birds protected by these regulatory laws is extensive, and not all birds protected by these laws are included in Table 4 of the Natural Environmental Study. There are no formal survey protocols for most of these bird species, but the California Department of Fish and Wildlife typically requires pre-construction nesting bird surveys and avoidance of impacts to active bird nests.

1. Tree removal shall be scheduled to occur from September 2 to February 14, outside of the typical nesting bird season, to avoid potential impacts to nesting birds. If construction activities are proposed to occur within 100 feet of potential habitat during the nesting season (February 15 to August 31), a nesting bird survey shall be conducted by a biologist determined qualified by Caltrans no more than two weeks (14 days) prior to construction. If an active nest is found, Caltrans shall coordinate with the California Department of Fish and Wildlife to determine an appropriate buffer based on the habits and needs of the species. The buffer area shall be avoided until a qualified biologist has determined that juveniles have fledged.
2. Active bird nests shall not be disturbed, and eggs or young of birds covered by the Migratory Bird Treaty Act and California Fish and Game Code shall not be killed, destroyed, injured, or harassed at any time. Readily visible exclusion zones where nests must be avoided shall be established by a qualified biologist using Environmentally Sensitive Area fencing.
3. It is recommended that bird nests be excluded from the existing bridge. Nesting bird exclusion methods may include installation of exclusion netting, removing/knocking down nests before they contain eggs, or other methods approved by the California Department of Fish and Wildlife. The proper time

for installation of bird exclusion netting is outside of the typical nesting season (i.e., implement exclusion methods from September 1 to February 14).

4. During construction, active bird nests shall not be disturbed and eggs or young of birds covered by the Migratory Bird Treaty Act and California Fish and Game Code shall not be killed, destroyed, injured, or harassed at any time. Readily visible exclusion zones where nests must be avoided within 100 feet of disturbance shall be established by a qualified biologist using Environmentally Sensitive Area fencing. Work in exclusion zones shall be avoided until young birds have fledged (permanently left the nest) or the qualified biologist has determined that nesting activity has otherwise ceased.
5. Trees to be removed shall be noted on design plans. Prior to any ground-disturbing activities, Environmentally Sensitive Area fencing shall be installed around the dripline of trees to be protected within project limits.

*Pallid Bat (Antrozous pallidus), Western Mastiff Bat (Eumops perotis californicus) and Other Roosting Bats*

The following measures apply to all bats protected by the California Department of Fish and Wildlife or under the California Environmental Quality Act. There are no formal survey protocols for most of these bat species, but pre-construction roosting bat surveys and avoidance of impacts to active bat roosts shall be implemented.

1. Bridges within the Biological Study Area shall be surveyed for roosting bats by a qualified biologist within 10 days prior to construction. If roosting bats are present, exclusion devices shall be installed as soon as possible after the bats have left the roost and those exclusion devices shall remain during the entire period of work activities.
2. Exclusion devices shall be placed over potential roosting sites within the Biological Study Area between September 1 and March 31.
3. Bat exclusion devices shall conform to the following materials and provisions:
  - a. Netting shall be a flexible, light-weight polypropylene fabric with a maximum mesh opening of 4.2 mm x 4.2 mm. Mesh fabric shall be furnished in one continuous width and shall not be spliced to conform to the specified width dimension.
  - b. Caulking to attach netting to the bridge shall be 100% silicone.

- c. Vertical one-way exit tubes shall be 50 mm in diameter and 254 mm in length. Tube material shall be PVC or smooth-walled, flexible, plastic tubing.
- d. Installation of bat exclusion devices shall be installed at the sides of bridges joints or hinges; netting shall be secured to the bridge along the top and sides of the opening. The netting should extend 460 mm to 610 mm below the bottom edge of the opening. At expansion joints and hinge joints, netting and vertical one-way exit tubes shall be placed as shown on the plans. Tubes shall be placed every 1.2 meters along the length of each joint. One-way exit tubes shall be inserted 6.5 mm into the joints.
- e. When bat exclusion devices are no longer required, as determined by the engineer, the bat exclusion devices shall become the property of the contractor and shall be removed and disposed of in conformance with the provisions in Section 7-1.13, “Disposal of Material outside the Highway Right of Way,” of the Standard Specifications.
- f. Bat exclusion devices that are damaged during the progress of the work shall be repaired or replaced by the contractor the same day the damage occurs.

### *Invasive Species*

The following avoidance and minimization measures are recommended:

1. During construction, Caltrans will ensure that the spread or introduction of invasive exotic plant species will be avoided to the maximum extent possible.
2. Only clean fill shall be imported. When practicable, invasive exotic plants in the project site shall be removed and properly disposed. All vegetation removed from the construction site shall be taken to a certified landfill to prevent the spread of invasive species. If soil from weedy areas must be removed offsite, the top 6 inches containing the seed layer in areas with weedy species shall be disposed of at a certified landfill. Inclusion of any species that occurs on the Cal-IPC Invasive Plant Inventory in the Caltrans erosion control seed mix or landscaping plans for the project shall be avoided.
3. Construction equipment shall be certified as “weed-free” by Caltrans before entering the construction site. If necessary, wash stations onsite shall be established for construction equipment under the guidance of Caltrans in order

to avoid/minimize the spread of invasive plants and/or seed within the construction area.

### *Construction Emissions*

Measures to address construction emissions for potential air quality impacts from construction activities have been included in the project, including the following that may have a co-benefit of reducing greenhouse gas emissions due to construction activities:

1. All portable construction equipment should be registered with the State's portable equipment registration program or permitted by the district by September 18, 2008.
2. Diesel construction equipment meeting the California Air Resources Board's Tier I emission standards for off-road heavy-duty diesel engines should be used. Equipment meeting Tier 2 or higher emission standards should be used to the maximum extent feasible.
3. The engine size of construction equipment should be the minimum practical size.
4. The number of construction equipment vehicles operating simultaneously should be minimized through efficient management practices to ensure that the smallest practical number is operating at any one time.
5. Construction equipment should be maintained in tune per the manufacturer's specifications.
6. Construction equipment operating onsite should be equipped with 2 to 4 degree engine timing retard or pre-combustion chamber engines.
7. Catalytic converters shall be installed on gasoline-powered equipment, if feasible.
8. Diesel catalytic converters, diesel oxidation catalyst and diesel particulate filters as certified and/or verified by the Environmental Protection Agency or California Air Resources Board should be installed on equipment whenever feasible.
9. Diesel-powered equipment should be replaced by electric equipment whenever feasible.

10. Idling of heavy-duty diesel trucks during loading and unloading should be limited to 5 minutes.
11. To the extent possible, route and schedule construction traffic to reduce congestion and related air quality caused by idling vehicles and along local roads during peak travel times.
12. Gasoline-dispensing equipment must have local air district permits, be certified by the California Air Resources Board, and operated in accordance with local air district rules and the Air Board certification requirements. Periodic maintenance and testing are specified under the California Air Resources Board executive order that was issued for the certification and by many local air district rules. Equipment repairs and testing must be performed by trained personnel with proper certifications by the manufacturers and, depending on the air pollution control district, by the International Code Council. In addition, local air pollution control districts generally require records of all repair and testing activities to be maintained onsite.

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# Appendix D Comments and Responses

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This appendix contains the comments received during the public circulation and comment period from March 10, 2016 to April 12, 2016. A Caltrans response follows each comment presented.



**CITY OF PISMO BEACH**  
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(805) 773-4658 / Fax (805) 773-4684

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April 5, 2016

Mr. Jason Wilkinson, Senior Environmental Planner  
Central Coast Environmental Management Branch  
California Department of Transportation  
50 Higuera Street  
San Luis Obispo, California 93401

**SUBJECT: RESPONSE TO MND FOR THE PISMO CREEK SCOUR REPAIR PROJECT**

Thank you for the opportunity to review the proposed MND and to provide comments on the proposed Pismo Creek Scour Repair Project.

1. At the top of page 17 it states that a trail link along the Pismo Creek is infeasible and that Caltrans, in its discussions with SLOCOG, would need to reconfigure the entire highway, bridge and interchange at this location (northbound 101 off-ramp) to accommodate a link to the De Anza Trail. The trail system is a very important recreational amenity and Planning staff would like to revisit alternative trail design options with Caltrans for this critical link.
2. The City prefers the rock slope protection (RSP) option over the placement of 6-inch-thick concrete slope paving for aesthetic purposes.
3. Page 23 states that the most noticeable aspects of the completed project would be the loss of vegetation on and above the creek banks and roadsides, the rock slope protection along the channel, and the outrigger bent cap and new columns at bent 3. The removal of the mature vegetation (including an approximate 80-foot tall tree) along the ocean side of the Caltrans slope abutting the construction access point at the end of Park Avenue will also be a significantly noticeable impact to the residents that live contiguous to the proposed construction area and along Park Avenue. Per General Plan Design Element Policy D-13, please provide a proposed landscape plan that mitigates potential erosion, dust and aesthetic impacts identified along the freeway, the creek slope embankment, Caltrans slope and the proposed construction access area.

Mitigation measure No. 5 on page 24 states that all disturbed areas including access roads shall be re-graded to their preconstruction profiles and contours. Revegetation should also be included for the access road.

4. What, if any, improvements will be made to the proposed construction access area off of Park Avenue? What is the possibility of building a flight of stairs up the

Caltrans slope at the end of Park Avenue to the existing pedestrian trail along Price Street?

5. On page 14, under General Plan Policy CO-21 Pismo Creek Protection, it states that avoidance, minimization, and mitigation measures would be used to minimize impacts to the creek during construction and to restore the native habitat to its original condition. However, on page 17 it states under Avoidance, Minimization, and/or Mitigation Measures that no avoidance, minimization, and/or mitigation measures are required. In addition, the very next section, Section 2.1.2 on page 17 it states that this project has the potential to affect resources protected by the Coastal Zone Management Act of 1972. Please clarify.
6. Viewer sensitivity is high along the southbound bridge. To aid in restoring aesthetics, is it possible to remove the jersey barriers mentioned at the bottom page 22?
7. Is there the possibility to add some type of public art element to the 3-foot diameter piers on the outrigger bent? Maybe some vertical text on the downstream pier that reads "Pismo Creek"?
8. The habitat exhibit on page 37 identifies a thicket of 5 mature Willow trees within the Caltrans ROW at the base of the slope. In addition, an approximate 60-foot tall single mature eucalyptus tree stands adjacent to the Willow thicket, very close to the Caltrans ROW line. Is there any way to leave these trees intact while allowing for construction access? What about obtaining permission from the owner of the adjacent vacant lot for construction access, laydown and temporary vehicle storage? The last paragraph on page 40 states that temporary impacts will include the removal of five native Arroyo Willow trees on the west side of the creek. If this impact is temporary, will the native Arroyo Willow trees be replanted? If so, where? Staff does not support the removal of native vegetation.
9. The Noise section on page 73 states that the construction period will last between 18-24 months. When is the anticipated start date? Have the residents of Park Avenue been notified that large noisy construction vehicles will be traveling their street? How will they be notified? Were they specifically notified of the Intent to Adopt a MND? What are the hours of operation? With resident's vehicles parked along this narrow street, is the travel lane even wide enough for large construction vehicles? Also, there is no language that speaks to the project's compliance with the City of Pismo Beach's Noise Ordinance/Noise Element.
10. The second paragraph on page 41 states that construction equipment will be staged at the end of Park Avenue. Based on Figure 1-4 on page 4, it appears that the proposed grading area is only large enough to provide for an adequate turning radius. How is it possible to park equipment here at the end of the street while providing an adequate turning radius for vehicles into the site?
11. Will all of the Ornamental vegetation be removed as highlighted in Figure 2-3 on page 37? If so, this is not a temporary aesthetic impact unless replacement

vegetation of the same size is planted. Also, what about erosion when a significant amount of the ice plant mats/other vegetation is removed?

Again, we appreciate the opportunity to comment and would like to meet with you to discuss alternative design options for a De Anza Trail link. Please let me know when you are available. I can be reached at 805-773-7043 or [meverling@pismobeach.org](mailto:meverling@pismobeach.org).

Sincerely,

Matt Everling  
Planning Manager

## ***Response to Comments from the City of Pismo Beach***

Thank you for your comments on the project.

**Response to comment 1:** Caltrans environmental, design engineers, and managers met with SLOCOG and the City of Pismo Beach Community Planners to discuss how the Pismo Creek Scour Repair project can accommodate the De Anza Trail link. Due to the elevation of the north bound off-ramp immediately north of the project, trail access under the highway to connect to the trail further up the creek, is not possible. As a result, SLOCOG has developed several alternative trail routes that bypass this obstacle and are requesting the use of the Caltrans ROW adjacent to the project site to locate the future trail from the creek's edge up to Price Street via a 5' wide trail and staircase (See Figure I-7).

Additionally, SLOCOG would like to utilize the proposed graded haul road from Park Ave. to the project site for the De Anza trail alignment at this location. Caltrans has agreed to work with SLOCOG and the City of Pismo Beach to use a portion of the project area for a future trail alignment and possible staircase.

**Response to comment 2:** An updated model of the proposed scour protection and bridge modification with updated hydraulic survey information is currently being completed. The rock slope protection option has the potential to introduce a flood water surface elevation increase that may be unacceptable. Although we do not anticipate this happening due to the preliminary model results, we cannot completely rule it out at this time. The most conservative option to maintain current flood water surface elevations is to replace the damaged slope protection in kind. Ultimately, the preferred design will be determined by the results of the final model. Aesthetically, rock slope protection is preferred over the smooth concrete option. However, Caltrans Landscape Architects may be able to apply texture to the concrete surface of the embankment paving. See the revised Mitigation Measures for Visual

**Response to comment 3:** The project would cause an adverse effect on the visual character of the site and its surroundings. With appropriate replanting, the vegetated character of the channel would be re-established, and the visibility of the new concrete slope protection and bridge elements would decrease.

A landscape plan that mitigates for potential erosion, dust, and aesthetic impacts will be prepared during the next phase of the project. Appropriate native vegetation shall be planted along the creek banks above the concrete slope protection. The specific types of creek bank vegetation shall be determined by the Caltrans Biologist in coordination with the Caltrans District Landscape Architect.

Although some vegetation would be removed along the right-of way fenceline, a substantial amount would remain along the upper slopes between the private properties and the southbound on-ramp. In addition, Section 2.1.4, Mitigation Measure #3, addresses road side landscaping including replanting of the area along the ocean side of Price Street and the southbound on-ramp, between Ocean View Street and Pismo Creek.

To accommodate construction access, it will be necessary to remove five arroyo willow trees. The project will not remove the mature 80 foot Blue Gum eucalyptus tree near the end of Park Ave., on the project's right of way line. The landscape plan and mitigation and monitoring plan will detail how the area will be replanted, monitored, and deemed successful. The construction road will not be re-graded to its preconstruction profile and will be hydro-seeded to prevent erosion and replanting of the arroyo willows will be re-located to avoid this area.

Caltrans Standard Specification sections pertaining to dust control and dust palliative applications are required for all construction contracts and would effectively reduce and control construction-emission impact. The provisions of Caltrans Standard Specifications, Section 14 "Air Pollution Control" and Section 10 "Dust Control," require the contractor to comply with all California Air Resources Board and San Luis Obispo County Air Pollution Control District rules, ordinances and regulations.

**Response to comment 4:** During a coordination meeting with the City of Pismo Beach and SLOCOG, the team discussed the possibility of a flight of stair leading from the base of the slope at either the end of park or closer to the creek' edge, near the western abutment (as shown in SLOCOG's conceptual plans, Figure I-7). Caltrans has agreed to work with SLOCOG and the City of Pismo Beach, through a cooperative agreement, to use a portion of project area for a future trail alignment and possible staircase.

**Response to comment 5:** Caltrans has agreed to accommodate the De Anza Trail through the project area. The specifics of the alignment and Caltrans agreements are still being negotiated between the City, SLOCOG and Caltrans.

Please note that Section 2.1.4, Mitigation Measure #4, is in reference to the preservation and rehabilitation of the native habitat adjacent to the creek.

Regarding Section 2.1.2 Coastal Zone, the first sentence has been revised to: "The Coastal Zone Management Act of 1972 is the main federal law enacted to preserve and protect coastal resources". For Coastal Commission's input during permit

processing, please see the letter submitted by the Coastal Commission at the end of this section.

**Response to comment 6:** The project is not doing any work to the bridge deck where the K-rails/jersey barriers are located. The K-rails at this location provide a physical barrier between vehicular traffic and pedestrian and bike traffic using this multi-use path. The environmental review does not include this work.

**Response to comment 7:** Transportation Art is something proposed, funded, installed and maintained by local governments. Caltrans has a process to receive, review and approve proposals before they go into the Encroachment Permit stage.

If Caltrans is unable to accommodate a request to include an artistic element to the pier, at this time, because it is determined to be inappropriate under CEQA, then Caltrans will work with the City on a separate follow-up Transportation Art project and/or Community Identifier project which the City would design, fund, and install later through the encroachment permit process.

In addition, there might be a hybrid of the two approaches in which Caltrans could provide certain structural accommodations such as insets or fasteners, etc. that would facilitate a future art installation by the locals (the Orcutt Union Valley Parkway example). As discussed, if an art installation were to attach an element to the bents or slope paving the structural engineers and/or hydraulics designers would have to anticipate that addition with regard to added weight, water friction, and ease of earthquake inspections, etc.

**Response to comment 8:** The adjacent landowner was contacted and denied Caltrans an easement to use his property for construction access.

In order to access the project's construction area at the north end of Park Avenue, it will be necessary to remove the thicket of five arroyo willow trees. However, access can be achieved without removing the mature 80 foot Blue Gum eucalyptus tree near the end of Park Ave., on the project's right of way line.

The arroyo willow trees will be planted upon the completion of construction and replaced at a 3:1 ratio and monitored for a minimum of 5 years. While Caltrans would prefer to plant the replacement trees in the same location as where they were removed, the City of Pismo Beach and SLOCOG have stated they would like to keep this area clear for the future De Anza Trail alignment. Areas for replanting the arroyo willows will be selected in locations closer to the creek which is a habitat more favorable to their survival.

**Response to comment 9:** In Construction Impacts Section 2.4, Environmental Consequences, the Noise section, incorrectly states that the construction period is 18-24 months. The estimate for working days to complete construction is 100 days which is 5-6 months with work starting around October 2018. Work will occur during the daytime hours, only. This correction will be reflected in the Final Environmental Document. Caltrans will implement a combination of abatement techniques with equipment noise control and administrative measures to provide the most effective means to minimize effects of construction activity impacts and noise.

Residents on Park Avenue were not individually notified about the Public Information meeting held on March 23, 2016, however, we placed meeting notices in the local newspaper and in mobile home park east of the project area. Please note that as part of the California Coastal Commission permit application process, all residents within 100 feet of the project boundary will be notified. In addition, Caltrans will individually notify all residents on Park Street between Dolliver Street north to the project entrance, as well as placing notices in the mobile home park regarding construction activities and duration.

In regard to following local noise standards, we understand that local standards may differ from state and federal standards, but as a state agency we are obligated to maintain consistency in applying state and federal standards equally across the state. When there is an inconsistency between state and local standards, the Federal Highway Administration Noise Standards and the Caltrans Noise Protocol must be followed. Caltrans has included noise control measures to minimize noise and vibration disturbances in Section 2.4.

**Response to comment 10:** Caltrans engineers have analyzed the turning radius at the end of Park Avenue as it connects with the construction access road and have determined that it is possible to access the construction site at this location. The access area within Caltrans right of way and the dewatered channel will be available for construction equipment as well as along Park Ave (without restricting access to residents) or other offsite locations (contractor can negotiate with adjacent property owner for staging area if necessary).

**Response to comment 11:** A small portion of the ornamental vegetation west of the southbound onramp (non-native spider gum eucalyptus) will be removed. Any vegetation removed by the project, will be replaced with native plantings of an appropriate size to insure their long-term success and to limit any temporary aesthetic impact. To mitigate for possible erosion, an erosion control seed mix will be applied

to all re-graded areas in combination with other erosion control best management practices.

Only the vegetation area shown in red as “Area of Potential Effect (APE)” on Figure 2-3 would be removed. In addition, a substantial amount of existing vegetation would remain along the upper slopes adjacent to Price Street and the southbound on-ramp. Section 2.1.4, Mitigation Measure #3, includes a visual mitigation measure requiring replanting of the area long the ocean side of Price Street and the southbound on-ramp, between Ocean View Street and Pismo Creek. The project will include erosion control of all disturbed areas, including areas of iceplant removal.

