

Soquel Creek Scour Mitigation Project

Initial Study with Proposed Mitigated Negative Declaration

Santa Cruz County, California

District-05-SCR-1(PM13.31)

051H480/0516000079

May 2019



General Information About This Document

What's in this document:

The California Department of Transportation (Caltrans), as assigned by the Federal Highway Administration (FHWA), has prepared this Initial Study, which examines the potential environmental impacts of alternatives being considered for the proposed project in Santa Cruz County in California. The document explains why the project is being proposed, the alternatives being considered for the project, the existing environment that could be affected by the project, potential impacts of each of the alternatives, and proposed avoidance, minimization, and/or mitigation measures.

What you should do:

Please read the document. Additional copies of the document and the related technical studies are available for review at the following locations:

Caltrans District Office at 50 Higuera Street, San Luis Obispo, CA 93401

Porter Memorial Library, 3050 Porter St, Soquel, CA 95073

The document can also be downloaded at the following website: <http://www.dot.ca.gov/d5/>

No public hearing is scheduled for this project. Please contact Caltrans using the contact below if you would like a public hearing.

Tell us what you think. If you have any comments regarding the proposed project, please send your written comments to Caltrans by the deadline located below. Submit comments via U.S. mail to: Jason Wilkinson, Senior Environmental Planner, Environmental Planning, California Department of Transportation, 50 Higuera Street, San Luis Obispo, CA 93401

Submit comments via email to: Jason.Wilkinson@dot.ca.gov

Submit comments by the deadline: June 24th, 2019.

What happens next:

After comments are received from the public and reviewing agencies, Caltrans, as assigned by the Federal Highway Administration (FHWA), may 1) give environmental approval to the proposed project, 2) do additional environmental studies, or 3) abandon the project. If the project is given environmental approval and funding is appropriated, Caltrans could design and construct 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 the document to maintain proper layout of the chapters and appendices.

For individuals with sensory disabilities, this document can be made available in Braille, in large print, on audiocassette, or on computer disk. To obtain a copy in one of these alternate formats, please write to or call Caltrans, Attn: Jason Wilkinson, Division of Environmental Planning, California Department of Transportation, District 5, 50 Higuera St, San Luis Obispo, CA 93401; call (805) 542-4633 (voice) or use the California Relay Service 1-800-735-2929 (TTY), 1-800-735-2929 (voice), or 711.

District-05-SCR-1(PM13.31)
051H480/0516000079

Replace and improve the existing Soquel Creek Scour Protection on State
Route 1 (SR-1) at Post Mile (PM) 13.31 in Santa Cruz County

INITIAL STUDY with Proposed Mitigated Negative Declaration

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

THE STATE OF CALIFORNIA
Department of Transportation

5/7/2019
Date

(for) 
Jason Wilkinson
Senior Environmental Planner
California Department of Transportation
CEQA Lead Agency

The following may be contacted for more information about this document:

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Proposed Mitigated Negative Declaration

Pursuant to: Division 13, Public Resources Code

Project Description

The California Department of Transportation (Caltrans) proposes to prevent further scour on the western bank of the Soquel Creek Bridge (Br. No. 36-0013), located on State Route 1 at postmile 13.31 in the City of Capitola in Santa Cruz County, CA. The project is set in suburban surroundings, with State Route 1 identified as a divided four-lane highway.

Determination

This proposed Mitigated Negative Declaration is included to give notice to interested agencies and the public that it is Caltrans' intent to adopt a Mitigated Negative Declaration for this project. This does not mean that Caltrans' decision on the project is final. This Proposed Mitigated Negative Declaration is subject to change based on comments received from interested agencies and the public.

Caltrans has prepared an Initial Study for this project and, pending public review, expects to determine from this study that the proposed project would not have a significant effect on the environment for the following reasons.

The proposed project would have no effect on agriculture and forest resources, air quality, noise, cultural resources, geology and soils, hazards and hazardous materials, water quality, stormwater runoff, land use and planning, mineral resources, population and housing, public services, recreation, transportation and traffic, tribal cultural resources, and utilities and service systems.

The proposed project would have no significant adverse effect on visual resources, hydrology and floodplains, and biological resources because the following avoidance, minimization and mitigation measures would reduce potential effects to less than significant.

Visual Resources

- Impacts on vegetation shall be minimized to the greatest extent possible.
- Areas disturbed for access roads and staging areas shall be landscaped with aesthetic plantings.

- Creek restoration planting shall consider aesthetics along with inherent biological goals.