Comments on the Pismo Creek Scour Repair Project Draft MND

From SLOCOG

April 11, 2016

From: Jeff Brubaker [<mailto:JBrubaker@slocog.org>]

Sent: Monday, April 11, 2016 3:27 PM

To: Donatello, Amy L@DOT <[amy.donatello@dot.ca.gov](mailto:amy.donatello@dot.ca.gov)>; Wilkinson, Jason J@DOT <[jason.wilkinson@dot.ca.gov](mailto:jason.wilkinson@dot.ca.gov)>

Cc: Utter, Cindy A@DOT <[cindy.utter@dot.ca.gov](mailto:cindy.utter@dot.ca.gov)>; Rich Murphy <[RMurphy@slocog.org](mailto:RMurphy@slocog.org)>; Ron DeCarli <[RDeCarli@slocog.org](mailto:RDeCarli@slocog.org)>;

[bfine@pismo-beach.org](mailto:bfine@pismo-beach.org); Jeffrey Peters <[JPeters@questaec.com](mailto:JPeters@questaec.com)>

Subject: Pismo Scour Project and Edna-Price Canyon Trail

Amy and Jason,

This email serves to provide a few comments on the Pismo Scour project. Some are reiterated from my March 15 email.

1. SLOCOG supports this critical repair project.
2. The project's access road generally coincides with the Primary Route identified in the Edna-Price Canyon Trail Feasibility Study. The study was adopted on March 2, 2016, by our Board. The adopted study is available at [www.sloanza.com](http://www.sloanza.com), and an excerpt showing the Primary Route is attached. A note on this page indicates, "Integrate bike/ped improvements into Caltrans Pismo Scour Project".
3. The study also includes 25% preliminary engineering of the trail from the beach to Bello St. Bridge. This enabled our study consultant, Questa Engineering, to take a closer look at trail feasibility in this area. They found that a trail from the creek to Ocean View-Price intersection was feasible.
4. The study states (p. 80):
  - o "Caltrans Pismo Creek Scour Project (Section 3.2) includes a temporary access road to provide access to the work area. This temporary road would be located on Caltrans property, connecting the end of Park Avenue to the creek. It is recommended that this temporary access road be allowed to remain post-construction to enable construction of bicycle and pedestrian improvements to connect Price Street with Park Avenue as an interim connection to trail segments at Ira Lease Park. If possible, the road could be paved and a ramp provided to connect Price Street with the existing Five Cities Path, consistent with Caltrans' commitment to facilitating bicycle and pedestrian as part of SHOPP projects."

The third attachment shows the trail segment in relation to the Pismo Scour Project's access road. Since it is the City's trail segment, the City's input and coordination is essential in the desirability and timing of building this trail segment in conjunction with the Scour Project. SLOCOG is ready to continue coordination with Caltrans and the City as necessary.

Thanks in advance for your consideration, and I look forward to discussing further on Thursday.

Jeff Brubaker, AICP  
Transportation Planner  
San Luis Obispo Council of Governments (SLOCOG)  
1114 Marsh St. | SLO, CA 93401  
805-788-2104

***Response to Comments from San Luis Obispo Council of Governments (SLOCOG)***

Thank you for your comments on the project.

**Response to comment 1:** Thank you Jeff and SLOCOG for your support of the project.

**Response to comment 2:** In discussions with representatives from SLOCOG and the City of Pismo Beach, Caltrans has agreed to work together to accommodate the future De Anza Trail within the proposed Pismo Creek Scour Repair project limit area. SLOCOG and the City of Pismo Beach have requested to use the projects graded construction access/haul road as the future trail alignment and have asked that we do not return the area to its original contour grades. Caltrans has agreed not to re-grade to the original contours but will hydroseed the area for erosion control until SLOCOG can construct the trail improvements within the project limit area. (See Figure I-7)

**Response to comment 3:** Caltrans will coordinate with SLOCOG and the City of Pismo Beach to accommodate the alignment of the De Anza Trail through project area. In the future, the trail improvements outside the project limits but within the Caltrans right of way, will have to be developed via a cooperative agreement between the City of Pismo Beach, SLOCOG and Caltrans. (See Figure I-7)

**Response to comment 4:** See Response #2 and #3.

**CALIFORNIA COASTAL COMMISSION**

CENTRAL COAST DISTRICT OFFICE  
725 FRONT STREET, SUITE 300  
SANTA CRUZ, CA 95060  
PHONE: (831) 427-4863  
FAX: (831) 427-4877  
WWW.COASTAL.CA.GOV



April 12, 2016

Mr. Jason Wilkinson  
Senior Environmental Planner  
Caltrans District 5  
50 Higuera Street  
San Luis Obispo, CA 93401-5415

**Subject: Pismo Creek Scour Repair Project – Draft Initial Study/Mitigated Negative Declaration (IS/MND)**

Dear Mr. Wilkinson:

Thank you for the opportunity to review the above referenced Draft Initial Study and Mitigated Negative Declaration (IS/MND) for the Pismo Creek Scour Repair Project. The proposed project consists of repairs of the Highway 1 Pismo Creek Bridge (Bridge Number 49-0015K) in Pismo Beach. The proposed project would include repair of the crumbling embankments at the base of the outer bents covering over 5,000 square feet of either 200 lb. rocks or concrete slope paving, as well as installation of sheet piles in the stream bank. Work to improve the center bent would include installation of an “outrigger” bent connected to the existing piers with a cap beam. We have the following comments on the IS/MND:

**1. Coastal Development Permit Jurisdiction.**

In situations where a project footprint includes both Coastal Commission and local government coastal development permitting (CDP) jurisdictions, an applicant may either apply to both for separate CDPs covering their respective jurisdictions, or may request, along with the local government, to have the Coastal Commission take jurisdiction over the entire CDP pursuant to Coastal Act Section 30601.3.<sup>1</sup> A consolidated CDP thus may serve as a more efficient review process in these dual permitting situations.

<sup>1</sup> **Section 30601.3 Coastal development permit application; processing criteria; standard of review; application fee; adoption of guidelines**

(a) Notwithstanding Section 30519, the commission may process and act upon a consolidated coastal development permit application if both of the following criteria are satisfied:

(1) A proposed project requires a coastal development permit from both a local government with a certified local coastal program and the commission.

(2) The applicant, the appropriate local government, and the commission, which may agree through its executive director, consent to consolidate the permit action, provided that public participation is not substantially impaired by that review consolidation.

(b) The standard of review for a consolidated coastal development permit application submitted pursuant to subdivision (a) shall follow Chapter 3 (commencing with Section 30200), with the appropriate local coastal program used as guidance.

(c) The application fee for a consolidated coastal development permit shall be determined by reference to the commission's permit fee schedule.

In this case, it appears from Figure 1-4: Proposed Project Site Plan Elements that the portion of the project in Pismo Creek (i.e. the sheet piles and outrigger bent) is within the Coastal Commission's CDP jurisdiction, and that other parts of the proposed project, including the Proposed Construction Access Area is at least partially within the City of Pismo Beach's CDP jurisdiction. Under Coastal Act Section 30601.3, the City and the Applicant (Caltrans) would both need to make a request to the Executive Director of the Commission for a consolidated coastal permit process. Typically such a request is made in writing and the Coastal Commission would process the application. The standard of review for the consolidated permit would be the Coastal Act, with the Pismo Beach Local Coastal Program providing guidance. As such, we would recommend pursuing a consolidated CDP and are available to assist in this process.

## **2. Protection of Environmentally Sensitive Habitat Areas**

The project footprint as shown in Figure 2-3 of the IS/MND encompasses a wetland as defined by the Coastal Act. The Environmental Consequences section on page 43 anticipates 224 square feet of temporary impact to the wetland. Page 47 of the DIS/MND discusses avoidance, minimization, and mitigation measures. The measures state that Caltrans shall prepare a Mitigation and Monitoring Plan to mitigate impacts to vegetation and natural habitats; however, the measures also include fencing off and avoiding environmentally sensitive areas. It is thus not exactly clear what the extent of potential impacts to wetlands would be. Thus, please ensure that the IS/MND clearly articulates the extent and type of impacts to wetlands and other sensitive habitats anticipated, as well as a detailed discussion of measures to avoid all impacts and the reasons it is infeasible to do so.

## **3. Hazards Evaluation**

The IS/MND assesses flood hazards and sea level rise (SLR) separately. Since higher water levels resulting from SLR would increase upstream flooding, these analyses should be conducted together. The bridge already is an impediment to flood flow, and this issue may become worse in the future. Please ensure to address the combined impacts of floods and SLR, including an evaluation of how the proposed project will ensure the bridge's stability and structural integrity over its economic life in the face of coastal hazards such as flooding and SLR.

## **4. Project Alternatives**

The project evaluates three alternatives: the no-build alternative and two build alternatives. The build alternatives both include armoring the stream banks and the use of sheet piles in the stream bed. However, additional feasible, less environmentally damaging alternatives may be possible.

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(d) To implement this section, the commission may adopt guidelines, in the same manner as interpretive guidelines adopted pursuant to paragraph (3) of subdivision (a) of Section 30620.

For example, we recommend that the feasibility of the “clear span” alternative, whereby all embankments are located outside of Pismo Creek’s riparian corridor (and thus all impacts to wetland and riparian habitat are avoided), is explored. Furthermore, the outrigger piles could be built large enough so that they replace some of the piles, instead of adding to the in-creek disturbance. In addition, the bridge embankment could be flattened to more closely match the adjacent slopes. This could mean that more of the approach would need to be pile supported, but it would allow the creek banks to have some armor as well as vegetation. Right now, there apparently is vegetation growing in the cracks of the concrete on the far bank as well as on the up- and downstream slopes – which indicates that the creek can support vegetation if it is given something into which it can root. If that widening is too drastic, part of the embankment closest to the creek could be flattened, and transition into a fairly vertical wall at the abutment, with tiebacks or batter piles used at that transition. Also, rather than covering the entire flattened slope with vegetation, there could be a vegetation band next to the creek, and then a pedestrian and bicycle access trail that goes under the bridge. We recommend that the IS/MND look into the feasibility of these additional project alternatives.

#### **5. Protection of Threatened and Endangered Species (TES).**

In section 2.3.4, the DIS/MND discusses protection of TES. In the Avoidance, Minimization, and/or Mitigation Measures subsection, #5 on page 62 states “The U.S. Fish and Wildlife Service-approved biologist(s) shall remove as many tidewater gobies as feasible between the block nets ... and relocated tidewater gobies to suitable habitat downstream of the proposed project site.” The term “as many as feasible” is not defined and thus leaves open the possibility that many individual fish will not be relocated. We recommend the MND to include detailed provisions for what constitutes “as many as feasible”, as well as a description of what measures will be employed to protect tidewater gobies should their complete relocation be deemed infeasible.

In addition, subsections #8 on page 63 regarding tidewater goby, #16 on page 65 regarding trout, and subsection #12 on page 68 regarding red-legged frogs all address how to ensure that TES individuals will not enter the pump system used to dewater the creek section. The subsections recommend using intake screens no larger than 2.38-mm, 5-mm, and 5-mm respectively to achieve this. It is not clear why different sized screens are recommended for the same activity – namely dewatering the creek section under construction – when all three species may be equally impacted by the activity at the same time. It may make more sense to use the smallest screen setting of 2.38-mm when dewatering the creek section which will help ensure that all three species will not enter the pump system. We recommend the MND explore this alternative.

Finally, subsection #5 on page 66 recommends designating a Caltrans-approved person to monitor onsite compliance with minimization measures for protection of red-legged frogs once the USFWS-approved biologist provides training. The training is to include, at a minimum, a description of the red-legged frog and its habitat, the specific measures that are being implemented to conserve the California red-legged frog for the project, and the boundaries

Mitigated Negative Declaration Comments  
Pismo Creek Scour Repair Project – Draft Initial Study/Mitigated Negative Declaration  
Caltrans District 5  
April 12, 2016

within which the project may be accomplished. Red-legged frogs have a high degree of variability of phenotype, especially post-metamorphosis juveniles, and are often very difficult to identify in the field. The training provided by the USFWS-approved biologist may be insufficient to protect red-legged frogs to the maximum extent feasible. We recommend that the USFWS biologist be present at all times, or at the very least perform daily pre-work surveys to ensure that no individuals have moved into the project area. Also, red-legged frogs are known to move long distances, especially during the breeding season. The measures included in the DIS/MND do not address the possible movement of individual red-legged frogs into the project site. It is possible to erect exclusion fences using silt-fencing or similar material around the project site that would prevent individuals from entering the project site. We recommend that such measures be implemented.

If you have any questions regarding these comments or wish to discuss the project further, please contact me at (831) 427-4865 or at [Yair.Chaver@coastal.ca.gov](mailto:Yair.Chaver@coastal.ca.gov).

Sincerely,



Yair Chaver  
Coastal Planner  
Central Coast District Office

## **Response to Comments from California Coastal Commission**

Thank you for your comments on the project.

**Response to comment 1:** Caltrans and the City of Pismo have requested that Jack Ainsworth, the Executive Director of the Coastal Commission to allow the project to use the consolidated coastal permitting process. On July 15, 2016, the California Coastal Commission notified Caltrans that they had received the consolidation permit request letters from the City of Pismo Beach and Caltrans and approved the request.

**Response to comment 2:** The small area of coastal wetlands (224 sq. ft.) will be fenced off with ESA fencing and completely avoided during project construction. The temporary impact that could occur to this wetland is an indirect impact that may result from the loss of source water when Pismo creek is dewatered. This wetland goes through a natural cycle of inundation when the Pismo Lagoon water level is high and then loses water when the sand bar is breach and the water level drops. One beneficial effect of the project is the removal of invasive iceplant (*Carpobrotus chilensis*) currently spreading across this wetland. Once the project is complete and the iceplant is removed, this area is anticipated to return to better than pre-existing conditions. Of the two wetland plant species identified in the wetland, marsh jaumea (*Jaumea carnosa*) is succulent and rhizomatous and will spread easily. Silverweed (*Argentina anserinai*) is also known to spread rapidly by its prolific rooting stolons. The Mitigation and Monitoring Plan will include success criteria to insure the reestablishment of native wetland vegetation in this area, after the removal of the invasive iceplant. This activity is an enhancement for this coastal wetland area since no direct permanent or temporary impacts will result to this habitat.

**Response to comment 3:** The Federal Code of Regulations CFR 23 and 44 that we adhere to when performing floodplain analysis do not include requirements for incorporating sea level rise (SLR). The current FEMA Flood Insurance Rate Maps (FIRM) that have been created to show floodplain boundaries do not incorporate SLR. The purpose of the floodplain analysis is to show that the proposed project does not impact the existing floodplain. The floodplain analysis includes a conservative water surface elevation downstream of the bridge that coincides with the estimated SLR and shows no significant impact to the existing floodplain upstream of the proposed improvements. The existing condition of the lagoon at the bridge resembles the estimated SLR water surface elevation due to the flat longitudinal slope of the creek as well as the sandbar at the outlet to the ocean.

SLR will affect bridge design in some cases and require certain design characteristics to be incorporated. SLR was considered in the bridge design and determined to have

no impact. The bridge is considerably higher than the estimated SLR water surface elevation and would accommodate any flooding hazards.

**Response to comment 4: Response to comment 4:** This project was initiated by the Caltrans Bridge Maintenance and Investigations Branch that routinely inspects and monitors highway structures throughout the State. The Pismo Creek scour issue has been documented in inspection reports for over 20 years since the initial failure of the existing slope lining in the early 1990's. The most recent inspection was in 2014 and included work recommendations to address the scour around bents 2, 3, and 4 and also documented that the deck, superstructure, and abutments are all in very good condition. Therefore the current project was programmed with the purpose and need to address the scour at bents, 2, 3, and 4 of the existing structure (See Section 1.2 and Figure 1-3).

The current proposed alternative of the outrigger bent and slope protection address the scour issue at the three bents without affecting any additional elements of the existing structure that were documented to be in very good condition. The intent of the outrigger bent retrofit at bent 3 is to assist the full loading of the structure, supplementing the existing piers at the bent as a secondary system once the two new bents and cap beam are in place.

Caltrans selected the current alternative because repairing the structural damage under the bridge will prolong the life of the overall structure without disrupting traffic at the on-ramp. Replacing the bridge deck with a clear span structure would require closure of Price Street on-ramp and cause extreme inconvenience to area businesses, local residents and tourist that use the ramp on a daily bases. The alternative on-ramps to access US 101 southbound are located 2 miles north (near Dinosaur Park) and 3 miles south (Five Cities Drive) of the existing on-ramp at Price Street. A closure duration of 3 to 4 months would result in considerable impacts to local traffic circulation.

Regarding the ability to couple the embankment repair with a pedestrian and bicycle trail that goes under the bridge. Caltrans is working in coordination with SLOCOG and the City of Pismo Beach Planning Department to discuss how the Pismo Scour Repair project can accommodate the De Anza Trail link. Due to the elevation of the northbound off-ramp at this location, trail access under the highway to connect to the De Anza Trail further up the creek, is not possible. As a result, SLOCOG has developed several alternative trail routes that bypass this obstacle and are requesting the use of the Caltrans ROW adjacent to the project site to construct the future trail (See Figure 1-7).

**Response to comment 5:** The intent of the term "feasible" in the tidewater goby relocation effort is to make every reasonable effort to relocate as many tidewater gobies and steelhead as possible prior to any potential impacts occurring from the dewatering process. The term "feasible" was used to describe only the first stage of seining between the block nets prior to dewatering. The dewatering process will take two stages. During the first stage, the block-netted area is full of water and the effort is focused on using a beach seine to remove as many fish as feasible (basically, until no more can be captured with that beach seine). After this step, the project area will be dewatered. During dewatering, the water is drawn down between the cofferdams, any remaining fish will be captured by dip-net and or by hand until every visible fish is removed from the dewatered area.

Caltrans will utilize a pump intake screen of 2.38mm for all dewatering activities.

Though training provided by the USFWS-approved biologist is sufficient to identify the California red-legged frog (CRLF), it is not necessary to the dewatering effort because every herpetile species or fish that can be captured will be relocated outside of the dewatered area. Regardless of the onsite biologist's ability to identify CRLF, any species of frog, post-metamorphosis juvenile, or tadpole found on site will be relocated to suitable habitat outside of the project area.

It is not feasible for a USFWS biologist to be present at all times considering the current USFWS funding levels and workload and it is also not the responsibility of the USFWS to conduct this work. It is the responsibility of Caltrans to monitor the dewatering effort and Caltrans has an approved programmatic biological opinion with the USFWS to do this work. All biological monitors will be both Caltrans and USFWS approved prior to any monitoring taking place.

Project construction and dewatering will take place outside of the California red-legged frog breeding and dispersal season. The California red-legged frog breeding and dispersal season occurs from the first significant rain (November) through mid-May. A restriction on work during the wet season (Oct. 30 – June 1) is in place with avoidance and minimization effort for jurisdictional waters and steelhead migration.

US 101 bridges, slope paving, and Pismo creek combined, make installation of exclusion fencing (silt-fencing) virtually impossible. The project area could never be completely excluded with silt-fencing. Additionally, exclusion fencing installed in this area could act as drift fencing that directs species to the road surface where they may be killed by vehicles. Avoidance measures on Page 120 (#5) call for an onsite monitor that has the authorization to stop all work activities should a CRLF be found in the work area.



Edmund G. Brown Jr.  
Governor

STATE OF CALIFORNIA  
Governor's Office of Planning and Research  
State Clearinghouse and Planning Unit



Ken Alex  
Director

April 13, 2016

Allison Donatello  
California Department of Transportation, District 5  
50 Higuera Street  
San Luis Obispo, CA 93401

Subject: Pismo Creek Scour Repair Project  
SCH#: 2016031041

Dear Allison Donatello:

The State Clearinghouse submitted the above named Mitigated Negative Declaration to selected state agencies for review. The review period closed on April 12, 2016, and no state agencies submitted comments by that date. This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act.

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

Sincerely,

Scott Morgan  
Director, State Clearinghouse

1400 TENTH STREET P.O. BOX 3044 SACRAMENTO, CALIFORNIA 95812-3044  
TEL (916) 445-0613 FAX (916) 323-3018 www.opr.ca.gov

**Document Details Report  
State Clearinghouse Data Base**

**SCH#** 2016031041  
**Project Title** Pismo Creek Scour Repair Project  
**Lead Agency** Caltrans #5

**Type** MND Mitigated Negative Declaration  
**Description** Project proposes to repair the banks of Pismo Creek and piers of Pismo Creek Bridge (Br No 49-0015K) against erosion and scour. The bridge is a part of the southbound on-ramp to US 101 (PM 16.4) from Price St. in Pismo Beach. Construction work is within the existing right of way.

**Lead Agency Contact**

**Name** Allison Donatello  
**Agency** California Department of Transportation, District 5  
**Phone** 805-542-4685 **Fax**  
**email**  
**Address** 50 Higuera Street  
**City** San Luis Obispo **State** CA **Zip** 93401

**Project Location**

**County** San Luis Obispo  
**City** Pismo Beach  
**Region**  
**Lat / Long**  
**Cross Streets** US 101 and Price Street  
**Parcel No.** State right of way  
**Township** **Range** **Section** **Base**

**Proximity to:**

**Highways** 101  
**Airports**  
**Railways**  
**Waterways** Pismo Creek  
**Schools** in Pismo Beach  
**Land Use** CA Coastal Original Jurisdiction

**Project Issues** Aesthetic/Visual; Biological Resources; Coastal Zone; Flood Plain/Flooding; Drainage/Absorption; Water Quality; Wetland/Riparian; Landuse

**Reviewing Agencies** Resources Agency; Department of Fish and Wildlife, Region 4; Department of Parks and Recreation; Department of Water Resources; California Highway Patrol; Air Resources Board; State Water Resources Control Board, Division of Water Quality; Regional Water Quality Control Board, Region 3; Native American Heritage Commission; State Lands Commission

**Date Received** 03/14/2016 **Start of Review** 03/14/2016 **End of Review** 04/12/2016

Note: Blanks in data fields result from insufficient information provided by lead agency.