Hydrology and Floodplain

- A dewatering and diversion plan will be prepared and approved prior to beginning of construction. The temporary stream diversion shall be timed to occur between June 1 and October 31 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 only be made with permission from the relevant regulatory agencies.

Natural Communities

- ESA fencing would be installed along the maximum disturbance limits to minimize disturbance to adjacent habitats/vegetation. Special Provisions for the installation of ESA fencing and silt fencing shall be included in the Construction Contract and will be identified on the project plans. Prior to the start of construction activities, ESA areas will be delineated in the field and will be approved by the Caltrans environmental division.

Wetlands and Other Waters

- During construction, 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 on-site at all times during construction.
- During construction, erosion control measures shall be implemented. Silt fencing, fiber rolls, and barriers shall be installed as needed between the project site and jurisdictional other waters and riparian habitat. At a minimum, erosion controls shall be maintained by the contractor on a daily basis throughout the construction period.
- During construction, the staging areas shall conform to Best Management Practices (BMPs) applicable to attaining zero discharge of stormwater runoff. At a minimum, all 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.
- Stream contours shall be restored as close as possible to their original condition.

Western Pond Turtle

- Prior to construction, a biologist determined qualified by Caltrans shall survey the API and, if present, capture and relocate any western pond turtles to suitable habitat downstream of the API. Observations of SSCs or other special-status species shall be documented on CNDDDB forms and submitted to CDFW upon project completion. If these species or other SSC aquatic species are observed during construction, they will likewise be relocated to suitable upstream habitat by a qualified biologist

Nesting Birds

- Prior to construction, vegetation removal shall be scheduled to occur from September 2 to February 14, outside of the typical nesting bird season if possible, to avoid potential impacts to nesting birds. If tree removal or other construction activities are proposed to occur within 100 ft of potential habitat during the nesting season (February 15 to September 1), a nesting bird survey shall be conducted by a biologist determined qualified by Caltrans no more than three (3) days prior to construction. If an active nest is found, Caltrans shall coordinate with CDFW 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.
- During construction, active bird nests shall not be disturbed and eggs or young of birds covered by the MBTA 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 ft of disturbance shall be established by a qualified biologist using ESA 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.
- Trees to be removed shall be noted on design plans. Prior to any ground-disturbing activities, ESA fencing shall be installed around the dripline of trees to be protected within project limits.
- All clearing/grubbing and vegetation removal shall be monitored and documented by the biological monitor(s) regardless of time of year.

California Red-Legged Frog and Foothill Yellow-legged Frog

- Applicable measures will be implemented from the Programmatic Biological Opinion for Projects Funded or Approved under the Federal Highway Administration's Federal Aid Program (2011). See Appendix B.

Tidewater goby

- Prior to construction, Caltrans shall acquire incidental take authorization for tidewater goby from USFWS through a FESA Section 7 Biological Opinion and Incidental Take Statement.

Central California coast steelhead and Central California coast Coho Salmon

- Prior to construction, Caltrans shall acquire incidental take authorization for steelhead and coho salmon from NMFS through a FESA Section 7 Biological Opinion and Incidental Take Statement.

Compensatory mitigation

The following compensatory mitigation measure will be implemented to mitigate for impacts to riparian habitat, jurisdictional areas, and designated critical/essential habitat:

- Compensatory mitigation is proposed at a 1:1 ratio (acreage) for temporary impacts and at a 3:1 ratio (acreage) for permanent impacts to riparian vegetation via restoration (re-establishment).
- Replacement plantings will include appropriate native tree and understory species. In order to ensure success, monitoring and a one-year plant establishment period shall be required, which shall include semi-annual (twice a year) inspections, weeding, and replacement.
- Prior to construction, Caltrans will prepare a Mitigation and Monitoring Plan (MMP) to mitigate the impacts to riparian habitat, jurisdictional areas, and designated critical/essential habitat. The MMP shall be consistent with federal and state regulatory requirements and the mitigation measures will be finalized during the permitting actions and consultations listed below.
 - Programmatic Biological Opinion from the U.S. Fish and Wildlife Service for the protection of the: California red legged frog
 - U.S. Fish and Wildlife Service Biological Opinion for the tidewater goby
 - National Marine Fisheries Service Biological Opinion for the Central California Coast Steelhead Trout Distinct Population Segment critical habitat and Central California coho salmon Essential Fish Habitat
 - California Fish and Game Code Section 2081 Incidental Take Permit with the CDFW for coho salmon

- Caltrans shall implement the MMP as necessary during construction and immediately following project completion.