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# Appendix E US Fish and Wildlife Service Programmatic Biological Opinion

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## United States Department of the Interior

FISH AND WILDLIFE SERVICE  
Ventura Fish and Wildlife Office  
2493 Portola Road, Suite B  
Ventura, California 93003



IN REPLY REFER TO:  
08EVEN00-2016-F-0209

June 30, 2016

John Moule  
District 5 Associate Biologist  
Environmental Stewardship Branch  
California Department of Transportation  
50 Higuera Street  
San Luis Obispo, California 93401-5415

Subject: Biological Opinion on Pismo Creek Bridge Scour Repair Project, City of Pismo Beach, San Luis Obispo County, California (EA: 05-1C370) (2016-F-0209)

Dear Mr. Moule:

This document transmits the U.S. Fish and Wildlife Service's (Service) biological opinion based on our review of the California Department of Transportation's (Caltrans) proposal to repair and rehabilitate the southbound on-ramp bridge to U.S. Highway 101 (US-101) from Price Street spanning Pismo Creek (Bridge No 49-0015K) in the City of Pismo Beach, San Luis Obispo County, California, and its effects on the federally endangered tidewater goby (*Eucyclogobius newberryi*) and its critical habitat, and the federally threatened California red-legged frog (*Rana draytonii*), in accordance with section 7 of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.). We received your January 28, 2016, request for formal consultation on February 2, 2016.

Caltrans has assumed the Federal Highway Administration's (FHWA) responsibilities under the Act. This action is in accordance with Section 1313, Surface Transportation Project Delivery Program, of the Moving Ahead for Progress in the 21st Century Act (MAP-21) of 2012, as described in the National Environmental Policy Act assignment Memorandum of Understanding between FHWA and Caltrans (effective October 1, 2012) and codified in 23 U.S.C. 327.

We have based this biological opinion on information that accompanied your January 28, 2016, request for consultation, including the Biological Assessment for the State Route 101 in San Luis Obispo County, Southbound On-ramp from Price Street, Pismo Creek Bridge (Bridge #49-0015k) (Caltrans 2016), and files in our office. We can make a record of this consultation available at the Ventura Fish and Wildlife Office.

### California Red-legged Frog

Under the administration of the Programmatic Biological Opinion for Projects Funded or Approved under the Federal Highway Administration's Federal Aid Program (8-8-10-F-58) (PBO), you are required to notify us of project activities that may affect any federally listed species analyzed within this programmatic biological opinion. You have determined that the subject project may adversely affect the federally threatened California red-legged frog. The Pismo Creek Bridge Scour Repair Project (including the restoration of impacted vegetation) constitutes a single project and is not part of a larger action. As described, this project satisfies the four criteria outlined in the PBO for projects that may adversely affect the California red-legged frog. Per your notification, all minimization and avoidance measures outlined in the PBO under Minimization of Adverse Effects will be implemented for this project. We concur with your determination that the Pismo Creek Bridge Scour Repair Project, City of Pismo Beach, San Luis Obispo County, California (EA: 05-1C370) may adversely affect the California red-legged frog and is appropriate for inclusion under the PBO. Caltrans must implement all avoidance and minimization measures, reasonable and prudent measures, and terms and conditions of the PBO. Based on your use of the PBO, we will not discuss California red-legged frog further in this biological opinion.

### Other Listed Species/Critical Habitat Considered

In your January 28, 2016, request for formal consultation on the proposed Pismo Creek Bridge Scour Repair Project, you determined that the proposed project may affect, but is not likely to adversely affect, designated critical habitat for the tidewater goby. You based this determination on the fact that direct impacts to critical habitat would occur within a small area (less than 1/10<sup>th</sup> of an acre), the direct impacts to critical habitat would be temporary, and that you did not anticipate there would be any permanent direct impacts to critical habitat for tidewater goby. As described in the Consultation History below, we did not concur with this determination, and the effects of the action on critical habitat for the tidewater goby are analyzed in this biological opinion.

You also determined the proposed action would have no effect on the federally endangered marsh sandwort (*Arenaria paludicola*), California jewelflower (*Caulanthus californicus*), saltmarsh bird's beak (*Chloropyron maritimum* subsp. *maritimum*), (San Luis Obispo fountain thistle (*Cirsium fontinale* var. *obispoense*), La Graciosa thistle (*Cirsium loncholepis* [= *Cirsium scariosum* var. *loncholepis*]), Pismo clarkia (*Clarkia speciosa* subsp. *immaculata*), Indian Knob mountainbalm (*Eriodictyon altissimum*), Nipomo Mesa lupine (*Lupinus nipomensis*), Gambel's watercress (*Rorippa gambellii* [*Nasturtium gambellii*]), California seablite (*Suaeda californica*), Morro shoulderband snail, (*Helminthoglypta walkeriana*), blunt-nosed Leopard lizard (*Gambelia silus*), southwestern willow flycatcher (*Empidonax traillii extimus*), California clapper rail (*Rallus longirostris obsoletus*), California least tern (*Sternula antillarum browni*), least Bell's vireo (*Vireo belli pusillus*), Morro Bay kangaroo rat (*Dipodomys heermanni morroensis*), Giant kangaroo rat (*Dipodomys ingens*), and San Joaquin kit fox (*Vulpes macrotis mutica*) and the federally threatened Morro manzanita (*Arctostaphylos morroensis*), spreading navarretia

(*Navarretia fossalis*), vernal pool fairy shrimp (*Branchinecta lynchi*), marbled murrelet (*Brachyramphus marmoratus*), Kern primrose sphinx moth (*Euproserpinus euterpe*), California tiger salamander (*Ambystoma californiense*), western yellow-billed cuckoo (*Coccyzus americanus*), and western snowy plover (*Charadrius alexandrinus nivosus*), and the southern sea otter (*Enhydra lutris nereis*). You stated that either the project site does not support suitable habitat for these species or they were not observed during appropriately-timed surveys. Lastly, you determined that the proposed action would have no effect on designated critical habitat for these species, because the project site does not occur within critical habitat units for these species.

You have requested our concurrence with your determinations that the proposed action would have “no effect” on these species. The regulations implementing section 7(a)(2) of the Act (50 Code of Federal Regulations 402) do not require our concurrence with a “no effect” determination made by a Federal agency and it is Service policy to not provide such a concurrence.

#### **Consultation History**

Caltrans indicated that two previous proposals were made to repair the scour damage under the US-101 southbound on-ramp bridge over Pismo Creek (Caltrans 2016). Both of these projects were cancelled for various reasons.

- January 8, 1997: Caltrans prepared a biological assessment for the proposed Pismo Creek Slope Repair Project (one of the two previously proposed projects). The Service issued a biological opinion for the Slope Repairs Beneath Three Pismo Creek Bridges on US-101 Project, San Luis Obispo County, California (1-8-97-F-9); however, the proposed project was never implemented.
- June 2002: During development of the Price Street Extension Project (one of the two previously proposed projects), Caltrans determined that the presence of the federally endangered tidewater goby had been established through research and past field surveys. The tidewater goby's presence was verified by the Service (Caltrans 2016).
- July 30, 2014: Caltrans Biologist Geoff Hoetker received the official species list for the Pismo Creek Scour Repair Project (the currently proposed project) through the Service's Information, Planning and Conservation System (IPaC) website.
- January 25, 2016: Caltrans Biologist John Moule received an updated species list through IPaC for the proposed project.
- January 28, 2016: Caltrans requested consultation for the tidewater goby and in that letter stated that there would be direct impacts to designated critical habitat for the tidewater goby, but that because it was a small area of critical habitat, the temporary nature of the impacts, and that

there were not likely to be permanent impacts, Caltrans determined the proposed project may affect, but was not likely to adversely affect, tidewater goby critical habitat.

- April 19, 2016: In a phone conversation, we discussed with Caltrans its determination that the proposed project was not likely to adversely affect tidewater goby critical habitat. Caltrans agreed with our opinion that dewatering a small, but measureable, area of critical habitat would result in adverse effects to that critical habitat and that the proposed project may affect and was likely to adversely affect critical habitat for the tidewater goby. Caltrans requested we include critical habitat for the tidewater goby in the biological opinion.

#### BIOLOGICAL OPINION

##### DESCRIPTION OF THE PROPOSED ACTION

Caltrans proposes to repair and rehabilitate the southbound on-ramp bridge to US-101 from Price Street spanning Pismo Creek (Bridge No 49-0015K) at postmile (PM) 16.4 in the City of Pismo Beach, San Luis Obispo County, California. Caltrans would rehabilitate the center structural supports and repair the crumbling embankments on either side of the creek to protect them from future scour. Caltrans also proposes to temporarily remove adjacent vegetation to provide access and room to conduct project activities. Caltrans would install a temporary stream diversion and to dewater this portion of Pismo Creek to isolate the bridge and embankments so they can conduct the bridge repairs and upgrades.

Caltrans anticipates being able to complete construction within a single work season over approximately 150 days, likely in 2019. Caltrans would limit dewatering the creek to the time during the low-flow period, between June 15 and October 31, within a single work season.

Caltrans proposes to remove invasive weed species and revegetate the work site with an assemblage of suitable native riparian, wetland, and upland vegetation using locally collected plant materials as part of their Mitigation and Monitoring Plan (MMP). The MMP would include bi-annual monitoring; reporting; and success criteria to determine when the revegetation is done. The success criteria are 100 percent success for arroyo willow and 60 to 75 percent success for other native plants.

##### **Avoidance and Minimization Measures**

Caltrans proposes to implement the following measures, including several adapted from the Service (Caltrans 2016) to minimize effects to tidewater goby:

1. Prior to initiation of stream diversion/dewatering, a qualified biologist will conduct an informal worker environmental training program including a description of tidewater goby, its legal/protected status, proximity to the project site, avoidance/minimization measures to be implemented during the project, and the implications of violating the Act or conditions in the biological opinion.

2. Dewatering will be limited to the low-flow period between June 15 and October 31, thus avoiding storm events that may compromise the cofferdams and water diversion.
3. Prior to initiation of stream diversion/dewatering and before the cofferdams are installed, a Service-approved biologist(s) will install 0.125-inch (3.18-millimeter) block nets outside of the area to be dewatered and across the stream, at minimum of 20 feet upstream and downstream from the locations proposed for the cofferdams. The nets will be installed on the first day of work and monitored thereafter for the duration of the work.
4. Once the block nets are secured, the Service-approved biologist(s) will remove as many tidewater gobies as possible between the block nets using a 0.125-inch (3.18-millimeter) seine and dip nets, and relocate tidewater gobies to suitable habitat downstream of the proposed project site.
5. All tidewater goby relocation methods will utilize a clean bucket partially filled with creek water collected within or adjacent to the capture site. Caltrans will ensure that the water in the bucket maintains the same temperature as the water at the capture site and that it does not contain turbidity greater than the current conditions in the creek. Captured tidewater gobies will be placed in the bucket, immediately relocated to suitable habitat downstream, and released. Should the relocation of tidewater gobies require more than 10 minutes from capture to release, the bucket containing tidewater gobies must be placed in the creek to keep the water from heating and harming tidewater gobies contained in the bucket.
6. Once as many tidewater gobies are removed from the block net enclosure as possible, the cofferdams will be installed within the block net enclosure.
7. Before dewatering occurs, any pumps being used will be fitted with intake screens no larger than 0.094-inch (2.38-millimeter) wire mesh to prevent tidewater gobies and other sensitive aquatic species from entering the pump system. Pumps will release the additional water to a settling basin allowing the suspended sediment to settle out prior to re-entering the creek outside of the isolated area.
8. Because tidewater gobies often reside on the bottom, the pump intake will be floated near the water surface as long as possible to prevent tidewater gobies from being entrapped on the screen. This can be accomplished with a weight on the intake nozzle (to keep it below the water surface), and a float attached to the hose just above the intake nozzle, that keeps the intake nozzle from going all the way to the bottom. As dewatering proceeds, the Service-approved biologist(s) will remove by hand, dip net, or seine all tidewater gobies found and relocate them to suitable habitat downstream of the proposed project site.
9. A Service-approved biologist will remain onsite and monitor for tidewater gobies and turbidity levels within the work areas during all creek dewatering activities, and if the turbidity

levels increase too much will capture and relocate tidewater gobies to suitable habitat (downstream), as necessary.

10. Caltrans will provide the Service a written summary of work performed (including biological survey and monitoring results), protective measures implemented (i.e., use of biological monitor, flagging of project areas, erosion and sedimentation controls) and supporting photographs. Furthermore, the documentation describing listed species surveys and relocation efforts (if appropriate) will include name(s) of the Service-approved biologist(s), location and description of area surveyed, time and date of survey, all survey methods used, a list and tally of all sensitive animal species observed during the survey, a description of the instructions/recommendations given to the applicant during the project, and a detailed discussion of capture and relocation efforts (if appropriate).

11. When driving piles, the contractor will limit the number of daily strikes to no more than 300 to avoid physical impacts to tidewater gobies from underwater sound exposure, based on results of the hydro-acoustic analysis (Section 4.1.1.4; Appendix F of the biological assessment).

#### ANALYTICAL FRAMEWORK FOR THE JEOPARDY AND ADVERSE MODIFICATION DETERMINATIONS

##### **Jeopardy Determination**

Section 7(a)(2) of the Endangered Species Act requires that Federal agencies ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of listed species. "Jeopardize the continued existence of" means "to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species" (50 CFR 402.02).

The jeopardy analysis in this biological opinion relies on four components: (1) the Status of the Species, which describes the range-wide condition of the tidewater goby, the factors responsible for that condition, and its survival and recovery needs; (2) the Environmental Baseline, which analyzes the condition of the tidewater goby in the action area, the factors responsible for that condition, and the relationship of the action area to the survival and recovery of the tidewater goby; (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 tidewater goby; and (4) the Cumulative Effects, which evaluates the effects of future, non-Federal activities, that are reasonably certain to occur in the action area, on the tidewater goby.

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 current status of the tidewater goby, taking into account any cumulative effects, to determine if implementation of the proposed action is likely to reduce appreciably the likelihood of both the survival and recovery of the

tidewater goby in the wild by reducing the reproduction, numbers, and distribution of that species.

#### **Adverse Modification Determination**

Section 7(a)(2) of the Endangered Species Act requires that Federal agencies ensure that any action they authorize, fund, or carry out is not likely to result in the destruction or adverse modification of designated critical habitat. A final rule revising the definition of “destruction or adverse modification of critical habitat” was published on February 11, 2016 (81 FR 7214). The revised definition states: “Destruction or adverse modification means a direct or indirect alteration that appreciably diminishes the value of critical habitat for the conservation of a listed species. Such alterations may include, but are not limited to, those that alter the physical or biological features essential to the conservation of a species or that preclude or significantly delay development of such features.”

The revised “destruction or adverse modification” definition focuses on how Federal actions affect the quantity and quality of the physical or biological features<sup>1</sup> in the designated critical habitat for a listed species and, especially in the case of unoccupied habitat, on any impacts to the critical habitat itself. Specifically, the Service will generally conclude that a Federal action is likely to “destroy or adversely modify” designated critical habitat if the action results in an alteration of the quantity or quality of the essential physical or biological features of designated critical habitat, or that precludes or significantly delays the capacity of that habitat to develop those features over time, and if the effect of the alteration is to appreciably diminish the value of critical habitat for the conservation of the species.

The Service may consider other kinds of impacts to designated critical habitat. For example, some areas that are currently in a degraded condition may have been designated as critical habitat for their potential to develop or improve and eventually provide the needed ecological functions to support species' recovery. Under these circumstances, the Service generally concludes that an action is likely to “destroy or adversely modify” the designated critical habitat if the action alters it to prevent it from improving over time relative to its pre-action condition. The “destruction or adverse modification” definition applies to all physical or biological features; as described in the proposed revision to the current definition of “physical or biological features” (50 CFR 424.12), “[f]eatures may include habitat characteristics that support ephemeral or dynamic habitat conditions” (79 FR 27066).

The adverse modification analysis in this biological opinion relies on four components: (1) the Status of Critical Habitat, which describes the range-wide condition of designated critical habitat for the tidewater goby in terms of the essential physical or biological features, the factors responsible for that condition, and the intended recovery function of the critical habitat overall; (2) the Environmental Baseline, which analyzes the condition of the critical habitat in the action

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<sup>1</sup> The critical habitat rule for tidewater gobies uses the term “primary constituent elements” (PCEs) to describe the “physical or biological features” (PBFs) as used in the revised definition of “destruction or adverse modification of critical habitat.” For this biological opinion, PCEs and PBFs are considered synonymous.

area, the factors responsible for that condition, and the recovery role of the critical habitat in the action area; (3) the Effects of the Action, which determines the direct and indirect impacts of the proposed Federal action and the effects of any interrelated and interdependent activities on the essential physical and biological features and how that will influence the recovery role of the affected critical habitat units; and (4) Cumulative Effects, which evaluates the effects of future non-Federal activities, that are reasonably certain to occur in the action area, on the essential physical and biological features and how that will influence the recovery role of affected critical habitat units.

#### STATUS OF THE TIDEWATER GOBY AND ITS CRITICAL HABITAT

The Service listed the tidewater goby as endangered on March 7, 1994 (59 Federal Register (FR) 5494). We completed a recovery plan for the tidewater goby on December 12, 2005 (Service 2005), and a 5-Year Review in September 2007 (Service 2007). The Service published a proposed rule to downlist the tidewater goby on March 13, 2014 (79 FR 14339). The proposed downlisting has not been finalized and the species remains listed as endangered.

Detailed information on the biology of the tidewater goby can be found in Wang (1982), Irwin and Soltz (1984), Swift et al. (1989), Worcester (1992), and Swenson (1995). We based much of the information in this status section on these sources.

The tidewater goby is endemic to California and typically inhabits coastal lagoons, estuaries, and marshes, preferring relatively low salinities of approximately 12 parts per thousand (ppt). Tidewater goby habitat is characterized by brackish estuaries, lagoons, and lower stream reaches where the water is fairly still but not stagnant. Tidewater gobies tend to be found in the upstream portions of lagoons. They can withstand a range of habitat conditions and have been documented in waters with salinity levels that range from 0 to 60 ppt, temperatures from 46 to 77 degrees Fahrenheit, and depths from approximately 10 inches to 6.5 feet. Tidewater gobies feed on small invertebrates, including mysids, amphipods, ostracods, snails, aquatic insect larvae, and particularly chironomid larvae; however, tidewater gobies of less than 0.30 inch in length probably feed on unicellular phytoplankton or zooplankton, similar to many other early stage larval fishes.

The tidewater goby is primarily an annual species in central and southern California, although some variation in life history has been observed. If reproductive output during a single season fails, few (if any) tidewater gobies survive into the next year. Reproduction typically peaks from late April or May to July and can continue into November or December depending on the seasonal temperature and amount of rainfall. Males begin the breeding ritual by digging burrows (3 to 4 inches deep) in clean, coarse sand of open areas. Females then deposit eggs into the burrows, averaging 400 eggs per spawning effort and males remain in the burrows to guard the eggs. Male tidewater gobies frequently forego feeding, which may contribute to the mid-summer mortality observed in some populations.

Within 9 to 10 days after eggs are laid, larvae emerge and are approximately 0.20 to 0.27 inch in length. Tidewater gobies live in vegetated areas until they are 0.60 to 0.70 inch long. When they reach this life stage, they become substrate-oriented, spending the majority of time on the bottom rather than in the water column. Both males and females can breed more than once in a season, with a lifetime reproductive potential of 3 to 12 spawning events. Vegetation is critical for overwintering tidewater gobies because it provides refuge from high water flows.

Historically, the tidewater goby occurred in at least 135 California coastal lagoons and estuaries, from Tillas Slough near the Oregon/California border south to Agua Hedionda Lagoon in northern San Diego County. The southern extent of its distribution has been reduced by approximately 8 miles. The species is currently known to occur in about 112 locations, although the number of sites fluctuates with climatic conditions. Some locations presumed to be occupied have not been surveyed in over 10 years. Currently, the most stable populations are in lagoons and estuaries of intermediate size (5 to 124 acres) that are relatively unaffected by human activities. Tidewater gobies that are found upstream of lagoons in summer and fall tend to be juveniles. The highest densities of tidewater gobies are typically present in the fall.

Tidewater gobies enter the marine environment when sandbars are breached during storm events. The species' tolerance of high salinities (up to 60 ppt) for short periods of time enables it to withstand marine environment conditions where salinities are approximately 35 ppt, thereby allowing the species to re-establish or colonize lagoons and estuaries following flood events. However, genetic studies indicate that individual populations rarely have contact with other populations so natural recolonization may be rare. In Santa Barbara County during the fall of 1994, tidewater gobies were reported as common in the Santa Ynez River 4 miles upstream from the lagoon (Swift et al. 1997); however, by January 1995, they were absent at the upstream sites.

Native predators are not known to be important regulators of tidewater goby population size in the lagoons of southern California. Rather, population declines are attributed to environmental conditions. During high flows, lagoon barriers are breached; exposing tidewater gobies to strong tidal conditions. As a result, tidewater goby populations generally plummet. Populations typically recover quickly in summer, with recorded mean densities of 54 to 323 fish per square foot. Tidewater goby densities are greatest among emergent and submerged vegetation (Moyle 2002).

The decline of the tidewater goby is attributed primarily to habitat loss or degradation resulting from urban, agricultural, and industrial development in and around coastal wetlands, lagoons, and estuaries. Some extirpations appear to be related to pollution, upstream water diversions, and the introduction of non-native predatory fish species [most notably, centrarchid sunfish (*Lepomis* spp.) and bass (*Micropterus* spp.)]. These threats continue to affect some of the remaining populations of tidewater gobies. Climate change and the attendant sea level rise may further reduce suitable habitat for the tidewater goby as lagoons and estuaries are inundated with saltwater.

**Tidewater Goby Recovery Plan**

The goal of the tidewater goby recovery plan (Service 2005) is to conserve and recover the tidewater goby throughout its range by managing threats and maintaining viable metapopulations within each recovery unit while retaining morphological and genetic adaptations to regional and local environmental conditions. The decline of the tidewater goby is attributed primarily to habitat loss or degradation resulting from urban, agricultural, and industrial development in and around coastal wetlands. The recovery plan identifies six recovery units: North Coast Unit, Greater Bay Unit, Central Coast Unit, Conception Unit, Los Angeles/Ventura Unit, and South Coast Unit.

The recovery plan specifies that the tidewater goby may be considered for downlisting when:

1. Specific threats to each metapopulation (e.g., coastal development, upstream diversion, channelization of rivers and streams, etc.) have been addressed through the development and implementation of individual management plans that cumulatively cover the full range of the species; and
2. A metapopulation viability analysis based on scientifically-credible monitoring over a 10-year period indicates that each recovery unit is viable. The target for downlisting is for individual sub-units within each recovery unit to have a 75 percent or better chance of persistence for a minimum of 100 years.

The tidewater goby may be considered for delisting when the downlisting criteria have been met and a metapopulation viability analysis projects that all recovery units are viable and have a 95 percent probability of persistence for 100 years.

**Tidewater Goby 5-Year Review**

The 5-year review for the tidewater goby (Service 2007) stated that the recovery plan reflects up-to-date information; however, the 5-year review reconsidered the downlisting and delisting criteria that had been included in the recovery plan (Service 2005). The 5-year review stated that other, currently available information on the species may also be used to determine the appropriate listing status of the species under the Act. These include the current number of occupied localities, current laws and regulations that act to protect the species, and our current understanding of threats and their impact on the tidewater goby. The 5-year review recommended that we reclassify the tidewater goby from endangered to threatened because we concluded that the species was not in imminent danger of extinction. The main reason for this recommendation was that the number of localities known to be occupied had apparently more than doubled since listing. The 5-year review also concluded that the tidewater goby may be more resilient in the face of severe drought events than believed at the time of listing, and that threats identified at the time of listing had been reduced or were not as serious as thought at that time. Although numerous threats to the tidewater goby have been identified (e.g., non-native predation and competition, pollution, cattle grazing), information on the degree of impact of

these threats is generally lacking. According to the 5-year review, the increase in occupied localities indicated that the threats appeared not to be having a major impact on the tidewater goby.

On May 18, 2010, we received a petition from The Pacific Legal Foundation, requesting that the tidewater goby be reclassified as threatened under the Act. Included in the petition was reference to the 5-year review. We published a 90-day finding on January 19, 2011 (76 FR 3069), stating our conclusion that the petition presented substantial scientific or commercial information indicating that the petitioned action (reclassification of the tidewater goby) may be warranted. We published a proposed rule to downlist the tidewater goby on March 13, 2014 (79 FR 14339); however, the proposed downlisting has not been finalized and the species remains listed as endangered.

#### **Tidewater Goby Critical Habitat**

We originally designated critical habitat for the tidewater goby on November 20, 2000 (65 FR 69693). In January 2008, we finalized a revised designation of critical habitat (73 FR 5920). On October 19, 2011, we published another proposed revision to critical habitat (76 FR 64996), and on February 6, 2013, we published a final rule designating revised critical habitat for the tidewater goby (78 FR 8745).

Under the Act and its implementing regulations, we are required to identify the physical and biological features (PBFs) essential to the conservation of the tidewater goby in areas occupied at the time of listing. We consider the PBFs that, when present in the appropriate quantity and spatial arrangement to provide for a species' life-history processes, are essential to the conservation of the species. The PBFs specific to the tidewater goby include:

Persistent, shallow (in the range of approximately 0.3 to 6.6 feet), still-to-slow-moving water in lagoons, estuaries, and coastal streams with salinity up to 12 ppt, which provide adequate space for normal behavior and individual and population growth that contain one or more of the following:

- Substrates (e.g., sand, silt, mud) suitable for the construction of burrows for reproduction;
- Submerged and emergent aquatic vegetation, such as *Potamogeton pectinatus*, *Ruppia maritima*, *Typha latifolia*, and *Scirpus* spp., that provides protection from predators and high flow events; or
- Sandbar(s) across the mouth of a lagoon or estuary during the late spring, summer, and fall that closes or partially closes the lagoon or estuary, thereby providing relatively stable water levels and salinity.

In total, approximately 12,156 acres fall within the boundaries of the 2013 final revised critical habitat designation. Revised critical habitat for the tidewater goby now occurs in Del Norte,

Humboldt, Mendocino, Sonoma, Marin, San Mateo, Santa Cruz, Monterey, San Luis Obispo, Santa Barbara, Ventura, Los Angeles, Orange, and San Diego Counties, California.

#### ENVIRONMENTAL BASELINE

##### Action Area

The implementing regulations for section 7(a)(2) of the Act define the “action area” as all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action (50 Code of Federal Regulations 402.02). The action area for this biological opinion is the area containing the footprint of expected direct impacts for the rehabilitation of the southbound onramp bridge from Price Street spanning Pismo Creek, the immediate area of Pismo Creek and Pismo Creek Lagoon to be temporarily diverted/dewatered, staging areas, and access routes within the Pismo Creek corridor from the Pismo Creek Lagoon at the Pacific Ocean (approximately 0.4 mile west of the bridge) to approximately the upstream extent of any direct effects to the creek or banks. The action area also consists of areas planned for habitat restoration and enhancement and areas of the creek or lagoon that may be affected indirectly through changes in water flow velocities or water flow directions or impacts to water quality from the proposed project activities.

##### Habitat Characteristics of the Action Area

Habitat types within the action area include riparian scrub/forest, dominated by arroyo willow (*Salix lasiolepis*); landscaped/ornamental vegetation, composed of spider gum trees (*Eucalyptus conferruminata*), several types of palm trees, and silk oaks (*Grevillea robusta*); ruderal/disturbed vegetation and iceplant mats, composed mainly of black mustard (*Brassica nigra*), iceplant (*Carpobrotus chilensis*), filaree (*Erodium* spp.), white sweetclover (*Melilotus albus*), fennel (*Foeniculum vulgare*), pampas grass (*Cortaderia jubata*), and nonnative grasses; and stream/lagoon (consisting of Pismo Creek/Pismo Lagoon).

##### Existing Conditions in the Action Area

The action area is within coastal southern San Luis Obispo County near the western edge of the City of Pismo Beach along a channelized section of Pismo Creek near the mouth. It occurs along the US-101 corridor within 1 mile of the Pacific Ocean. While the Pismo Creek watershed contains some remnant riparian and upland habitats, most of the watershed is comprised of agricultural lands and urbanized lands, containing facilities such as residential developments, oil production facilities, a reservoir, and groundwater pumping, all of which affect the downstream flow and quality of water in the action area. The project site has been altered by construction from various US-101 projects (e.g., overcrossings, on- and off-ramp bridges, railroad bridges). Pismo Creek and the US-101 bridges have also been subjected to multiple bank erosion control and scour treatments (concrete and rubble) over the years. Appendix H: List of Species Observed (Caltrans 2016), contains 37 plant taxa in the project site, 15 of which are native, and 11 animals, all birds. Caltrans states in the biological assessment that 15 of the 37 plants are

nonnative taxa that are identified as invasive plant taxa by the online California Invasive Plant Council Database (Cal-IPC; 2015).

#### Previous Consultations in the Action Area

We issued two biological opinions to Caltrans for activities that overlap with the action area for this biological opinion [1-8-97-F-9, Slope Repairs Beneath Three Pismo Creek Bridges on US-101 San Luis Obispo County, California; 1-8-04-F-53, Price Street Extension Project, City of Pismo Beach, San Luis Obispo County, California (HDA-CA File # 05-SLO-101, PM 16-17.4)]. We determined in these biological opinions that the FHWA's proposed projects would not jeopardize the continued existence of the tidewater goby. As mentioned earlier, neither project was implemented.

#### Status of the Tidewater Goby in the Action Area

Suitable tidewater goby habitat occurs in Pismo Creek and Pismo Lagoon within the project action area (Caltrans 2016). Pismo Creek and Lagoon contains approximately 7.5 to 10 acres of available habitat for tidewater gobies. Approximately 25 percent of the habitat occurs in Pismo State Beach; the remainder is owned privately or by the City of Pismo Beach (Service 2005). Pismo Creek is not designated as "Water Quality Limited" by the State Water Resources Control Board (Service 2005). Caltrans' biologists documented tidewater gobies in Pismo Creek during surveys in March 1991, August 1995, and April 22, 1996, but did not observe them during general surveys in 2014 and 2015 (Caltrans 2016). More than 2,000 tidewater gobies were captured between the mouth of Pismo Creek and near the downstream limit of the Price Street/US-101 southbound on-ramp bridge in 1995 (1-8-04-F-53). They were recorded in and adjacent to the action area again during surveys in 1997 and 2000, but their numbers were not reported in those surveys (1-8-04-F-53). Caltrans did not conduct protocol level surveys for tidewater gobies in 2015 or 2016 because they are known to occur there (Caltrans 2016).

According to the Caltrans biological assessment (Caltrans 2016), the California Natural Diversity Data Base indicates that tidewater gobies have been confirmed or reported as present along Pismo Creek from the mouth to one mile upstream during multiple years including 1977, 1990, 1995, 1996, and 2008. Based on the 1995 survey during which more than 2,000 tidewater gobies were captured, the potential exists for large numbers of tidewater gobies to be present in the action area during the project.

#### Recovery of the Tidewater Goby in the Action Area

The final recovery plan for the tidewater goby (Service 2005) subdivided the geographic distribution of this species into 6 recovery units with 26 sub-units that were defined to represent the genetic and geomorphology differences of the tidewater goby. Pismo Creek and Pismo Lagoon are included the Sub-Unit CO-1 of the Conception Recovery Unit. The CO-1 Sub-Unit extends from extends between Point San Luis (in San Luis Obispo County) and Point Sal (in Santa Barbara County) and is a largely sandy shore-line. Primary tasks for this sub-unit as

recommended in the recovery plan include: (1) population monitoring; (2) substantiate sub-unit with genetic studies; (3) improve habitat and reduce threats to tidewater gobies in Arroyo Grande and Oso Flaco Lake; and (4) reintroduce tidewater gobies into Oso Flaco (see Table G-1 of the Recovery Plan).

The Pismo Creek recovery unit is medium-sized with approximately 7.5 to 10 acres available as tidewater goby habitat. Tidewater gobies have been abundant in Pismo Creek and Pismo Lagoon, are regularly observed, and considered historical, not recolonized (Service 2005). The recovery plan states that the Pismo Creek population is important to the recovery of the species because it is stable and genetically distinct.

Pismo Creek and Lagoon are important for the conservation of the tidewater goby because they provide habitat for the species, allow for connectivity between tidewater goby source populations from nearby, support gene flow, and provide for metapopulation dynamics within the Conception Recovery Unit for the tidewater goby (78 FR 8745).

#### Condition of Tidewater Goby Critical Habitat in the Action Area

The action area for the project lies within tidewater goby critical habitat Unit SLO-11 Pismo Creek consists of 20 acres. The tidewater goby subpopulation in SLO-11 is likely a source population, which is important in maintaining metapopulation dynamics, and hence the long-term viability, of the Conception Recovery Unit. On an intermittent basis, SLO-11 possesses a sandbar across the mouth of the lagoon or estuary during the late spring, summer, and fall that closes or partially closes the lagoon or estuary and thereby provides relatively stable conditions (PCE 1a, b, and c). PCEs 1a, b, and c occur throughout the unit, although their precise location during any particular time period may change in response to seasonal fluctuations in precipitation and tidal inundation. The critical habitat rule indicates that the tidewater goby subpopulation in SLO-11 is likely a source population that is important in maintaining metapopulation dynamics, and hence the long-term viability, of the Conception Recovery Unit.

#### EFFECTS OF THE ACTION

##### Effects of the Proposed Action on the Tidewater Goby

Impacts to tidewater goby habitat are expected to be restricted to the duration of the retaining wall repair. The effects of the various project components (e.g., removal of vegetation; temporary diversion and dewatering; capture, handling, and relocation; construction, grading, and repair activities; use of chemicals, fuels, and other possibly toxic substances) are relatively similar, with some exceptions. Therefore, we discuss the effects in general terms below, with some emphasis on those parts of the actions that may have unique effects on tidewater gobies, such as dewatering.

*Effects of the Removal of Vegetation Activities on the Tidewater Goby*

Caltrans expects that the removal of vegetation from beside and in Pismo Creek could result in the reduction of shading and cause increases in erosion and higher peak flows of water into the creek. The reduction in shading could cause an increase in the water temperatures along this section of Pismo Creek, which render the habitat unsuitable for tidewater gobies if the water gets above 77 degrees Fahrenheit.

The reduction in vegetation would likely increase erosion, in turn increasing turbidity, sedimentation, and water velocities in the creek. Sediment may affect tidewater gobies by impairing the efficiency of their gill filaments and exposing them to higher salinities and/or predation as they flee downstream. Direct effects of sedimentation include mortality, reduced physiological function, and burrow smothering. Indirect effects of sedimentation include potential reduction in phytoplankton, which can then reduce zooplankton, in turn reducing benthic macroinvertebrates, which are prey for tidewater gobies (Henley et al. 2000). Increases in water velocities could carry tidewater gobies downstream where they could end up in unsuitable habitat.

Caltrans anticipates the effects to tidewater gobies from the removal of vegetation would be temporary because they expect the removed vegetation to consist mostly of younger plants that would be replaced by native riparian re-plantings in a relatively short timeframe.

*Effects of Diverting and Dewatering the Creek Activities on the Tidewater Goby*

Tidewater goby adults, fry, and eggs could be injured or killed as a result of dewatering a portion of the creek. Workers or construction equipment could inadvertently crush tidewater gobies during placement of block nets or the stream diversions or within the area of the creek that would be dewatered. Dewatering activities may result in the stranding of any tidewater gobies in the dewatered area that are not found and captured. This could cause injury or death due to desiccation, suffocation, or opportunistic predation.

Caltrans proposes to conduct the in-stream work of the proposed project between June 15 and October 31, to coincide with the dry part of the year in southern California, but it also coincides with the latter portion of tidewater goby breeding season (late April to July, and continuing into November or December). Because tidewater goby eggs are not detectable during dewatering activities, we expected all tidewater goby eggs within the proposed dewatering area would be destroyed during that activity.

Tidewater gobies may also be entrained by pump intakes. We anticipate that covering the pump intakes with screens no greater than 1/8-inch mesh size, as proposed by Caltrans, will minimize the potential for tidewater gobies to be caught in the inflow. Installing the cofferdams and dewatering a portion of the creek could cause erosion and sedimentation, which would likely impair water quality temporarily and may affect tidewater gobies by impairing the efficiency of their gill filaments and exposing them to higher salinities as they flee downstream. Direct effects

of sedimentation include mortality, reduced physiological function, and burrow smothering. Indirect effects of sedimentation include potential reductions in phytoplankton, which can then reduce zooplankton, which can then reduce benthic macroinvertebrates (Henley et al. 2000), which are prey for tidewater gobies.

Caltrans also expects a temporary loss of approximately 0.255 acre of habitat in Pismo Creek for the duration of the project. The loss of aquatic habitat may force tidewater gobies into adjacent, less suitable habitat where they may not survive. After the repair activities to the retaining wall are complete, the creek would be restored and would once again receive stream flow and function as habitat for tidewater goby.

To minimize the potential effects from these activities, Caltrans proposes to have a Service-approved biologist remain onsite during dewatering activities, searching for tidewater gobies and monitoring turbidity levels within the dewatering area. Caltrans would have the Service-approved biologist capture any tidewater gobies from the area that would be dewatered as necessary. Caltrans proposes to fit pumps with an anti-entrapment device(s) to prevent tidewater gobies from being drawn into the pump or impinged on intake screening. We anticipate the measures proposed by Caltrans would minimize adverse effects during the installation of the cofferdams and dewatering portions of the project; however, some tidewater gobies may not be found during dewatering and individuals smaller than 0.125 ( $\frac{1}{8}$ ) inch in diameter, such as fry or eggs (if present), would be caught in the inflow and be sent through the pump, or other individuals may be killed or injured during this portion of the project.

#### *Effects of Capturing, Handling, and Relocating Activities on the Tidewater Goby*

Tidewater gobies may be injured or killed during capture and relocation activities due to the equipment used to capture, handle, and relocate them or from improper handling, physiological stress, increased competition (at the relocation site), or from being released into unsuitable habitat (i.e., sudden changes in water temperatures, extended exposure to water that is either too warm or too cool or have inappropriate levels of oxygen or other essential resources could injure or kill tidewater gobies).

To minimize these potential effects to tidewater gobies, Caltrans proposes to use a Service-approved biologist to capture, handle, and relocate them. Caltrans would have the Service-approved biologist capture any tidewater gobies found prior to initiation of stream diversion/dewatering. The Service-approved biologist would relocate all tidewater gobies caught to suitable habitat downstream of the proposed project site.

We anticipate the measures proposed by Caltrans would minimize adverse effects to tidewater gobies from their capture, handling, and transporting out of the portion of the project area; however, the potential exists that some tidewater gobies, fry, or eggs (if present), may either not be found and die or may still be injured or killed during this process. The likelihood that tidewater goby individuals may be injured or killed increases as a result of relocation at the receptor site(s) due to predation or other effects such as overcrowding or overexploitation of

resources at the receptor site(s). Any tidewater gobies not captured and relocated from behind the cofferdams will die due to desiccation or predation; therefore, capturing and relocating them to suitable habitat minimizes effects to those individuals.

*Effects of Construction Equipment, Construction Traffic, and Worker Foot-Traffic and Construction Activities on the Tidewater Goby*

Tidewater goby adults, fry, and eggs within the project area could be inadvertently crushed by workers or construction equipment during project activities over the duration of the proposed project. Noise and vibration generated by construction equipment or worker foot traffic during project activities would likely disturb tidewater gobies within the immediate project vicinity and beyond it to some degree. Activities in the water involving construction equipment or the presence of project personnel have the potential to disturb and suspend sediments. Tidewater goby eggs within any part of the action area may be destroyed during the proposed project through crushing or exposure by intended project activities or accidental incidents caused by project activities. Tidewater goby individuals within any part of the action area may be injured or killed by the proposed project through exposure or degraded water quality from intended project activities or accidental incidents caused by project activities.

The sounds from pile driving can result in temporary impacts to individual tidewater gobies. Temporary impacts can include altering the behavior and physical health of tidewater gobies that are subjected to the sound waves. The type and magnitude of the effects on tidewater gobies are dependent on the method of pile driving, mass of an affected tidewater goby, and the location of individual tidewater gobies in the water in relation to the pile driving (Caltrans 2015).

Caltrans originally conducted a hydroacoustic analysis of the project's pile driving sound levels for a biological assessment of south-central California coast steelhead. This analysis accounted for fish smaller than 2 grams, so it is applicable to tidewater gobies as well. Pile driving proposed by the project will initially utilize vibration to sink the two cast-in-steel-shell piles, then impact hammering will be used to achieve the total load resistance required for these pile. Cofferdams that have been completely dewatered, substantially reduce underwater pile driving sound. This is the best sound isolation that can be provided (ICF Jones and Stokes 2009). Peak sound levels can be substantially less with vibratory hammers, than those produced by impact hammers. To minimize impacts to fish, vibratory pile driving will be utilized as much as possible.

The interim thresholds established for hydro-acoustic impacts from impact hammer-driven piles are 206 decibels for the peak sound pressure and 187 decibels of cumulative Sound Exposure Level (SEL) for fish weighing over 2 grams. For fish less than 2 grams, 183 decibels of cumulative SEL is the impact threshold; the peak sound pressure threshold remains the same regardless of fish size (FHWA 2008).