_____ Jason Wilkinson Senior Environmental Planner Department of Environmental Planning California Department of Transportation, District 5	_____ Date
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Chapter 1 Proposed Project

1.1 Introduction

The California Department of Transportation (Caltrans), as assigned by the Federal Highway Administration (FHWA), is the lead environmental review agency under the National Environmental Policy Act (NEPA). Caltrans is also the lead agency under the California Environmental Quality Act (CEQA). Caltrans proposes to address localized scour on the western bank of Soquel Creek at the Soquel Creek Bridge (Br. No. 36-0013), on State Route 1 (SR-1) at post mile (PM) 13.31 in Santa Cruz County. The arch span bridge was originally built in 1947 and then widened in 1971 and 1995.

The proposed project will remove damaged sack concrete protection and install approximately 1,250 cubic yards of rock slope protection (RSP) along the western bank underneath the bridge. RSP is among various bank and shore protection materials and methods. RSP, also called rock riprap or riprap, consists of one or more layers of rock; it is placed along river and streambanks, or along ocean and lake shores to prevent erosion. Dewatering/diversion of the creek is anticipated in order to remove sack concrete and place the RSP.

1.2 Purpose and Need

1.2.1 Purpose

The purpose of the proposed project is to ensure the long-term serviceability of the Soquel Creek Bridge by correcting and preventing localized scour and gully erosion at the Bent #12 substructures on the western bank of Soquel Creek.

1.2.2 Need

Scour and gully erosion on the western bank threaten the stability of Bent #12 at the Soquel Creek Bridge. A bridge bent is a combination of foundation and substructures that perpendicularly span the length of a bridge. The bridge footings (foundation) and columns/arches (substructures) which compose Bent #12 are depicted in Figure 1-1.