The number of pile strikes was adjusted until a cumulative SEL threshold level of 183 was achieved at 28 meters. The cumulative SEL threshold of 183 for fish under 2 grams was chosen

to represent tidewater gobies smolts or fry. As a result, pile driving in the dewatered channel of Pismo Creek is expected to reach a cumulative SEL threshold level of 183, at the closest cofferdam to pile driving (28 meters), after 308 pile strikes.

For the proposed project, cast-in-steel-shell piles would be driven no closer than 28 meters to the closest cofferdam. With a daily strike limit of less than 308 strikes, the sound levels would not exceed threshold limits for the onset of physical injury to fish. These calculations also assume that sound attenuation devices are not used. Therefore, as a result of this analysis, Caltrans would limit the maximum number of pile strikes to no more than 300 strikes per day to minimize effects from pile driving.

We expect these effects to be temporary and localized and only last for the duration of project activities or until shortly after project activities have been completed. The effects of sedimentation resulting from project related activities would be minimized by the protective measures Caltrans would implement for this project and its standard use of best management practices (BMPs), as per Caltrans' construction site BMP manual. Additionally, we anticipate that any tidewater gobies driven from the vicinity because of project-related work activities would return upon their completion.

*Effects of Chemical, Fuel, and other Potentially Toxic Substance Use Activities on the Tidewater Goby*

Caltrans does not know yet whether they would use any herbicides to control exotic plant species during their restoration efforts for this project, but if they do, the herbicides may adversely affect water quality at, or downstream of, the project site because herbicides that drift into aquatic areas have to potential to harm tidewater gobies, their eggs, and their prey.

The adjuvants (to help the herbicides "stick" to the plants) alone are not regulated, and information on toxicity to aquatic receptors is sparse. Haller and Stocker (2003) tested the toxicity of 5 silicone-based adjuvants to bluegill sunfish and found them to be moderately toxic with an average LC50 value of 24.7 milligram/liter (Lethal Concentration in which half of the individuals exposed will die, measured in mass of the material per liter). Because silicone-based adjuvants bind strongly to soil and organic matter, directly spraying such herbicides onto the water surface would be more likely to expose tidewater gobies to the chemicals.

The toxicity of glyphosate, triclopyr, and silicon-based adjuvants can vary significantly between species. Between specific products and mixes, a conservative assumption would be that these products are moderately toxic to tidewater gobies if applied directly to water. If these chemicals reach the water at or close to their application concentrations, the possibility for toxicity to tidewater gobies is moderate to high and could injure or kill some tidewater gobies. The actual concentrations that tidewater gobies would be exposed to are anticipated to be lower than the application concentration, because it would be diluted over greater distances of creek and estuary/lagoon waters. This dilution effect would decrease the possibility of toxic effects to tidewater gobies to low. However, any accidental spill may release a quantity of each of these

ingredients that would exceed toxicity thresholds for fish, and may injure or kill tidewater gobies.

During construction accidental spills or leaks of fuel, lubricants, herbicides, wet concrete, drilling slurry, or grout; careless fueling or oiling of vehicles or equipment; careless application or unintended drift of herbicide; or failures to contain construction debris could degrade aquatic habitat to a degree where tidewater gobies are injured or killed. Any of those items could poison or otherwise injure or kill tidewater gobies or they could necessitate additional, unplanned measures to cleanup or restore affected areas. Tidewater gobies could be smothered or poisoned by construction materials or chemicals that make their way to the stream or come from any construction materials placed in the water of the creek (e.g., support matrix for scaffolding). Caltrans proposes to divert the flow of Pismo Creek during the construction period to minimize adverse effects on water quality and aquatic species. We expect the measures proposed by Caltrans would minimize the risk of impacts to the creek and the potential for adverse effects to tidewater gobies from spills of hazardous materials.

Disturbances in the water from construction equipment, presence of project personnel, or the placement of cofferdams have the potential to suspend sediments. Erosion from project activities may also increase turbidity and sedimentation in the creek. Sediment may affect tidewater gobies by impairing the efficiency of their gill filaments and exposing them to higher salinities and/or predation as they flee downstream. Direct effects of sedimentation include mortality, reduced physiological function, and burrow smothering. Indirect effects of sedimentation include potential reduction in phytoplankton, which may reduce zooplankton, in turn reducing benthic macroinvertebrates, and thus reduce prey for tidewater gobies (Henley et al. 2000). The effects of sedimentation resulting from project related activities would be minimized by Caltrans' proposal to divert water around the work area to ensure the flow is not impeded. We anticipate this measure would minimize erosion and sedimentation.

#### Effects of the Proposed Action on Tidewater Goby Recovery

The goal of the tidewater goby recovery plan is to conserve and recover it throughout its range by managing threats and perpetuating viable metapopulations within each recovery unit while maintaining morphological and genetic adaptations to regional and local environmental conditions. We do not expect the repair and rehabilitation of the southbound on-ramp bridge to US-101 from Price Street spanning Pismo Creek to substantially affect the conservation of tidewater gobies within the Conception Recovery Unit, in terms of the recovery strategy described in the recovery plan because:

1. The tidewater goby recovery plan emphasizes the importance of the conservation of population units rather than individual fish, and the effects of the repair and rehabilitation of the southbound on-ramp bridge to US-101 from Price Street are not expected to cause population-level declines in Pismo Creek or Pismo Lagoon; and

2. The repair and rehabilitation of the southbound on-ramp bridge to US-101 from Price Street would not adversely affect the metapopulation dynamics between individual populations within the Conception Recovery Unit; additionally, the effects to tidewater gobies would be temporary and Caltrans would restore any impacted habitat in and adjacent to the creek.

#### Summary of Effects of the Proposed Action on the Tidewater Goby

In summary, the repair and rehabilitation of the southbound on-ramp bridge to US-101 from Price Street spanning Pismo Creek would consist of the following activities that could have adverse effects to tidewater gobies: removing vegetation; temporarily diverting and dewatering Pismo Creek; capturing, handling, and relocating tidewater gobies. Tidewater gobies could also be injured or killed through accidental crushing by worker foot-traffic or construction equipment and/or through impacts to water quality. The proposed project would likely adversely affect a small number of adults in the immediate vicinity of project activities, but could adversely affect a large number of fry and eggs in the lagoon and an unknown number of additional tidewater goby adults, juveniles, and/or eggs at the receptor site(s). However, these numbers are relative in that the effects from the proposed project would only affect tidewater gobies within the Pismo Creek and Pismo Lagoon, which contains a small percentage of the individuals throughout the range of this species. Therefore, we believe the effects from the proposed project would be relatively small and would not substantially affect the tidewater goby. Although the proposed project could have effects on a limited number of tidewater goby adults, we conclude that the impacts would generally be temporary and minor. Because the primary project effects would be temporary, the action area is limited, and the fact that Caltrans has proposed to implement the protective measures described above, we anticipate that few tidewater goby adults, juveniles, and/or eggs are likely to be killed or injured during construction, revegetation, and maintenance and monitoring activities.

#### Effects of the Proposed Project on Tidewater Goby Critical Habitat

Effects to tidewater goby critical habitat should be temporary. As described above, we expect that the principal problems associated with the proposed activities would be de-watering/stream diversion, sedimentation, and removal of vegetation from adjacent banks. De-watering and stream diversions should be temporary, but any areas of critical habitat that are dewatered would become dry or salinities may increase. Caltrans' measures to control erosion and sedimentation should help avoid related changes to the primary constituent elements (PCEs). Additionally, Caltrans proposes to remove invasive plant material from the action area as part of the project. We do not anticipate any permanent adverse effects to critical habitat for the tidewater goby or its PBFs as a result of the proposed action and these effects are limited to a small area of the total habitat available within Unit SLO-11 Pismo Creek. Overall, the actions that benefit the anadromous salmonids should benefit tidewater goby critical habitat and the critical habitat unit should continue to serve their conservation functions.

## CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local or private actions that are reasonably certain to occur in the action area considered in this biological opinion. We do not consider future Federal actions that are unrelated to the proposed action in this section because they require separate consultation pursuant to section 7 of the Act. We are currently unaware of other non-Federal actions that are reasonably certain to occur in the action area that may adversely affect the tidewater goby or its critical habitat.

## CONCLUSION

The regulatory definition of “to jeopardize the continued existence of the species” focuses on assessing the effects of the proposed action on the reproduction, numbers, and distribution, and their effect on the survival and recovery of the species being considered in the biological opinion. For that reason, we have used those aspects of the tidewater goby’s status as the basis to assess the overall effect of the proposed action on the species.

### Reproduction

The effects to tidewater goby reproduction would be local and temporary. The proposed Pismo Creek Bridge Scour Repair Project would not permanently reduce the reproduction of the tidewater goby either locally or on a rangewide basis.

### Numbers

We anticipate that some tidewater gobies may be affected by the proposed activities. Some may be killed or injured, and any encountered are likely to be captured and relocated and some of these individuals may be injured or killed as a result of the activities. Any mortality or injury would reduce the numbers of tidewater gobies locally; however, such losses are likely to be compensated for during subsequent breeding seasons as the tidewater goby produces numerous offspring under favorable conditions. Also, any such reduction in numbers is likely to be very low because Caltrans proposes measures to avoid and minimize the loss of individual tidewater gobies during its activities. We conclude that the proposed Pismo Creek Bridge Scour Repair Project would not meaningfully reduce the species’ numbers rangewide.

### Distribution

Any effects to individual tidewater gobies as a result of the Pismo Creek Bridge Scour Repair Project would not eliminate the tidewater goby population in Pismo Creek or Pismo Lagoon. The effects would be temporary and minor, and the creek/lagoon would continue to provide habitat for the species. We conclude that the proposed Pismo Creek Bridge Scour Repair Project would not reduce the distribution of the tidewater goby.

Recovery

As discussed above in the Environmental Baseline section, Pismo Creek/Lagoon is within the Concepcion Recovery Unit (Sub-Unit CO-1) as described in the tidewater goby recovery plan (Service 2005). We have determined that none of the proposed actions are likely to interfere with the goals of the recovery plan for that recovery unit because the effects would be mostly temporary and minimized by the measures proposed by Caltrans. Once the bridge repair and rehabilitation has been completed, Pismo Creek and Lagoon should function as it did prior to the activities.

After reviewing the current status of the tidewater goby, the environmental baseline for the action area, the effects of the proposed Pismo Creek Bridge Scour Repair Project and the cumulative effects, it is the Service's biological opinion that the Pismo Creek Bridge Scour Repair Project, as proposed, is not likely to jeopardize the continued existence of the tidewater goby.

After reviewing the current status of the critical habitat of the tidewater goby, the environmental baseline of critical habitat for the action area, the effects of the proposed Pismo Creek Bridge Scour Repair Project on critical habitat, and the cumulative effects, it is the Service's biological opinion that the Pismo Creek Bridge Scour Repair Project, as proposed, is not likely to result in the destruction or adverse modification of critical habitat of the tidewater goby because the effects to the PBFs and the conservation value of portions of the action area would be temporary. We do not anticipate any permanent adverse effects to critical habitat for the tidewater goby or its PBFs as a result of the proposed action and these effects are limited to a small area of the total habitat available within Unit SLO-11 Pismo Creek.

## INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened wildlife species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by the Service as an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, 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 the purpose of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this incidental take statement.

In June 2015, the Service finalized new regulations implementing the incidental take provisions of section 7(a)(2) of the Act. The new regulations also clarify the standard regarding when the Service formulates an Incidental Take Statement [50 CFR 402.14(g)(7)], from "...if such take may occur" to "...if such take is reasonably certain to occur." This is not a new standard, but merely a clarification and codification of the applicable standard that the Service has been using and is consistent with case law. The standard does not require a guarantee that take will result; only that the Service establishes a rational basis for a finding of take. The Service continues to rely on the best available scientific and commercial data, as well as professional judgment, in reaching these determinations and resolving uncertainties or information gaps.

We anticipate that some tidewater gobies could be taken as a result of the proposed action. We expect the incidental take to be in the form of harm, capture, injury, and mortality. Tidewater gobies may be harmed by the proposed habitat loss; however, we expect habitat loss to be minimal and temporary in nature. Tidewater gobies may also be subject to harm if the project causes sedimentation that flows downstream to occupied habitat and smothers burrows. Tidewater gobies would be captured and relocated during the water diversion. Some individuals may be killed or injured during capture and relocation, and others may be entrained by water pumps used in dewatering. Additionally, tidewater gobies may be crushed or displaced by workers or equipment, or debris. They may be inadvertently crushed during placement of the stream diversions. Dewatering activities may result in the death of any tidewater gobies in the dewatered area due to stranding resulting in desiccation, suffocation, or opportunistic predation. Tidewater gobies may also be injured or killed by chemicals, spills, erosion, degraded water quality from project materials or activities, such as if herbicide is used close to water or standard BMPs are not used to control erosion and other indirect effects from project activities. We cannot quantify the precise number of tidewater gobies that may be taken as a result of the actions that Caltrans has proposed because tidewater gobies move over time; for example, tidewater gobies may have entered or departed the action area since the time of the last surveys. Other individuals may not be detected due to their cryptic nature, small size, and low mobility. The protective measures proposed by Caltrans are likely to prevent mortality or injury of most individuals. In addition, finding a dead or injured tidewater gobies is unlikely.

While we are unable to reasonably anticipate the actual number of tidewater gobies that would be taken by the proposed project, we must provide a level at which formal consultation would have to be reinitiated. The Environmental Baseline and Effects Analysis sections of this biological opinion indicate that adverse effects to tidewater gobies would likely be low given the nature of the proposed activities and protective measures, and we, therefore, anticipate that take of tidewater gobies would also be low. We also recognize that for every tidewater goby found dead or injured, other individuals may be killed or injured that are not detected, so when we determine an appropriate take level we are anticipating that the actual take would be higher and we set the number below that level.

The considerations we used in arriving at the take we anticipate include: (1) tidewater goby populations fluctuate greatly in number of individuals; (2) dead or injured individuals are difficult to detect; (3) some tidewater gobies may be killed or injured by equipment, foot traffic,

and dewatering activities; (4) some tidewater gobies may be killed or injured by chemicals, spills, erosion, degraded water quality from project materials or activities (e.g., herbicide, drilling fluids, drilling slurry); (5) because the number of tidewater gobies in a population may be high, many individuals could be taken without a substantial effect on the population; (6) minimization measures proposed by Caltrans should be effective at minimizing adverse effects to tidewater gobies; and (7) the level of take we anticipate must be consistent with a non-jeopardy determination, in that it cannot appreciably reduce the numbers, reproduction, or distribution of the species. For take due to capture, we anticipate that all tidewater gobies encountered in the dewatered area will be captured, and that some injury or mortality will occur as a result of unpredictable circumstances or mishandling. Because we are unable to reasonably anticipate the actual number of tidewater gobies that would be captured, we are using injury or mortality during capture as a measure of the take we anticipate, as described above.

Based on the proposed project activities, the knowledge that tidewater gobies occur within the action area, and the uncertainty of how many tidewater gobies would be present and captured and relocated, we have determined that take in the form of injury or mortality during all project activities within the action area should be less than 10 percent of the total number of tidewater gobies that are captured and relocated during the dewatering portion of the project activities. Therefore, if 100 or fewer tidewater gobies are captured and 10 or more individuals are found dead or injured during any and all project activities, Caltrans must contact our office immediately to reinitiate consultation. If more than 100 tidewater gobies are captured and 10 percent or more are found dead or injured during any and all project activities, Caltrans must contact our office immediately to reinitiate consultation. Project activities that are likely to cause additional take should cease because the exemption provided under section 7(o)(2) would lapse and any additional take would not be exempt from the section 9 prohibitions.

#### REASONABLE AND PRUDENT MEASURES

The measures described below are non-discretionary, and must be undertaken by Caltrans 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 require any contractors to adhere to the terms and conditions of the incidental take statement, the protective coverage of section 7(o)(2) may lapse. 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)].

The Service believes the following reasonable and prudent measures are necessary and appropriate to minimize the impacts of the incidental take of tidewater goby:

1. Caltrans must implement measures to provide effective monitoring, reporting, and education of on-site personnel to minimize the effects of the take on the tidewater goby.

2. Caltrans must use qualified biologists to conduct capture and relocation of tidewater gobies and take other measures to further minimize the effects of any take we anticipate may occur.

#### TERMS AND CONDITIONS

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 measures described above and outline reporting and monitoring requirements. These terms and conditions are non-discretionary.

The following terms and conditions implement reasonable and prudent measure 1:

1.1 Caltrans must monitor its activities to detect, as possible, incidental take of tidewater gobies that results from the proposed project activities. The monitoring must include a standardized mechanism for Caltrans employees or contractors to report any observations of dead or injured listed animals to the appropriate Caltrans contact. Caltrans must collect information obtained through the monitoring to include in the project completion report to the Service that is required by this incidental take statement and described in the "Reporting Requirements" section below.

1.2 Service-approved biologist(s) (see Term and Condition 2.1) must record all pertinent information when relocating tidewater gobies including the number of individuals captured, site of capture, site of relocation, habitat at capture, and habitat at relocation site.

1.3 The Service-approved biologist(s) must conduct a training session for all project personnel prior to any project activities. At a minimum, the training will include a description of the tidewater goby and its habitat; the general provisions of the Act; the necessity for adhering to the provisions of the Act; the penalties associated with violating the provisions of the Act; the specific measures that are being implemented to conserve the tidewater goby while this project is being conducted; and the boundaries within which the project may be accomplished. The program must also cover the restrictions and guidelines that will be followed by all construction personnel to reduce or avoid effects on these species during project implementation. The project foreman will be responsible for ensuring that crew members adhere to the guidelines and restrictions.

1.4 During any in-creek work, the Service-approved biologist(s) must be onsite and continuously monitor project activities, such as the placement and removal of any required water diversions, the status of the water diversion, etc. The Service-approved biologist must capture any stranded tidewater gobies or other native fish species and relocate them to suitable habitat downstream within Pismo Creek or Pismo Lagoon, as appropriate. The Service-approved biologist must note the number of all fish (including tidewater gobies, other native species, and non-native species) observed in the affected area, the number of fish relocated, the date and time of the collection and relocation, habitat conditions at the capture and relocation sites, and an estimation of the numbers of tidewater gobies at the relocation site before release of the captured individuals.

The following terms and conditions implement the reasonable and prudent measure 2:

2.1 Only Service-approved biologists may capture, handle, and monitor tidewater gobies. Caltrans must provide the qualifications of individuals that would be conducting these activities to the Service at least 15 days prior to project activities. No project activities will begin in areas that could support tidewater gobies until Caltrans has received notice from the Service that the biologist(s) are approved to conduct the work. Please be advised that possession of a 10(a)(1)(A) permit for tidewater gobies does not substitute for the implementation of this measure. Authorization of Service-approved biologist(s) is valid for this project only.

2.2 Prior to conducting any in-water work or activities (e.g., vegetation removal, installation of the water containment system, dewatering activities, demolition and removal of the current retaining wall or wall parts, construction and installation of the new retaining wall), the Service-approved biologist(s) must survey for tidewater gobies prior to each of those activities and relocate any individuals that could be killed or injured.

2.3 When capturing and removing tidewater gobies from the work area, the Service-approved biologist(s) must minimize the amount of time the tidewater gobies are held in captivity. During this time, they must be maintained in a manner that does not expose them to temperatures or any other environmental conditions that could cause injury or undue stress. Tidewater gobies must be captured by seine, minnow trap, or dipnet, transported in buckets, and released elsewhere downstream in Pismo Creek and Pismo Lagoon.

#### REPORTING REQUIREMENTS

Pursuant to 50 CFR 402.14(i)(3), Caltrans must report the progress of the action and its impact on the species to the Service as specified in this incidental take statement; specifically, Caltrans will provide written notification after the area of the creek has been dewatered with information about the numbers of tidewater gobies captured and relocated, annual reports, and one final report or one final report if the project does not span 2 years. The reports must include: (1) a table documenting the number of tidewater gobies observed, injured, dead, and handled during the subject project implementation; (2) a table with the dates, times, and personnel of surveys conducted before and during the subject project; (3) a summary of how the terms and conditions of this biological opinion and the protective measures proposed by Caltrans and the County worked; (4) any suggestions of how these measures could be revised to improve conservation of this species while facilitating compliance with the Act; and (5) any conservation recommendations that were implemented and the results of their implementation. This information will assist the Service in evaluating future actions for the conservation of the tidewater goby. Caltrans will promptly notify the Service's Ventura Fish and Wildlife Office in writing after the area of the creek has been dewatered with information about the numbers of tidewater gobies captured and relocated, and will include this information in the final project report at the conclusion of the project. The notification following translocation of tidewater gobies must be submitted in writing to the Service's Ventura Fish and Wildlife Office within 3 days following the capture and relocation of those individuals. The final report must be

submitted to the Service's Ventura Fish and Wildlife Office within 2 months following the completion of the subject project.

#### DISPOSITION OF DEAD OR INJURED SPECIMENS

As part of this incidental take statement and pursuant to 50 CFR 402.14(i)(1)(v), upon locating a dead or injured tidewater gobies, initial notification within 3 working days of its finding must be made by telephone and in writing to the Ventura Fish and Wildlife Office (805-644-1766). The report must include the date, time, location of the carcass, a photograph, cause of death or injury, if known, and any other pertinent information.