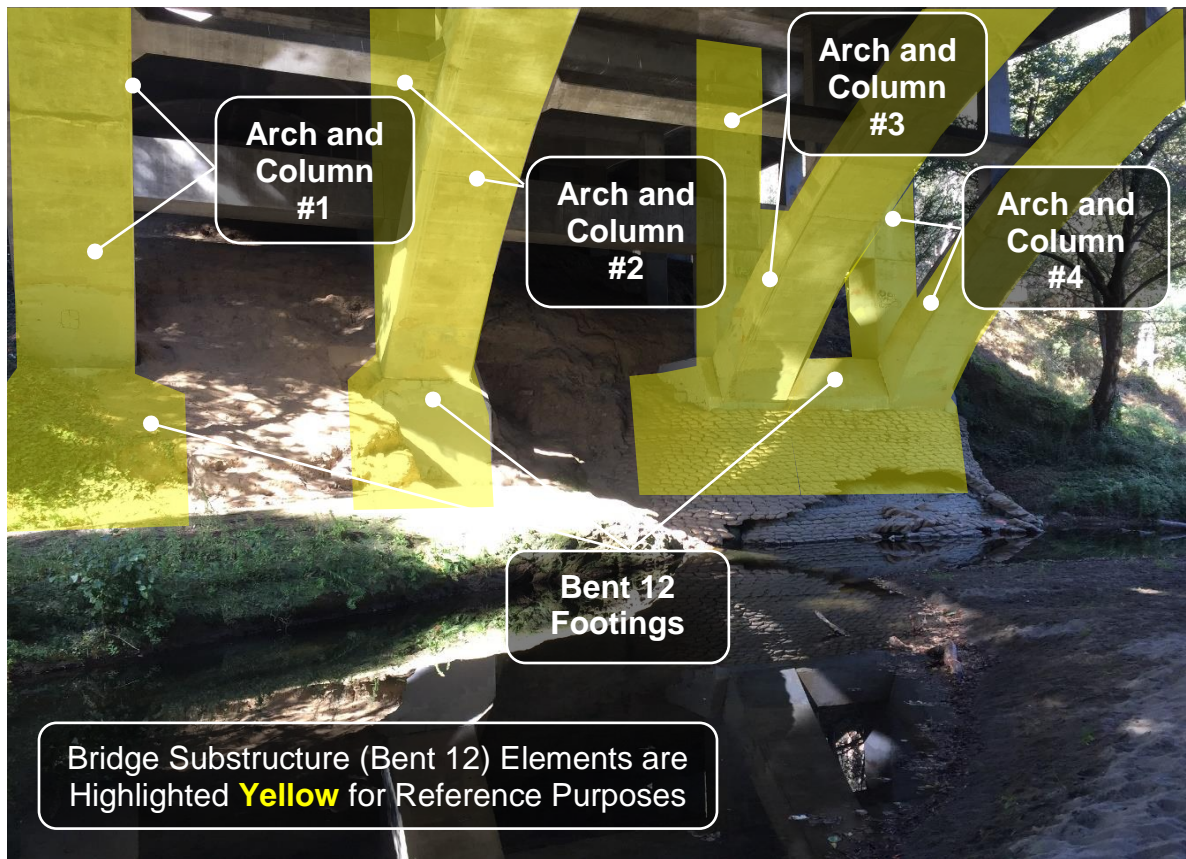


Figure 1-1 Soquel Creek Bridge Bent #12 Elements

Bridge inspection reports have identified localized scour at Bent #12. This scour has undermined existing sack concrete protection and exposed the footings of Bent #12. Additionally, discharge from a culvert connected to a storm drain on Wharf Road is leading to gully erosion of the western bank. Localized scour and gully erosion at Bent #12 is depicted in Figure 1-2.

Scour erosion at bridge foundation and substructures is the leading cause of bridge failure¹. Therefore, this project is needed in order to prevent further erosion at Bent #12 and possible failure of Soquel Creek Bridge.

¹<https://www.fhwa.dot.gov/engineering/hydraulics/pubs/hif12003.pdf>

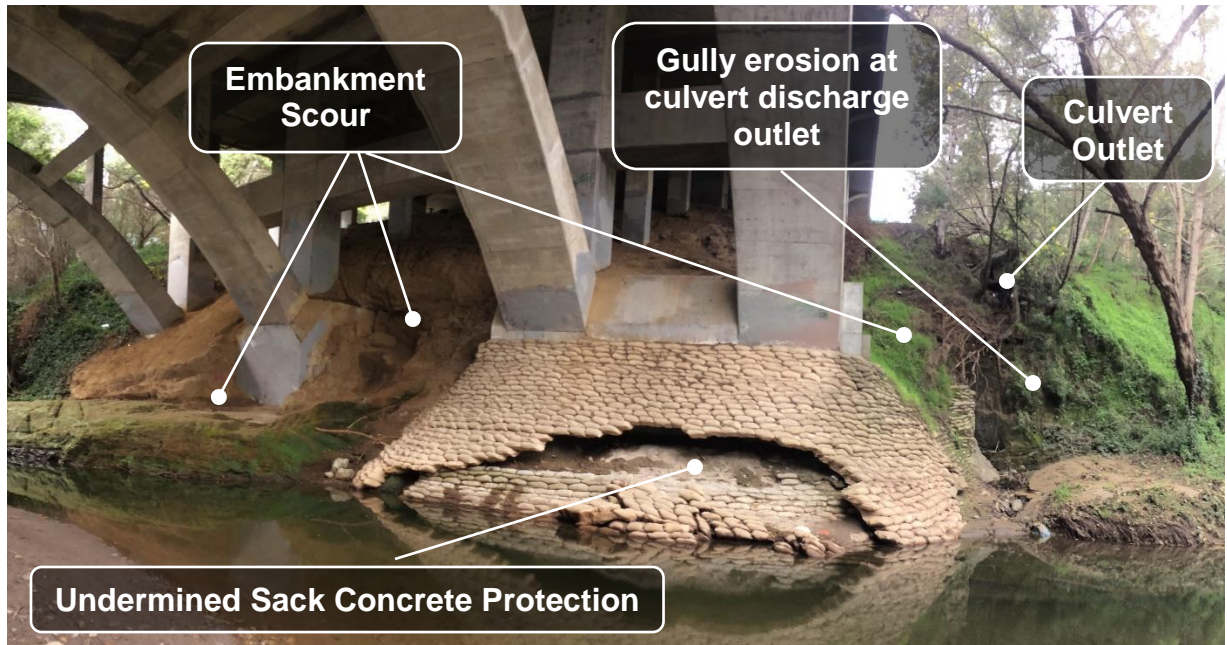


Figure 1-2 Scour and Gully Erosion at Bent 12 on Western Bank

1.3 Project Description

The proposed project will install RSP around Bent #12. The RSP design includes an approximate 130 ft x 50 ft segment along the western embankment underneath the bridge.

A temporary construction easement may be needed from the adjacent property owner to provide access to the worksite. Construction of the access road and staging area will require vegetation removal. Temporary stream diversion and dewatering operations would be necessary within Soquel Creek to conduct the work in a dry streambed.

The RSP will be constructed to maintain the existing stream cross sectional area (i.e. shape of the stream channel). Filling the scour hole(s) and excavating areas of the stream bed before installing the RSP will be completed to maintain the existing stream cross sectional area. The project will take place during low flow season (between June and October) and will take approximately 60 workings days.

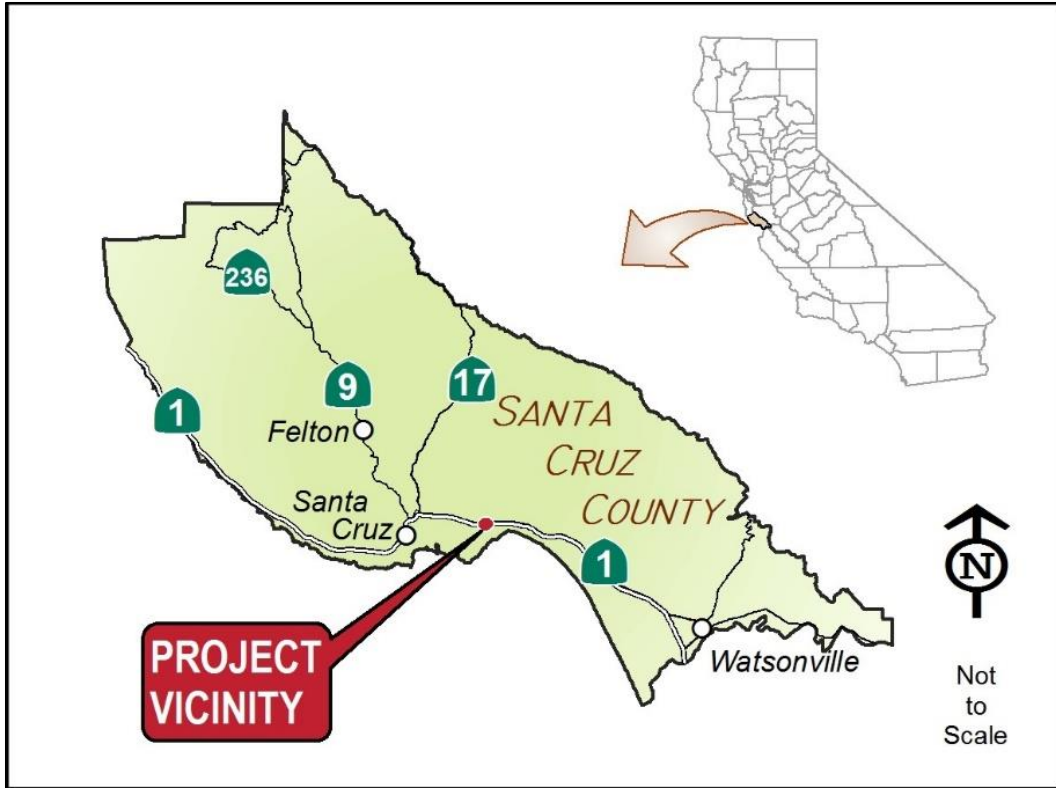


Figure 1-3 Project Vicinity Map



Figure 1-4 Project Location Map

1.4 Project Alternatives

There are two alternatives under consideration; a Build Alternative and a No-Build alternative.

1.4.1 Build Alternative

The Build Alternative would mitigate scour at the bridge by placing RSP western embankment restoring the structural integrity of the threatened bridge elements.

River scour has eroded the bridge's foundation soils. Long-term erosional changes as well as high-flow storm events threaten the stability Bent #12. Under the Build Alternative, existing sack concrete slope protection would be removed at the footing of columns 3 & 4. The proposed project would place 1 ton (32" diameter) RSP along the western bank at 130 ft long x 5.5 ft deep x 48 ft wide; approximately 1,250 cubic yards (See Figures 1-5 and 1-6). The RSP segment would be placed around the Bent #12 footings underneath the bridge and would also extend slightly upstream (30ft) to provide erosion

protection at a culvert discharge outlet. The proposed RSP would be placed on a 1.5:1 slope (maximum).

The RSP will be constructed to maintain the existing stream cross sectional area (i.e. shape of the stream channel underneath bridge after 1947 bridge construction). Filling the scour hole(s) and excavating areas of the stream bed before installing the RSP will be completed to maintain the existing stream cross sectional area.

Because of the depth of the creek bed, it is anticipated that dewatering/diversion of the creek would be required to prepare the site and to construct the RSP. Temporary construction easements may be required to access the construction site. The Build Alternative would not include work on the roadway or bridge deck. No utility-related work is anticipated.