Caltrans must take care in handling injured animals to ensure effective treatment and care, and in handling dead specimens to preserve biological material in the best possible state. Caltrans must transport injured animals to a qualified veterinarian. Should any treated tidewater gobies survive, Caltrans must contact the Service regarding the final disposition of the animal(s).

Any remains of dead tidewater gobies must be placed with educational or research institutions holding the appropriate State and Federal permits, such as the Santa Barbara Natural History Museum (Contact: Paul Collins, Santa Barbara Natural History Museum, Vertebrate Zoology Department, 2559 Puesta Del Sol, Santa Barbara, California 93460, (805) 682-4711, extension 321).

#### CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to use 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.

1. We recommend that Caltrans develop a comprehensive management, habitat enhancement, and public awareness plan for the tidewater goby metapopulation occurring in the northern portions of Sub-Unit CO-1, from the Santa Maria River through Point San Luis in San Luis Obispo County, California. Such a plan would benefit the public, community service planners, and the subject tidewater goby populations. Recovery actions 1, 2, and 4 in the tidewater goby recovery plan (Service 2005) may provide helpful suggestions for developing and implementing such a plan.
2. We recommend that Caltrans permanently remove all non-native predators of tidewater gobies from the wild that can be captured during project activities. Anyone conducting such removals should ensure that he or she does so in compliance with the California Fish and Wildlife Code.

3. We recommend that Caltrans conduct tidewater goby density surveys or have studies conducted at the receptor site(s) to determine the effects to tidewater gobies from the relocation and release at receptor site. This would include studying both tidewater gobies that were captured and relocated as well as tidewater gobies that were already present at the receptor site to determine effects to each group of individuals. This would help us determine the efficacy of capture and relocation as a minimization measure for tidewater goby as well as help us understand the level of effects to the translocated fish as well as the receptor site fish.

4. We recommend that Caltrans conduct or have studies conducted to increase our understanding of tidewater goby population dynamics in the project region (the northern portions of Sub-Unit CO-1). Such studies could (A) include determining the effects and efficacy of capture and translocation on individuals (i.e., how many tidewater gobies survive versus die because of translocation, such as in recommendation number 3), (B) identify variables that affect the tidewater goby carrying capacity in individual or multiple water bodies, or (C) analyze the effects of turbidity on tidewater goby survival. These types of studies and the data they obtain could greatly assist the Service and Caltrans in future consultations within tidewater goby habitat.

The Service requests notification of the implementation of any conservation recommendations so we may be kept informed of actions minimizing or avoiding adverse effects or benefitting listed species or their habitats.

#### REINITIATION NOTICE

This concludes formal consultation on the action(s) outlined in the request. 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 retained (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; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; 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, the exemption issued pursuant to section 7(o)(2) may have lapsed and any further take could be a violation of section 4(d) or 9. Consequently, we recommend that any operations causing such take cease pending reinitiation.

If you have any questions about this biological opinion, please contact Mark A. Elvin of my staff at (805) 644-1766, extension 258, or by electronic mail at [mark\\_elvin@fws.gov](mailto:mark_elvin@fws.gov).

Sincerely,

A handwritten signature in blue ink, appearing to read "Stephen P. Henry". The signature is fluid and cursive, with the first and last names being the most prominent.

Stephen P. Henry  
Field Supervisor

#### LITERATURE CITED

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# Appendix F National Marine Fisheries Service Opinion

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UNITED STATES DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
NATIONAL MARINE FISHERIES SERVICE  
West Coast Region  
777 Sonoma Avenue, Room 325  
Santa Rosa, California 95404

APR 08 2016

Refer to NMFS No: WCR-2016-4475

Larry Bonner  
Senior Environmental Planner  
Central Coast Biology Branch  
California Department of Transportation, District 5  
50 Higuera Street  
San Luis Obispo, California 93401

Dear Mr. Bonner:

NOAA's National Marine Fisheries Service (NMFS) hereby transmits the enclosed biological opinion pursuant to Section 7 of the Endangered Species Act of 1973 (ESA) (16 U.S.C. 1531 *et seq.*) for the California Department of Transportation's (Caltrans) Pismo Creek Scour Repair Project (proposed action) at State Route 101, San Luis Obispo County. This biological opinion addresses the effects of the proposed action on the federally threatened South-Central California Coast (SCCC) Distinct Population Segment (DPS) of steelhead (*Oncorhynchus mykiss*) and its designated critical habitat in accordance with Section 7 (a)(2) of the ESA.

The biological opinion concludes that the proposed action is not likely to jeopardize the continued existence of the threatened SCCC DPS of steelhead, or destroy or adversely modify designated critical habitat for this species. NMFS believes the proposed action is likely to result in incidental take of threatened steelhead, and, therefore, the attached incidental take statement includes the amount and extent of anticipated incidental take with reasonable and prudent measures and non-discretionary terms and conditions that are necessary and appropriate to minimize and monitor incidental take of threatened steelhead.

Please contact Jay Ogawa at NMFS' Southern California Branch of the California Coastal Office in Long Beach, 562-980-4061 or at [Jay.Ogawa@noaa.gov](mailto:Jay.Ogawa@noaa.gov), if you have a question concerning this Section 7 consultation, or if you require additional information.

Sincerely,

A handwritten signature in blue ink, appearing to read "W. Stelle, Jr.", followed by the word "for" in a smaller, cursive script.

William W. Stelle, Jr.  
Regional Administrator

Enclosure

cc: Administrative File: 151422WCR2014CC00199  
Margaret Paul, CDFW, San Luis Obispo  
Eric Shott, NMFS, Santa Rosa



**Endangered Species Act (ESA) Section 7(a)(2) Biological Opinion**

Pismo Creek Scour Repair Project

NMFS Consultation Number: WCR-2016-4475

Action Agency: California Department of Transportation

Affected Species and NMFS' Determinations:

ESA-Listed Species	Status	Is Action Likely to Adversely Affect Species or Critical Habitat?	Is Action Likely To Jeopardize the Species?	Is Action Likely To Destroy or Adversely Modify Critical Habitat?
South-Central California Coast steelhead ( <i>Oncorhynchus mykiss</i> )	Threatened	Yes	No	No

**Consultation Conducted By:** National Marine Fisheries Service, West Coast Region

**Issued By:**   
William W. Stelle, Jr.  
Regional Administrator

**Date:** APR 08 2016

## 1. INTRODUCTION

This introduction provides information relevant to the other sections of this document and is incorporated by reference into Sections 2 and 3 below.

### 1.1 Background

NOAA's National Marine Fisheries Service (NMFS) prepared the biological opinion (opinion) and incidental take statement portions of this document in accordance with Section 7(b) of the Endangered Species Act (ESA) of 1973 (16 USC 1531 *et seq.*), and implementing regulations at 50 CFR 402.

A pre-dissemination review of this document was completed using standards for utility, integrity, and objectivity in compliance with applicable guidelines issued under the Data Quality Act (section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001, Public Law 106-554). The document will be available through NMFS' Public Consultation Tracking System [<https://pcts.nmfs.noaa.gov/pcts-web/homepage.pcts>]. A complete record of this consultation is on file at NMFS' California Coastal Office, Southern California Branch in Long Beach, California.

### 1.2 Consultation History

On December 24, 2015, NMFS received from the California Department of Transportation's (Caltrans) office in San Luis Obispo, a written request to initiate formal consultation under Section 7 of the ESA. Caltrans' request concerns the Pismo Creek Scour Repair Project (proposed action) at State Route 101 (SR-101) in San Luis Obispo County, and potential effects of the proposed action on threatened steelhead (*Oncorhynchus mykiss*) and designated critical habitat. After reviewing Caltrans' written request, including the related biological assessment (BA), NMFS determined the provided information was insufficient to initiate consultation. On January 19, 2016, NMFS sent Caltrans an electronic correspondence that requested additional information for the revegetation plan and recommended that Caltrans incorporate additional avoidance and minimization measures into the proposed action. NMFS received and then reviewed the additional information and the incorporated avoidance and minimization measures in the proposed action on January 26, 2016; formal consultation was initiated on the same day.

### 1.3 Proposed Action

"Action" means all activities or programs of any kind authorized, funded, or carried out, in whole or in part, by Federal agencies (50 CFR §402.02).

Overview of the Proposed Action: Caltrans proposes to retrofit the center structural bent of the SR-101 southbound on-ramp bridge (Bridge # 49-0015K) over Pismo Creek and repair the embankments around the outer bents. The proposed action is necessary to alleviate further deterioration of the embankments and possible failure of the bridge. Construction of the proposed action is expected to be completed in one season, with all instream work to occur between June 1 and October 31. Best-management practices (BMP) are incorporated into the proposed action and will be implemented when bridge-construction activities are undertaken.

Proposed Activities to Prepare the Work Area for Construction: To prepare for construction in dry conditions, the work area will be isolated from surface water and any steelhead within the affected area will be relocated. A coffer dam will be constructed across the channel immediately upstream of the SR-101 Bridge 49-0015K and remain in place for the duration of the construction season. Surface water will travel through the work area in a polyethylene pipe and return to the creek approximately 273-feet downstream. After the immediate project area is dewatered and all steelhead have been removed and relocated, surface flow will be diverted around the work area for the duration of construction. Upon completion of the proposed action and construction activities, barriers to surface flow shall be removed. The following measures will be undertaken to minimize take of steelhead and adverse effects to aquatic habitat during the dewatering process and subsequent construction activities.

- Prior to the actual diversion of surface water, the entire work area will be surveyed for steelhead, which will be captured with seines and dip nets, then relocated downstream to a pre-determined location with suitable habitat;
- A Caltrans' approved biologist will be retained with experience in steelhead biology and ecology, aquatic habitats, biological monitoring (including diversion/dewatering), and capture, handling, and relocating fish species;
- Caltrans' biologist will continuously monitor the placement and removal of the diversion to capture and relocate any stranded steelhead;
- The biologist shall note the number of steelhead observed in the affected area, the number of steelhead relocated, and the date and time of the collection and relocation;
- If pumps are utilized, water will be released to a settling basin to allow suspended sediment to settle out prior to re-entering the creek; and
- Pump intakes will be screened with no larger than 0.2 inch (5 mm) wire mesh to prevent steelhead from entering the pump system.

Proposed Construction Activities: After the work area is dewatered, Caltrans will install a new outrigger bent with integral bent-cap around the existing center bridge bent. Two 36-inch cast-in-steel-shell piles will be driven with an impact hammer into the creek bed on each side of the center bent. A cast-in-place concrete cap beam will connect to the new piles. Upon completion of the outrigger bent, the failed concrete bank protection underneath the bridge will be removed. The banks will be graded to a 2:1 slope and covered in concrete or grouted rock-slope protection. The following measures will be undertaken to minimize adverse effects to aquatic habitat during construction activities.

- Concrete debris will be removed from the dewatered work area as necessary;
- BMPs (e.g., silt fencing, fiber rolls) will be maintained throughout the demolition and construction period to minimize erosion and sedimentation of the disturbed sections of the work area;
- Caltrans' biologist will monitor erosion and sediment control devices to identify and correct any conditions that could adversely affect steelhead or their habitat;
- Caltrans' biologist will have the authority to halt work activity as necessary and to recommend measures to avoid/minimize adverse effects to steelhead or their habitat;

- Sound attenuation devices will be utilized if possible during pile driving activities and the number of daily strikes will be limited to 300;
- Caltrans' biologist will monitor sound levels during pile driving activities to ensure that levels upstream and downstream of the dewatered area are not higher than the anticipated cumulative SEL described in the biological assessment;
- Spill prevention and cleanup materials will be kept on-site and hazardous material spills within the project site will be cleaned up immediately;
- All vehicle and equipment maintenance, cleaning, and refueling will occur in a staging area at least 65-feet from aquatic areas; and
- Streambed contours will be restored to their original condition.

Proposed Post-Construction Activities: Following construction of the proposed action, Caltrans proposes to implement a mitigation and monitoring plan (MMP) that includes planting native plant species. The MMP provides Caltrans' approach for the replacement of riparian habitat temporarily lost as a result of the proposed action. Mitigation will include planting arroyo willow (*Salix lasiolepis*) at a ratio of 3:1. A monitoring plan has been proposed by Caltrans to ensure biological resources are restored. Arroyo willow and other native plantings will follow a three to five year plant establishment period, where the plantings will be monitored. The MMP will include annual reporting and a 100 % success criteria for arroyo willow and a 60-75 % success criteria for other native plants.

“Interrelated actions” are those that are part of a larger action and depend on the larger action for their justification. “Interdependent actions” are those that have no independent utility apart from the action under consideration (50 CFR 402.02). There is no interrelated or interdependent action associated with the proposed action based on NMFS' review.

#### **1.4 Action Area**

“Action area” means all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action (50 CFR 402.02).

The action area includes the linear extent (upstream and downstream) of the SR-101 Bridge 49-0015K over Pismo Creek and encompasses the riparian corridor to the top of bank. The action area extends about 140-feet upstream of the SR-101 Bridge 49-0015K where the upper extent of the water diversion will be placed, and 350-feet downstream from the end of the diversion, where temporary construction effects such as elevated turbidity are anticipated to cease. The approximate length of Pismo Creek within the action area is about 623-feet.

## 2. ENDANGERED SPECIES ACT:

### BIOLOGICAL OPINION AND INCIDENTAL TAKE STATEMENT

The ESA establishes a national program for conserving threatened and endangered species of fish, wildlife, plants, and the habitat upon which they depend. As required by section 7(a)(2) of the ESA, Federal agencies must ensure that their actions are not likely to jeopardize the continued existence of endangered or threatened species, or adversely modify or destroy their designated critical habitat. Per the requirements of the ESA, Federal action agencies consult with NMFS and section 7(b)(3) requires that, at the conclusion of consultation, NMFS provides an opinion stating how the agency's actions would affect listed species and their critical habitat. If incidental take is expected, Section 7(b)(4) requires NMFS to provide an incidental take statement (ITS) that specifies the impact of any incidental taking and includes non-discretionary reasonable and prudent measures and terms and conditions to minimize such impacts.

#### 2.1 Analytical Approach

This biological opinion includes both a jeopardy analysis and an adverse modification analysis. The jeopardy analysis relies upon the regulatory definition of "to jeopardize the continued existence of a listed species," which is "to engage in an action that would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species" (50 CFR §402.02). The jeopardy analysis considers both survival and recovery of the species.

The adverse modification analysis considers the impacts of the Federal action on the conservation value of designated critical habitat. This biological opinion relies on the regulatory definition of "destruction or adverse modification" of critical habitat at 50 CFR 402.02. We finalized, as of March 14, 2016, the following regulatory definition: destruction or adverse modification means a direct or indirect alteration that appreciably diminishes the value of critical habitat for the conservation of a listed species. Such alterations may include, but are not limited to, those that alter the physical or biological features essential to the conservation of a species or that preclude or significantly delay development of such features (Final Rule, 81 FR 7214).

The following approach is used to determine whether a proposed action is likely to jeopardize listed species or destroy or adversely modify critical habitat:

- Identify the rangewide status of the species and critical habitat likely to be adversely affected by the proposed action.
- Describe the environmental baseline in the action area.
- Analyze the effects of the proposed action on both species and their habitat using an "exposure-response-risk" approach.
- Describe any cumulative effects in the action area.
- Integrate and synthesize the above factors to assess the risk that the proposed action poses to species and critical habitat.
- Reach conclusions regarding the jeopardy and adverse modification standards.
- If necessary, define a reasonable and prudent alternative to the proposed action.

Information submitted by Caltrans and reviewed by NMFS included the following documents: (1) the biological assessment (BA) for the proposed action; (2) project plans; (3) conceptual MMP; and (4) electronic correspondence including additional avoidance and minimization measures. NMFS relied on relevant ecological literature, documented in the official record for the proposed action, to inform the assessment of potential effects on threatened steelhead and designated critical habitat.

**2.2 Rangewide Status of the Species and Critical Habitat**

This opinion examines the status of threatened steelhead, as determined by the level of extinction risk that the listed species faces, based on parameters considered in documents such as recovery plans, status reviews, and listing decisions. This informs the description of the species’ likelihood of both survival and recovery. The species status section informs the description of the species’ current “reproduction, numbers, or distribution” as described in 50 CFR §402.02.

**2.2.1 Status of the Species.** – *Oncorhynchus mykiss* is one of six Pacific salmon in the genus *Oncorhynchus* that are native to the North American coast. The natural history of this species dictates the terminology fisheries biologists and resource managers use when discussing *O. mykiss*, its habitat, and distribution. If the species remains in freshwater throughout their entire life cycle (and reside upstream of longstanding migration barriers), they are referred to as resident trout (non-anadromous), or rainbow trout. The anadromous or ocean-going form of *O. mykiss* are listed under the ESA (NMFS 2006) and is typically referred to as “steelhead.” Globally, steelhead are found in the western Pacific through the Kamchatka Peninsula in Asia, east to Alaska, south to southern California, and even reported in Baja California del Norte (Ruiz-Campos and Pister 1995).

The listed unit of anadromous *O. mykiss* is termed a “distinct population segment” or DPS (NMFS 2006), and the listed unit contains several individual or fish-bearing watersheds. The DPS recognizes only the anadromous *O. mykiss*. In accordance with the listing decision, this biological opinion solely uses the DPS terminology and provides NMFS’ conclusion as to the likelihood of jeopardy to the species based only on effects to the listed DPS. This biological opinion analyzes the effects of the proposed action on the following listed DPS and designated critical habitat, which occur in the action area:

Salmonid Species	ESU/DPS Name	Original Listing	Revised Listing(s)	Critical Habitat Designations
Steelhead ( <i>O. mykiss</i> )	South-Central California Coast DPS	FR Notice: 62 FR 43937 Date: 08/18/1997	FR Notice: 71 FR 5248 Date: 01/05/2006	FR Notice: 70 FR 52488 Date: 09/02/2005

The threatened SCCC DPS of steelhead extends from the Pajaro River, Santa Cruz County, south to, but not including the Santa Maria River, Santa Barbara County. NMFS characterized the abundance of steelhead in the DPS when the species was originally listed (August 18, 1997, 62 FR 43937) and cited this information as the basis for the recent relisting of the SCCC DPS of steelhead as threatened (January 5, 2006, 71 FR 834). In the mid-1960’s the California Department of Fish and Game (CDFG) estimated an annual run size of 17,750 adult steelhead in this coastal DPS. Recent estimates for those SCCC rivers where comparative abundance information is available

generally show a substantial decline during the last 30 years. For instance though no recent estimate for total run size exist for the entire DPS, there are recent run size estimates available for five rivers (the Pajaro River, Salinas River, Carmel River, Little Sur River, and Big Sur River). The total annual run of steelhead for these five rivers is currently estimated at fewer than 500 adults compared with a total of 4,750 for the same rivers in 1965, which suggests a substantial decline for this entire DPS from 1965 levels. Abundance observations for adult steelhead in the Carmel River are the only time series within SCCC DPS with data gathered for 1964 through 1977 and 1988 to 2002 (Good *et al.* 2005). Based on these data there was a declining trend in the population from 1964 to the early 1990's to 2002. Despite this recent increase in abundance the estimated population of steelhead in this system is still less than 5% of historic population estimates and it is uncertain if this upward trend will be sustained into the future.

As part of the assessment and relisting of SCCC steelhead, NMFS convened a biological review team (BRT) composed of an expert panel of scientists. The BRT evaluated the viability and extinction risk of naturally spawning populations within each DPS. The BRT found high risks to abundance, productivity, and the diversity of the SCCC DPS and expressed particular concern for the DPS's connectivity and spatial structure. When a species is listed, Section 4(c)(2) of the ESA requires a review of the status of that species at least once every five years to determine if a change in status is necessary. During the most recent status review for SCCC steelhead (NMFS 2011) it was determined that there is little evidence to suggest that the biological status of the overall population has changed appreciably and factors for the populations decline appeared to have essentially remained unchanged. As a result, the review concluded that the SCCC population of steelhead should continue to be listed as a threatened population.

**2.2.2 General Life History of Steelhead.** – *O. mykiss* possesses an exceedingly complex life history (Behnke 1992). Distinctly different than other Pacific salmon, steelhead adults can survive their first spawning and return to the ocean to reside until the next year to reproduce again. For returning adults, the specific timing of spawning can vary by a month or more among rivers or streams within a region, occurring in winter and early spring. The spawning time frames depend on physical factors such as the magnitude and duration of instream flows and sand-bar breaching. Once they reach their spawning grounds, females will use their caudal fin to excavate a nest (redd) in streambed gravels where they deposit their eggs. Males will then fertilize the eggs and, afterwards, the females cover the redd with a layer of gravel, where the embryos (alevins) incubate within the gravel. Hatching time can vary from approximately three weeks to two months depending on surrounding water temperature. The young fish (fry) emerge from the redd two to six weeks after hatching. As steelhead begin to mature, juveniles or “parr” will rear in freshwater streams anywhere from 1-3 years. Juvenile steelhead can also rear in seasonal coastal lagoons or estuaries of their natal creek, providing over-summering habitat.