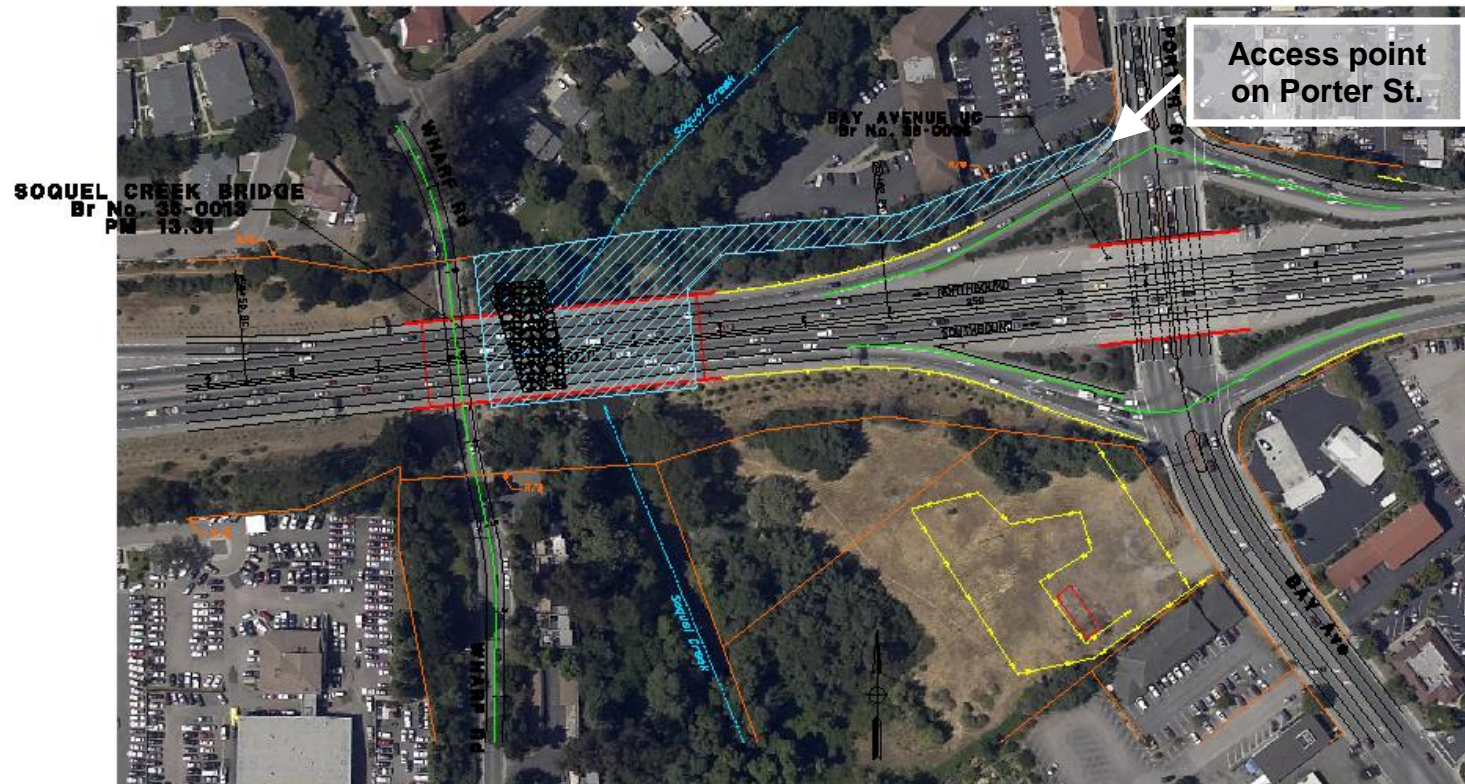
The estimated project cost is approximately \$2,400,00

The projected is planned to start construction during the summer of 2023 and the estimated construction duration is 60 working days.

This project contains a number of standardized project measures that are used on most, if not all, Caltrans projects and were not developed in response to any specific environmental impact resulting from the proposed project. These measures are addressed in more detail in the Environmental Consequences sections found in Chapter 2.

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LEGEND:



SOQUEL CREEK SCOUR MITIGATION
05-8C-ROUTE 1
05-1H480
PM 13.31

SCALE



STATE OF CALIFORNIA BUSINESS, TRANSPORTATION AND HOUSING AGENCY DEPARTMENT OF TRANSPORTATION DISTRICT 5					
STRIP MAP					
IN SANTA CRUZ COUNTY NEAR SANTA CRUZ ON ROUTE 1 AT SOQUEL CREEK BRIDGE					
Co	Rte	POST MILES	SCALE	DATE	INDEX
SD	1	13.31	1"= 60'	05-16	1 OF 1
PROJECT NAME		CA 05-1H480			

Figure 1-5 Proposed Project Site Plan Elements

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Figure 1-7 Conceptual Visualization of Proposed Build Alternative

1.4.2 No-Build (No-Action) Alternative

Under the No-Build Alternative, scour mitigation would not be implemented at Soquel Creek Bridge. Therefore, the western bank would continue to erode and threaten the stability of Bent #12 of the Soquel Creek Bridge. No other improvements would be constructed at Soquel Creek Bridge under the No-Build Alternative for this project. However, routine maintenance would continue.