Juvenile steelhead emigrate to the ocean (as smolts) usually in late winter and spring and grow to reach maturity at age 2-4, but steelhead can reside in the ocean for an additional 2-3 years before returning to spawn. The timing of emigration is influenced by a variety of parameters such as photoperiod, temperature, breaching of sandbars at the river's mouth and streamflow. Extended droughts can cause juveniles to become landlocked, unable to reach the ocean (Boughton *et al.* 2006).

Through studying the otolith (small ear stone) microchemistry of *O. mykiss*, researchers further understand the complex and intricate life history of steelhead. Specifically, resident rainbow trout can produce steelhead progeny; likewise, steelhead can yield resident rainbow trout progeny (Zimmerman and Reeves 2000). Additionally, evidence indicates that sequestered populations of steelhead (*e.g.*, above introduced migration barriers) can exhibit traits that are the same or similar to anadromous specimens with access to the ocean. Examples include inland resident fish exhibiting smolting characteristics and river systems producing smolts with no regular access for adult steelhead. This evidence suggests the ecological importance of the resident form to the viability of steelhead and the need to reconnect populations upstream and downstream of introduced migration barriers. The loss or reduction in anadromy and migration of juvenile steelhead to the estuary or ocean is expected to reduce gene flow, which strongly influences population diversity (McElhany *et al.* 2000). Evidence indicates genetic diversity in populations of southern California steelhead is low (Girman and Garza 2006).

**2.2.3 Steelhead Habitat Requirements.** – Habitat requirements of steelhead generally depend on the life history stage. Steelhead encounter several distinct habitats during their life cycle. Water discharge, water temperature, and water chemistry must be appropriate for adult and juvenile migration. Suitable water depth and velocity, and substrate composition are the primary requirements for spawning. Furthermore, dissolved oxygen concentration, pH, and water temperature are factors affecting survival of incubating embryos. The presence of interspatial spaces between large substrate particle types is important for maintaining water-flow through the nest as well as dissolved oxygen levels within the nest. These spaces can become filled with fine sediment, sand, and other small particles. Additionally, juveniles need abundant food sources, including insects, crustaceans, and other small fish. Habitat must also provide places to hide from predators, such as under logs, root wads and boulders in the stream, and beneath overhanging vegetation. Steelhead also need places to seek refuge from periodic high-flow events (side channels and off channel areas), and may occasionally benefit from the availability of cold-water springs or seeps and deep pools during summer. Estuarine habitats can be utilized during the seaward migration of steelhead, as these habitats have been shown to be nurseries for steelhead. Estuarine or lagoon habitats can vary significantly in their physical characteristics from one another, but remain an important habitat requirement as physiology begins to change while juvenile steelhead become acclimated to a saltwater environment.

**2.2.4 Status of Designated Critical Habitat.** – Within the process of designating critical habitat, NMFS developed a list of Primary Constituent Elements (PCE) (NMFS 2005) for habitat sites essential to support one or more life stages of the DPS, such as sites for spawning, rearing, and migration (Table 1). The new critical habitat regulations (81 FR 7414) replace this term with physical or biological features (PBFs). The shift in terminology does not change the approach used in conducting a “destruction or adverse modification” analysis, which is the same regardless of whether the original designation identified primary constituent elements, physical or biological features, or essential features. In this biological opinion, we use the term PBF to mean PCE or

essential feature, as appropriate for the specific critical habitat. These sites in turn contain PBFs<sup>1</sup> essential to the conservation of the threatened SCCC DPS of steelhead.

Habitat for steelhead has suffered destruction and modification, and anthropogenic activities have reduced the amount of habitat available to steelhead (Nehlsen *et al.* 1991; NMFS 1997; Boughton *et al.* 2005; NMFS 2006). In many watersheds throughout the range of the SCCC DPS, the damming of streams has precluded steelhead from hundreds of miles of historical spawning and rearing habitats (e.g., Los Padres Dam and San Clemente Dam within the Carmel River watershed, Uvas Dam and Pacheco Dam within the Pajaro River watershed, Salinas Dam on the Salinas River, San Antonio Dam on the San Antonio River, Lopez Dam on Arroyo Grande Creek). These dams create physical barriers and hydrological impediments for adult and juvenile steelhead migrating to and from spawning and rearing habitats. Likewise, construction and ongoing impassable presence of highway projects have rendered habitats inaccessible to adult steelhead (Boughton *et al.* 2005). Within stream reaches that are accessible to this species (but that may currently contain no fish), urbanization (including effects due to water exploitation) has in many watersheds eliminated or dramatically reduced the quality and amount of living space for juvenile steelhead. The number of streams that historically supported steelhead has been dramatically reduced (Good *et al.* 2005). Groundwater pumping and diversion of surface water contribute to the loss of habitat for steelhead, particularly during the dry season (e.g., Spina *et al.* 2006). The extensive loss and degradation of habitat is one of the leading causes for the decline of steelhead abundance in south-central California and listing of the species as threatened (NMFS 1997; NMFS 2006).

A significant amount of estuarine habitat has been lost across the range of the DPS with an average of only 25 percent of the original estuarine habitat remaining (NMFS 2011). The condition of these remaining wetland habitats is largely degraded, with many wetland areas at continued risk of loss or further degradation. Although many historically harmful practices have been halted, much of the historical damage remains to be addressed and the necessary restoration activities will likely require decades. Many of these threats are associated with the larger river systems such as the Carmel, Salinas, Pajaro, and Big Sur rivers, but they also apply to smaller coastal systems such as San Luis Obispo, Pismo, and Arroyo Grande creeks. Overall, these threats have remained essentially unchanged for the DPS as determined by the last status review (Williams *et al.* 2011) though some individual, site specific threats have been reduced or eliminated as a result of conservation actions such as the removal of small fish passage barriers.

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<sup>1</sup> The essential features include water characteristics, soil type, geological features, sites, prey, vegetation, symbiotic species, single or complex combination of habitat characteristics, and ephemeral or dynamic habitat conditions. Features may also be expressed in terms relating to principles of conservation biology, such as patch size, distribution distances, and connectivity (per proposed rule: Docket No. FWS-HQ-ES-2012-0096; Docket No. 120106025-3256-01; 4500030114 on May 12, 2014; 50 CFR 424 Vol. 79, No. 91. Page 27066-27077).

**Table 1. Physical or biological features critical to the conservation of sites determined essential to support one or more life stages of steelhead (NMFS 2005).**

Physical or Biological Features	Physical Characteristics	Essential to Conservation
Freshwater spawning sites	With water quantity and quality conditions and substrate supporting spawning, incubation and larval development.	Without these features the species cannot successfully spawn and produce offspring.
Freshwater rearing sites	With water quantity and floodplain connectivity to form and maintain physical habitat conditions and support juvenile growth and mobility; water quality and forage supporting juvenile development; and natural cover such as shade, submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, and side channels.	Without these features juveniles cannot access and use the areas needed to forage, grow, and develop behaviors (e.g. predator avoidance, competition) that help ensure their survival.
Freshwater migration corridors	Free of obstruction with water quantity and quality conditions and natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, side channels, and undercut banks supporting juvenile and adult mobility and survival.	Without these features juveniles cannot use the variety of habitats that allow them to avoid high flows, avoid predators, successfully compete, begin the behavioral and physiological changes needed for life in the ocean, and reach the ocean in a timely manner; allow steelhead adults in a non-feeding condition to successfully swim upstream, avoid predators, and reach spawning areas on limited energy stores.
Estuarine areas	Free of obstruction with water quality, water quantity, and salinity conditions supporting juvenile and adult physiological transitions between fresh- and saltwater; natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, and side channels; and juvenile and adult forage, including aquatic invertebrates and fishes, supporting growth and maturation.	Without these features juveniles cannot reach the ocean in a timely manner and use the variety of habitats that allow them to avoid predators, compete successfully, and complete the behavioral and physiological changes needed for life in the ocean; they provide a final source of abundant forage for adult steelhead that will provide the energy stores needed to make the physiological transition to fresh water, migrate upstream, avoid predators, and develop to maturity upon reaching spawning areas.
Near-shore marine areas	Free of obstruction with water quality and quantity conditions and forage, including aquatic invertebrates and fishes, supporting growth and maturation; and natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, and side channels.	Without these features juveniles cannot successfully transition from natal streams to offshore marine areas.
Offshore marine areas	With water quality conditions and forage, including aquatic invertebrates and fishes, supporting growth and maturation.	Without them juveniles cannot forage and grow to adulthood.

**2.2.5 Influence of a Changing Climate on the Species.** – One factor affecting the rangewide status of threatened steelhead, and aquatic habitat at large, is climate change. For the Southwest region (southern Rocky Mountains to the Pacific Coast), the average temperature has already increased roughly 1.5°F compared to a 1960-1979 baseline period. High temperatures will become more common, indicating that southern California steelhead may experience increased thermal stress even though this species has shown to endure higher than preferable body temperatures (Spina 2007).

Precipitation trends are also important to consider. The Southwest region, including California, showed a 16 percent increase in the number of days with heavy precipitation from 1958 to 2007. Potential impacts to south-central California steelhead in freshwater streams include damage to spawning redds and washing away of incubating eggs due to higher winter stream flow (USGCRP 2009), and poor freshwater survival due to longer and warmer periods of drought (Hanak *et al.* 2011; Mastrandrea and Luers 2012), which may lead to lower host resistance of steelhead to more virulent parasitic and bacterial diseases (McCullough 1999; Marcogliese 2001). Snyder and Sloan (2005) projected mean annual precipitation in central western California to decrease by 1.6 cm (2.8% percent) by the end of the 21st century.

Changes in vegetation patterns for this region will include substantial increases in the amount of grassland and decreases in most other vegetation communities (e.g., chaparral, coastal scrub, blue oak woodland, and foothill pine). Estuarine productivity is likely to change based on changes in freshwater flows, nutrient cycling, and sediment amounts (Scavia *et al.* 2002). Additionally, upper ocean temperature is the primary physical factor influencing the distribution of steelhead in the open ocean, and a warming climate may result in a north-ward shift in steelhead distribution, for example (Myers and Mantua 2013).

In summary, observed and predicted climate-change effects are generally detrimental to the species, given the unprecedented rate of change and uncertainty about the ability to adapt, so unless offset by improvements in other factors, status of the species and critical habitat is likely to decline over time. The climate change projections referenced above cover the time period between the present and approximately 2100. In general, climate change projections cannot be distinguished from annual and decadal climate variability for approximately the first 10 years of the projection period (see Cox and Stephenson 2007). While there is uncertainty associated with projections beyond 10 years, which increases over time, the direction of change is relatively certain (McClure *et al.* 2003).

### **2.3 Environmental Baseline**

The “environmental baseline” includes the past and present impacts of all Federal, state, or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or early Section 7 consultation, and the impact of state or private actions which are contemporaneous with the consultation in process (50 CFR §402.02).

**2.3.1 Status of Aquatic Habitat in the Action Area.** – Aquatic habitat within the action area of Pismo Creek consists of a glide, and the streambed is composed of silt and sand. The active channel in the action area is approximately 28-feet wide and the banks underneath the bridge are

lined with damaged concrete-slope protection. Sections of the concrete-slope protection have failed and fallen into the creek channel. Riparian vegetation within the action area include arroyo willow, and non-native spider gum (*Eucalyptus conferruminata*), silk oak (*Grevillea robusta*), and Chilean fig (*Carbobrotus chilensis*) that provide canopy cover. The stream is perennial, with flows being lowest in the summer and fall months. Water within the action area is typically brackish due to its close proximity to the estuary. Overall the PBFs of critical habitat for juvenile steelhead rearing (i.e., natural cover, shelter, water quality/quantity, and riparian) exist within the action area immediately downstream of the SR-101 Bridge 49-0015K. The PBFs for spawning habitat in the action area are degraded based on the poor substrate conditions within the action area. Finally, the PBFs for migration are considered suitable through the action area, as there is no obvious barrier to adult or juvenile steelhead migration.

**2.3.2 Status of Steelhead in the Action Area.** – Although no estimate of total steelhead abundance in Pismo Creek is available, there have been numerous sightings of steelhead within the creek. The recent presence of juvenile steelhead in the vicinity and action area has been documented (Caltrans 2015; Morro Group 2001). In May 2005, a “smolt sized steelhead” was observed in the Pismo Creek lagoon and the California Department of Fish and Wildlife has observed young-of-the-year, age 1+, and age 2+ steelhead throughout Pismo Creek (Becker and Reining 2008). Juvenile steelhead were observed by Caltrans in the project area during general wildlife surveys in 1991, 1995, and 1996 (Caltrans 2015). In August 2001, the Morro Group surveyed Pismo Creek about 750-feet upstream of the project area and observed approximately 50 juvenile steelhead (Morro Group 2001). Based on surveys and anecdotal observations of juvenile steelhead within the vicinity of the action area, NMFS estimates that up to 50 juvenile steelhead may be present in the work area to be dewatered, depending on flow conditions and overall production within the watershed during a given year. Adult steelhead are not expected to be present within the action area during the time of construction activities (June 1 to October 31).

### **2.3.3 Factors Affecting Species Environment in the Action Area and Vicinity**

#### Road Encroachment and Urban Development

SR-101 traverses the creek and residential developments exist along the streambanks within the action area. A wastewater treatment plant is located immediately upstream of the action area. The location of the roads and homes likely results in runoff from the road surfaces entering the creek during rainstorms, which reduces the water quality within the action area to an unknown degree. The effects on water quality from road surface runoff are most likely to occur during the winter when there is runoff during rainstorms. Runoff from road surfaces contains dirt, oils, automotive fluids, and petro chemicals that are harmful to aquatic life, including steelhead (Spence *et. al.* 1996). Road and residential development located along the creek within the action area have contributed to the confinement of the stream channel and diminished riparian vegetation. Additionally, the input of nitrogen and phosphorus from treated wastewater immediately upstream of the action area can lead to increased eutrophication of receiving waters such as rivers and streams (Carey and Migliaccio 2009). Consequently, the proliferation of urban areas within the action area and vicinity is of concern.

### Agricultural Development

Cultivated fields and open farmlands dominate the Edna Valley upstream of the action area on Pismo Creek. Agricultural conversions of floodplains are recurring sources of threats to instream habitat. There is potential for increased turbidity or nutrient loading due to runoff from agriculture areas adjacent to the creek. High turbidity concentrations can cause fish mortality, reduce fish feeding efficiency and decrease food availability (Berg and Northcote 1985; McLeavy *et al.* 1987; Gregory and Northcote 1993; Velagic 1995). Agricultural runoff can transfer nutrients and pesticides to the creek, which can in turn lower dissolved oxygen levels by increasing algae growth in streams and decreasing forage for steelhead (Spence *et al.*, 1996).

In addition, demands on groundwater occur from upstream agricultural activities. The total estimated gross groundwater supply for the Edna Valley Groundwater Sub-Basin is estimated to be 4,700 AFY with the total estimated range of gross water demand for the basin to be between 4,000 to 4,500 AFY (SLO County 2014). The extent that agricultural water demands may affect the quantity and extent of surface water and essential features of steelhead habitat within the action area is unknown to NMFS. Lowered streamflow or stream drying could result in a significant reduction or loss of habitat and even mortality to steelhead (Spence *et al.*, 1996). These impacts if occurring have the potential to adversely impair steelhead survival within Pismo Creek.

### **2.4 Effects of the Action**

Under the ESA, “effects of the action” means the direct and indirect effects of an action on the species or critical habitat, together with the effects of other activities that are interrelated or interdependent with that action, that will be added to the environmental baseline (50 CFR §402.02). Indirect effects are those that are caused by the proposed action and are later in time, but still are reasonably certain to occur. The expected effects of the action on threatened steelhead and designated critical habitat for this species are described as follows.

**2.4.1 Alteration of Aquatic Habitat.** – Dewatering the immediate work area is expected to temporarily disrupt steelhead behavior patterns (*i.e.*, rearing, migrating), cause temporary loss of aquatic habitat, as well as loss of invertebrate forage for steelhead within the dewatered work area. About 273-linear feet of Pismo Creek will be dewatered for up to five months during the dry season (June 1 through October 31) to allow construction work to proceed in dry conditions.

Dewatering will temporarily preclude the action area from serving as a rearing site and a migration corridor for threatened steelhead. The ability of juvenile steelhead to migrate upstream through the action area will be hindered for several months while the diversion is in place. Downstream migration of juvenile steelhead from reaches upstream of the action area is not expected to be significantly affected owing to the temporary corridor provided through the diversion pipe. Adult steelhead are not expected in the creek and, therefore, are not likely to be affected by construction activities.

Aquatic macroinvertebrate forage will be temporarily reduced or eliminated within the action area as a result of isolating the workspace from flowing water. Aquatic insects provide a source of food for instream fish populations, and may represent a substantial portion of food items consumed by

juvenile steelhead. Effects to aquatic macroinvertebrates resulting from streamflow diversion and dewatering will be temporary because construction activities will be temporary, and rapid recolonization (about one to two months) of the restored channel area by macroinvertebrates is expected following re-watering (Cushman 1985; Thomas 1985; Harvey 1986). In addition, the effect of macroinvertebrate loss on juvenile steelhead is expected to be negligible because food from upstream sources would be available downstream of the dewatered area via drift through the diversion pipe. Based on the foregoing, the temporary loss of aquatic macroinvertebrates as a result of dewatering activities is not expected to adversely affect steelhead.

Ultimately, the loss of aquatic habitat associated with dewatering will be temporary and is not expected to result in lethal effects, as relocated steelhead will be able to use all aquatic habitat downstream of the dewatered portion of the creek, which appears to be of similar quality as the reach subject to dewatering (J. Ogawa NMFS 2015, pers. obs.). Connectivity between the upstream and downstream stream reaches will be restored after the water diversion is removed and river flows are returned to the dewatered area, and no long-term diminishment will result from the proposed action in the physical capacity of the habitat to serve the intended functional role for steelhead. Overall, effects to steelhead and designated critical habitat for this species from water diversion are expected to be non-lethal and temporary.

**2.4.2 Capture and Relocation of Steelhead.** –Upon completion of the proposed action and construction activities, barriers to surface flow will be removed and living space for juvenile will return to the dewatered action area. Ultimately, steelhead relocation efforts are expected to significantly minimize impacts to juvenile steelhead from areas where they would have probably experienced a high rate of injury or mortality.

Capture activities necessitates finding suitable relocation habitat. However, the description of the proposed action does not include Caltrans' criteria for judging suitable habitat. Ideally, sites selected for relocating juvenile steelhead should have ample habitat and not result in crowding. Although Caltrans will document the capture and relocation of juvenile steelhead within the dewatered area, the proposed action does not include a provision to notify NMFS of the number of steelhead that may be harmed or injured as a result of the proposed action.

Based on steelhead survey results and anecdotal observations of juvenile steelhead in the vicinity of the action area on Pismo Creek, NMFS expects no more than 50 juvenile steelhead will need to be relocated. NMFS expects that 5 juvenile steelhead may be injured or killed as a result of the proposed action. This estimated mortality is based on NMFS' experience and knowledge gained on similar projects in San Luis Obispo County during the last several years. Based on NMFS' general familiarity of steelhead abundance in south-central California in general, and San Luis Obispo County streams in particular, the anticipated number of juvenile steelhead that may be injured or killed as a result of the proposed action is likely to represent a small fraction of the overall watershed-specific populations and the entire SCCC DPS of threatened steelhead. Therefore, the effects of the relocation on steelhead are not expected to give rise to population-level effects.

**2.4.3 Disturbance to the Streambed.** – Although manipulation and disturbance of the streambed can result in changes to channel morphology and hydraulic conditions that may create impediments to steelhead migration or alter juvenile rearing conditions, review of the proposed action indicates

the alignment of the new outrigger bents are not expected to result in significant changes to stream-channel morphology or rearing conditions. The two 36-inch bents will be placed along the existing row of bents in the same configuration, which is parallel to the direction of streamflow and result in the loss of about 16-square feet of designated critical habitat. Hydraulic computations and a one-dimensional HEC-RAS model were used to analyze potential post-project hydraulic conditions through the project reach. The results of the model showed that the proposed action will slightly increase water surface elevation within the limits of the bridge, but steelhead-passage conditions will not be significantly affected. The PBFs of critical habitat for juvenile rearing (i.e., riparian, natural cover, shelter) within the action area occur immediately downstream of the bridge along the west bank. Therefore, the discrete loss of critical habitat located underneath the bridge mid-channel is not expected to diminish the overall functional value of rearing habitat within the action area. Additionally, streambed contours will be restored to their original condition upon completion of the project. Based on these findings, the proposed action is not anticipated to appreciably reduce the functional value of the action area as migratory corridor or rearing site.