1.5 Comparison of Alternatives

When evaluating alternatives, the project's purpose and need along with whether there's any potential for the project to have environmental impacts need to be weighed.

The Build Alternative would meet the purpose and need of the project. This alternative would prevent further scour and gully erosion at Bent #12 and reduce the potential for bridge failure caused by the eroding creek bank. The Build Alternative would result in temporary and permanent impacts to environmental resources which will be mitigated to a less than significant level.

The No-Build Alternative would not meet the project's purpose and need because the erosion damage threatening the bridge would not be addressed. The No-Build Alternative would have no anticipated environmental impacts

related to routine maintenance of the bridge. However, in the event of bridge failure or collapse both the direct and indirect anticipated environmental impacts would likely be significant.

1.6 Permits and Approvals Needed

The following permits, licenses, agreements, and certifications (PLACs) are required for project construction:

Table 1-1 Permits and Approvals

Agency	Permit/Approval	Status
U.S. Army Corps of Engineers	Section 404 Permit for impacts to the Waters of the United States	To be obtained prior to construction
Central Coast Regional Water Quality Control Board	Section 401 Certification for impacts to Waters of the United States	To be obtained prior to construction
California Department of Fish and Wildlife	Section 1602 Streambed Alteration Agreement for impacts to Soquel Creek	To be obtained prior to construction
California Department of Fish and Wildlife	2081 Incidental Take Permit (ITIP) for coho salmon	In Progress
National Fisheries Service (NMFS)	Biological Opinion for steelhead and coho salmon	In Progress
U.S. Fish and Wildlife Service	Biological Opinion for tidewater goby.	In Progress
U.S. Fish and Wildlife Service	Programmatic Biological Opinion for California red-legged frog	In Progress

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

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

Existing and Future Land Use: The proposed project will not change or affect existing land uses because all RSP will be placed within Caltrans right-of-way. (Project Description)

Consistency with State, Regional, and Local Plans and Programs: The proposed project is consistent with local zoning plans. All RSP will be placed within Caltrans right-of-way. (Project Description)

Coastal Zone: The proposed project is not located within the Coastal Zone and there will be no effects to coastal resources; the Pacific coastline is located approximately 1 mile south of the project site. (Project Description)

Wild and Scenic Rivers: The project is not near or next to any wild and scenic rivers. The Soquel Creek waterway is not classified as a Wild and Scenic River. (Source: <https://www.rivers.gov/california.php>)

Parks and Recreational Facilities: Soquel Creek Park is located near the mouth of the creek at Capitola Beach. The proposed RSP is located nearly 1 mile upstream and would not require the conversion of land use or impact recreational use of the Park. (Mapping and Project Description)

Farmland/Timberland: The proposed project would have no impact on agriculture or forest resources within the project area. Agricultural and Forest resources are not present within the project footprint. (Project Description).

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 (Project Description)

Community Character and Cohesion: The proposed project will not affect the character or cohesion of the community as it will not divide surrounding land use access and connectivity (Project Description).

Relocations and Real Property Acquisition: The proposed project would not require relocation or property acquisition. (Project Description)

Environmental Justice: There are residential neighborhoods and employment centers located in proximity to the project site. No impact to environmental justice would occur.

Utilities and Service Systems: There are no utilities within the footprint of the proposed project that would be affected. During construction, existing utilities within the footprint would be avoided and protected in place. Therefore, no impact on utilities and service systems is anticipated (Right-of-Way Data Sheet, April 2017).

Traffic and Transportation/Pedestrian and Bicycle Facilities: The proposed project would have no impact related to traffic and transportation or pedestrian and bicycle facilities. (Project Description)

Cultural Resources: The proposed project would have no impact on cultural resources. Current and previous field surveys did not identify cultural resources within the area of potential effect. (Cultural and Historical Resources Technical Memo, November 2018)

Air Quality: The proposed project would have no impact on long term air emissions and temporary construction impacts to nearby receptors would be less than significant. Additionally, Section 14-9 (Air Pollution Control) of the 2018 Standard Specifications will apply to the work performed under the Project's contract. (Air Quality, Noise and Greenhouse Gas Memo, April 2018)

Noise: The proposed project would have no impact on long term noise levels and temporary construction impacts to nearby receptors would be less than significant. Additionally, Section 14-8 (Noise and Vibration) of the 2018 Standard Specifications will apply to the work performed under the Project's contract. (Air Quality, Noise and Greenhouse Gas Memo, April 2018)

Water Quality: The proposed project would not have any impacts on water quality within or adjacent to the project area since best management practices will be applied during planning, design, and construction. The contractor will implement a Water Pollution Control Program (WPCP). In addition, once the project is complete, all temporarily disturbed areas will be restored back to preconstruction conditions and the creek system will return to its natural function. (Water Quality Memo, November 2018).