**2.4.4 Pile Installation.** – Fish may be injured or killed when exposed to elevated levels of underwater sound pressure generated from driving steel piles with impact hammers (Hastings and Popper 2005). The Fisheries Hydroacoustic Working Group (FHWG<sup>2</sup>), uses a metric threshold criterion to correlate physical injury to fish exposed to underwater pile driving with impact hammers. Specifically, this includes a cumulative sound exposure level (SEL) of 187 decibels (dB) for fish two grams or greater, or 183 dB for fish less than 2 grams. If the threshold is exceeded, then physical injury is assumed to occur. The work area will be dewatered and, therefore, none of the piles will be installed in or near surface waters. The sound energy originating from the ground as a result of pile-driving activities will be dominated by low frequencies that do not propagate efficiently through water, particularly shallow water existing beyond the dewatered work area. At a distance of 28-meters from the driven pile, the SEL is expected to be 183 dB. This level does not exceed those that cause injury to juvenile steelhead. To further minimize the effects of pile driving on steelhead, sound levels will be monitored to ensure that levels upstream and downstream of the dewatered area are not higher than the anticipated cumulative SEL. Therefore, no adverse effect to steelhead is expected as a result of pile driving associated with the proposed action.

**2.4.5 Alteration of Water Quality.** – NMFS does not expect acute or chronic effects on aquatic habitat or steelhead in Pismo Creek because increases in sedimentation and turbidity levels resulting from construction activities are expected to be minimal and temporary (i.e., a few hours during dewatering, and a few hours or slightly more after rewatering and during the first storm). A majority of the research regarding turbidity and sedimentation effects on fish was carried out in a laboratory setting with turbidity levels significantly higher than those expected to result from project activities. In addition, sediment and erosion control devices (e.g., straw-fiber rolls, silt-fencing, hay bales, settling basins, and filter bag) installed prior to the beginning of construction activities would be expected to minimize the effects of sedimentation and turbidity on water quality. The success of these measures has been documented during other similar projects

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<sup>2</sup> Member agencies of the FHWG include Caltrans, Federal Highways Administration, NMFS (Northwest and Southwest Regions), United States Fish and Wildlife Service, Oregon and Washington Departments of Transportation.

(M. Larson, CDFG, 2012, personal communication). NMFS expects that the disturbance within the stream channel will not result in any long-term, incremental increases in sedimentation or turbidity within the creek.

**2.4.6 Disturbance to Streamside Vegetation.** – The proposed action has the potential to temporarily affect riparian vegetation within the action area of Pismo Creek due to a discrete loss of shade and cover currently present along the active channel. Indirect effects associated with the removal of riparian vegetation can result in increased water temperatures (Mitchell 1999; Opperman and Merenlender 2004) and decreased water quality (Lowrance *et al.* 1985; Welsch 1991) attributable to a loss of shade and cover over the active channel. However, the loss of vegetation as a result of the proposed action will be confined to a small area and expected to be temporary, because native riparian vegetation will be replanted throughout the disturbed area to minimize impacts from project construction. Based on NMFS' experience observing the response of riparian vegetation to human-made disturbances (J. Ogawa, NMFS 2015, pers. obs.), the riparian zone is expected to recover from the project one to two years following the completion of construction. Overall, the small amount of riparian vegetation affected by the proposed action is not expected to diminish the overall functional value of the migratory corridor and lagoon rearing site within the action area. Although Caltrans proposes to monitor replanted areas within the action area for three to five years following completion of the project, the proposed action does not include a provision to notify NMFS of the success of the proposed plantings over time.

## **2.5 Cumulative Effects**

“Cumulative effects” are those effects of future state or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation (50 CFR 402.02). Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the ESA.

NMFS is generally familiar with activities occurring in the action area, and at this time is unaware of such actions that would be reasonably certain to occur. Consequently, no cumulative effects are likely, beyond the continuing effects of present land uses that are reasonably certain to occur into the future (see Environmental Baseline, Section 2.3).

## **2.6 Integration and Synthesis**

The Integration and Synthesis section is the final step in our assessment of the risk posed to species and critical habitat as a result of implementing the proposed action. In this section, we add the effects of the action (Section 2.4) to the environmental baseline (Section 2.3) and the cumulative effects (Section 2.5), taking into account the status of the species, critical habitat, and climate change (Section 2.2), to formulate the agency's biological opinion as to whether the proposed action is likely to: (1) appreciably reduce the likelihood of both the survival and recovery of a listed species in the wild by reducing its numbers, reproduction, or distribution; or (2) reduce the value of designated or proposed critical habitat for the conservation of the species.

Juvenile steelhead are expected to be present in the action area during the time the proposed action will be implemented and, therefore, subject to direct and indirect effects associated with aspects of the proposed action. The main risk to individual steelhead involves effects due to capture and relocation. The adverse effects include potential injury or mortality during the process of capture and relocation during dewatering activities, but precautions are in place to minimize, if not eliminate, the risk of injury and mortality, and adjacent instream habitats are expected to suitably harbor the relocated steelhead. Because the habitat alteration due to the dewatering is short lived and localized, the proposed action is not expected to result in adverse modification to designated critical habitat.

Based on the steelhead surveys described in the environmental baseline section (2.3.2), NMFS concludes non-lethal take of no more than 50 juvenile steelhead that may be captured and relocated as a result of dewatering within the action area during the construction season, with a potential lethal take of no more than 5 out of the 50, thus the risk of mortality is low. Any juvenile steelhead present in the action area likely make up a small proportion of the SCCC DPS of steelhead.

Overall, the impacts to critical habitat are expected to be temporary and not translate into a reduction in the functional value of the habitat in the long term. The replanted areas are expected to create a functional riparian zone that provides cover for steelhead within the action area of Pismo Creek. The impacts from disturbing the streambed are not expected to adversely affect the quality or quantity of aquatic habitat; rather, the proposed action is expected to maintain steelhead passage and rearing conditions in the localized area. Maintained passage conditions and rearing habitat are expected to favor the viability of the threatened SCCC DPS of steelhead and avoids reducing the value of critical habitat for the species within the action area of Pismo Creek.

## **2.7 Conclusion**

After reviewing and analyzing the current status of the listed species and critical habitat, the environmental baseline within the action area, the effects of the proposed action, any effects of interrelated and interdependent activities, and cumulative effects, it is NMFS' biological opinion that the proposed action is not likely to jeopardize the continued existence of the threatened SCCC DPS of steelhead or destroy or adversely modify its designated critical habitat.

## **2.8 Incidental Take Statement**

Section 9 of the ESA and Federal regulations pursuant to section 4(d) of the ESA prohibit the take of endangered and threatened species, respectively, without a special exemption. "Take" is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. "Harm" is further defined by regulation to include significant habitat modification or degradation that actually kills or injures fish or wildlife by significantly impairing essential behavioral patterns, including breeding, spawning, rearing, migrating, feeding, or sheltering (50 CFR 222.102). "Incidental take" is defined by regulation as takings that result from, but are not the purpose of, carrying out an otherwise lawful activity conducted by the Federal agency or applicant (50 CFR 402.02). Section 7(b)(4) and Section 7(o)(2) provide that a taking that is incidental to an otherwise lawful agency action is not considered to be prohibited taking under the ESA if that action is performed in compliance with the terms and conditions of this incidental

take statement.

#### **2.8.1 Amount or Extent of Take**

Based on steelhead surveys upstream of the action area, and the depth, size, and amount of instream cover within the action area, the biological opinion anticipates the following amount of incidental take: All steelhead in the action area, expected to be no more than 50 juveniles that are captured or harassed during project activities. No more than 5 juvenile steelhead are expected to be injured or killed at each location as a result of dewatering the action area and relocating the species during construction. No other incidental take is anticipated as a result of the proposed action. The accompanying biological opinion does not anticipate any form of take that is not incidental to the proposed action.

#### **2.8.2 Effect of the Take**

In the biological opinion, NMFS determined that the amount or extent of anticipated take, coupled with other effects of the proposed action, is not likely to result in jeopardy to the species.

#### **2.8.3 Reasonable and Prudent Measures**

“Reasonable and prudent measures” are nondiscretionary measures that are necessary or appropriate to minimize the impact of the amount or extent of incidental take (50 CFR 402.02). NMFS believes following reasonable and prudent measures are necessary and appropriate to minimize and monitor incidental take of steelhead. The results of the effect analysis provide the basis for the following reasonable and prudent measures:

1. Avoid and minimize harm and mortality of steelhead during the relocation activities.
2. Minimize the amount and extent of temporary and permanent changes in the quality and quantity of riparian and instream habitat for steelhead.

#### **2.8.4 Terms and Conditions**

The terms and conditions described below are non-discretionary, and Caltrans or any applicant must comply with the terms and conditions, which implement the reasonable and prudent measures (50 CFR §402.14). Caltrans or any applicant has a continuing duty to monitor the impacts of incidental take and must report the progress of the action and its impact on the species as specified in this incidental take statement (50 CFR §402.14). If the entity to whom a term and condition is directed does not comply with the following terms and conditions, protective coverage for the proposed action may lapse.

1. The following terms and conditions implement reasonable and prudent measure 1:
  - A. Caltrans’ biologist shall identify and evaluate the suitability of downstream steelhead relocation habitat(s) prior to undertaking the dewatering activities that are required to isolate the work area from flowing water. The biologist shall evaluate potential relocation sites

based on attributes such as adequate water quality (a minimum dissolved oxygen level of 5 mg/L and suitable water temperature), cover (instream and over-hanging vegetation or woody debris), and living space. Multiple relocation habitats may be necessary to prevent overcrowding of a single habitat depending on the number of steelhead captured, current number of steelhead already occupying the relocation habitat(s), and the size of the receiving habitat(s).

- B. Caltrans' biologist shall provide a written steelhead-relocation report to NMFS within 30 working days following completion of construction. The report shall include 1) the number and size of all steelhead relocated during the proposed action; 2) the date and time of the collection and relocation; 3) a description of any problem encountered during the project or when implementing terms and conditions; and 4) any effect of the proposed action on steelhead that was not previously considered. The report shall be sent to Jay Ogawa, NMFS, 501 W. Ocean Blvd., Suite 4200, Long Beach, California 90802-4213.
  - C. Caltrans' biologist shall contact NMFS (Jay Ogawa, 562-980-4061) immediately if one or more steelhead are found dead or injured. The purpose of the contact shall be to review the activities resulting in take and to determine if additional protective measures are required. All steelhead mortalities shall be retained, frozen as soon as practical, and placed in an appropriate-sized sealable bag that is labeled with the date and location of the collection and fork length and weight of the specimen(s). Frozen samples shall be retained by the biologist until additional instructions are provided by NMFS. Subsequent notification must also be made in writing to Jay Ogawa, NMFS, 501 W. Ocean Blvd., Suite 4200, Long Beach, California 90802-4213 within five days of noting dead or injured steelhead. The written notification shall include 1) the date, time, and location of the carcass or injured specimen; 2) a color photograph of the steelhead; 3) cause of injury or death; and 4) name and affiliation of the person whom found the specimen.
2. The following terms and conditions implements reasonable and prudent measure 2:
- A. Caltrans shall provide a revegetation report that is to include a description of the locations seeded or planted, the area revegetated, proposed methods to monitor and maintain the revegetated area, criteria used to determine the success of the plantings, and pre- and post-planting color photographs of the revegetated area. The revegetation report shall be sent to Jay Ogawa, NMFS, 501 W. Ocean Blvd., Suite 4200, Long Beach, California 90802-4213, within 30 calendar days following completion of the proposed action.
  - B. Caltrans shall provide the results of the vegetation monitoring within 30 calendar days following completion of each annual site inspection for the three to five years following completion of the project as described in the proposed action. The three or five reports shall include color photographs taken of the project area during each inspection and before implementation of the proposed action. The vegetation monitoring results shall be sent to Jay Ogawa, NMFS, 501 W. Ocean Blvd., Suite 4200, Long Beach, California 90802-4213.

## **2.9 Conservation Recommendations**

Section 7(a)(1) of the ESA directs Federal agencies to use their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of the threatened and endangered species. Specifically, conservation recommendations are suggestions regarding discretionary measures to minimize or avoid adverse effects of a proposed action on listed species or critical habitat or regarding the development of information (50 CFR §402.02).

NMFS has no conservation recommendation related to the proposed action considered in this biological opinion.

## **2.10 Reinitiation of Consultation**

This concludes formal consultation for Caltrans. As 50 CFR §402.16 states, re-initiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained or is authorized by law and if: (1) the amount or extent of incidental taking specified in the incidental take statement is exceeded, (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion, (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this opinion, or (4) a new species is listed or critical habitat designated that may be affected by the action.

## **3. DATA QUALITY ACT DOCUMENTATION AND PRE-DISSEMINATION REVIEW**

The Data Quality Act (DQA) specifies three components contributing to the quality of a document. They are utility, integrity, and objectivity. This section of the opinion addresses these DQA components, documents compliance with the DQA, and certifies that this opinion has undergone pre-dissemination review.

### **3.1 Utility**

Utility principally refers to ensuring that the information contained in this consultation is helpful, serviceable, and beneficial to the intended users. The intended user of this opinion is Caltrans. Other interested users could include the California Department of Fish and Wildlife and U.S. Fish and Wildlife Service. Individual copies of this opinion were provided to Caltrans. This opinion will be posted on the Public Consultation Tracking System web site (<https://pcts.nmfs.noaa.gov/pcts-web/homepage.pcts>). The format and naming adheres to conventional standards for style.

### **3.2 Integrity**

This consultation was completed on a computer system managed by NMFS in accordance with relevant information technology security policies and standards set out in Appendix III, 'Security of Automated Information Resources,' Office of Management and Budget Circular A-130; the Computer Security Act; and the Government Information Security Reform Act.

### 3.3 Objectivity

Information Product Category: Natural Resource Plan

**Standards:** This consultation and supporting documents are clear, concise, complete, and unbiased; and were developed using commonly accepted scientific research methods. They adhere to published standards including the NMFS ESA Consultation Handbook, ESA regulations, 50 CFR 402.01 et seq., and the MSA implementing regulations regarding EFH, 50 CFR 600.

**Best Available Information:** This consultation and supporting documents use the best available information, as referenced in the References section. The analyses in this opinion contain more background on information sources and quality.

**Referencing:** All supporting materials, information, data and analyses are properly referenced, consistent with standard scientific referencing style.

**Review Process:** This consultation was drafted by NMFS staff with training in ESA, and reviewed in accordance with West Coast Region ESA quality control and assurance processes.

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# Appendix G Biological Coordination

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## United States Department of the Interior

FISH AND WILDLIFE SERVICE  
Ventura Fish and Wildlife Office  
2493 Portola Road, Suite B  
Ventura, California 93003



IN REPLY REFER TO:  
08EVEN00-2016-TA-0331

May 9, 2016

John Moule  
California Department of Transportation, District 5  
50 Higuera Street  
San Luis Obispo, California 93401

Subject: Acknowledgement of Request to Initiate Formal Consultation for the Pismo Creek Bridge Scour Repair Project, Pismo, San Luis Obispo County, California (2016-F-0209)

Dear Mr. Moule:

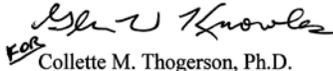
We are writing in response to your request, dated January 28, 2016, and received in our office on February 2, 2016, for initiation of formal consultation, pursuant to section 7 of the Endangered Species Act of 1973, as amended (Act). The California Department of Transportation (Caltrans) proposes to repair and rehabilitate the southbound on-ramp bridge to State Route 101 (SR-101) from Price Street spanning Pismo Creek (Bridge No 49-0015K) at postmile (PM) 16.4 in the City of Pismo, San Luis Obispo County, California. Caltrans proposes to rehabilitate the center structural supports and repair the crumbling embankments on either side of the creek to protect them from future scour. Caltrans proposes to temporarily remove adjacent vegetation to provide access and room to conduct project activities. Caltrans proposes to install a temporary stream diversion and to dewater this portion of Pismo Creek to isolate the bridge and embankments so they can conduct the bridge repairs and upgrades. Caltrans anticipates being able to complete construction within a single work season over approximately 150 days (or 5 months) likely in 2019. Caltrans would limit dewatering the creek during the low-flow period between June 15 and October 31 within a single work season. Caltrans proposes to remove invasive weed species and revegetate the work site with an assemblage of suitable native riparian, wetland, and upland vegetation using locally collected plant materials as part of their Mitigation and Monitoring Plan (MMP). The MMP would include bi-annual monitoring; reporting; and success criteria to determine when the revegetation is done, 100 percent for arroyo willow and 60-75 percent for other native plants. At issue are the potential effects of the subject project on the federally threatened California red-legged frog (*Rana draytonii*) and the federally endangered tidewater goby (*Eucyclogobius newberryi*) and its designated critical habitat. California red-legged frog critical habitat does not occur within the project area.

All information required of you to initiate consultation was either included with your request letter, obtained during the phone call, in the follow-up email, or is otherwise accessible for our consideration and reference. We may have a couple of additional questions to discuss with you,

but will work with you during the formal consultation process for this biological opinion to get those answers. The regulations that implement section 7 allow the Service up to 90 days to conclude formal consultation with your agency and an additional 45 days to prepare our biological opinion (unless we mutually agree to an extension). Our reimbursable agreement with Caltrans specifies that formal consultations will be completed within 120 days. Therefore, we expect to provide you with our biological opinion on or before June 2, 2016.

As a reminder, section 7(d) of the Act requires that, after the initiation of formal consultation, the lead Federal agency may make no irreversible or irretrievable commitment of resources that could preclude the formulation or implementation of any reasonable and prudent alternatives to avoid jeopardizing the continued existence of endangered or threatened species or destroying or adversely modifying critical habitat. If you have any questions regarding this letter or the consultation process, please feel free to contact Mark A. Elvin of my staff at (805) 644-1766, extension 258, or by e-mail at [mark\\_elvin@fws.gov](mailto:mark_elvin@fws.gov).

Sincerely,

  
for Collette M. Thogerson, Ph.D.  
Assistant Field Supervisor

## **List of Technical Studies**

Air Quality Report Memorandum, April 21, 2015

Noise Study Report Memorandum, April 21, 2015

Water Quality Report Memorandum, July 13, 2015

Natural Environment Study, August 2015

Location Hydraulic Study, July 29, 2015

Historical Property Survey Report, July 2015

Archaeological Survey Report, July 2015

Hazardous Waste Reports, August 19, 2015

Initial Site Assessment, August 19, 2015

Preliminary Site Investigation (Geophysical Survey), November 17, 2015

Scenic Resource Evaluation/Visual Assessment, August 2015

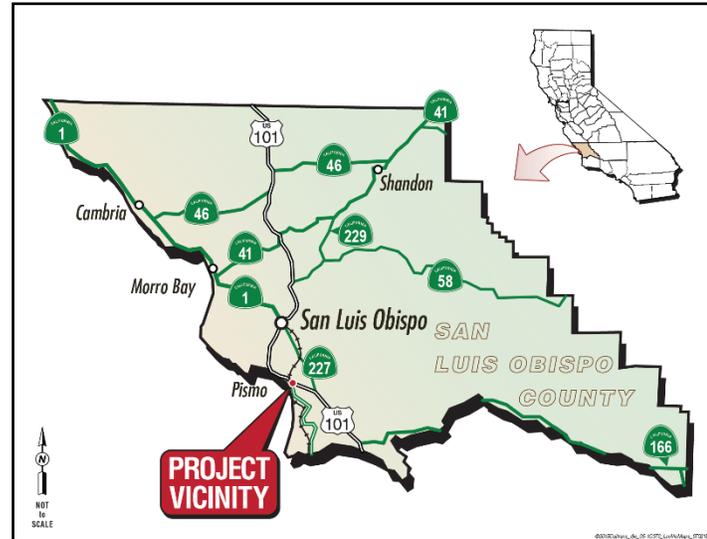
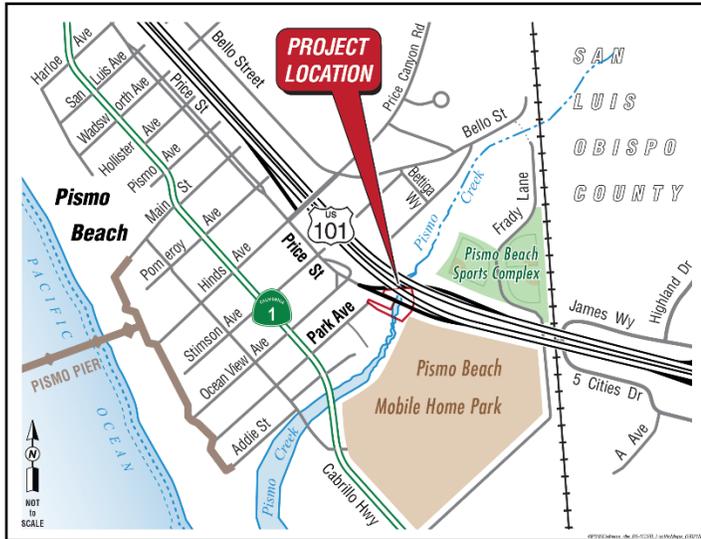
Initial Paleontology Study, July 31, 2015



# Pismo Creek Scour Repair Project



## Initial Study with Proposed Negative Declaration



For project updates and other Caltrans project information, please scan the QR-Code or visit us online at: <http://www.dot.ca.gov/dist05/projects/>



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