Geology, Soils, Seismicity and Topography: The proposed project would not result in impacts related to geology and soils. The proposed project would make improvements to existing highway infrastructure and would not construct any new structures that would require a foundation. (Project Description)

Paleontology: The proposed project is not expected to encounter paleontological resources. Therefore, there are no expected impacts anticipated for the project (Paleontology Review Memo, November 2018).

Hazards and Hazardous Materials: The proposed project would not result in any likely impacts related to hazards and hazardous materials. Hazardous materials have not been identified or have been previously removed within the footprint of the proposed project, and there are no sources of hazardous waste nearby. Aerially deposited lead, naturally occurring asbestos, asbestos-containing materials, lead-containing paint, treated wood waste, and hazardous traffic stripe materials will not likely be an issue for the proposed project. (Hazardous Waste Memo, June 2016)

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, March 2019)

Wildfire: The project will not affect the risk or response to wildfire as is not within or near land classified as very high severity zone. Additionally, the project will not impair emergency response efforts, exacerbate wildfire risks to nearby occupants, require any associated structures, or expose people or structures downstream to flooding post-fire. (http://frap.fire.ca.gov/webdata/maps/statewide/fhszs_map.pdf)

Energy: The project will not affect the unnecessary consumption of energy resources as energy consumption is temporary and limited to construction of the RSP. Additionally, construction equipment and operations will comply with the California Air Resources Board In-Use Off-Road Diesel Fueled Fleet Regulation which is enforced in order to reduced emissions. Although focused on emissions, the regulation directly limits energy consumption by 1) limiting equipment idling during construction and 2) requiring the removal of older engines in fleets. (13 CCR 2449)

2.1 Human Environment

2.1.1 Visual/Aesthetics

Regulatory Setting

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

Affected Environment

The regional landscape for SR-1 through the Capitola area is characterized by rolling topography that has been partially urbanized, with some remaining in open space. Development along the corridor is generally suburban in nature, with a combination of commercial and residential uses. Most of the open space is associated with the creeks that cross the corridor, including Soquel Creek, Arana Gulch, and others. Vegetation associated with the creeks is dominated by mature stands of pines, cypress, oaks, and other species. These trees create a large visual element in the landscape because of their size and density. Between the groves, mature landscaping gives the SR-1 corridor an overall vegetated visual character.

The project area is characterized by a mix of suburban developments that alternate with the vegetated creeks that cross the highway corridor. Both Soquel Creek and Nobel Creek cross SR-1. Vegetation associated with the two creeks includes large skyline eucalyptus trees. Highway plantings include older shrub vegetation where the right-of-way is narrow; trees are included along the northbound lanes where the right-of-way is wider. Additional highway plantings are found within interchanges, which continue the landscaped character of the corridor. No hillsides or ridgelines are influenced by SR-1 within this landscape unit. In general, the terrain slopes from north to south at a slight but constant grade within the corridor area. Distant hills to the north (approximately a mile or more from SR-1) can be seen from portions of the corridor where roadside and/or community vegetation is sparse. The development patterns include generally suburban-scale one- and two-story structures, which are primarily commercial in nature. “Big box” retail development is found west of the project area at 41st Avenue, but these stores are partially screened by roadside vegetation.

The section of SR-1 throughout the project area is of moderate visual quality. The vegetation and mature trees associated with the creek crossings are vivid; however, increased development lowers the unity and intactness of this portion of the corridor. Landscaping screens views to and from the highway to some extent; however, the vegetative cover is thin in areas where frontage roads are located.

Wharf Road passes under SR-1 adjacent to Soquel Creek. This two-lane road has well-vegetated shoulders that screen most views of the surrounding residential and commercial development as well as SR-1.

Environmental Consequences

A review of the site and plans indicates that the project would not result in substantial adverse impacts on the visual environment. Because the proposed work

is well below the roadway, the project would not be visible to travelers on SR-1 or other public roadways in the area.

Elements of the proposed project such as RSP would be below SR-1 and Wharf Road and would not be readily seen. As a result, the proposed project would not reduce views to the surrounding topography, distant hills, or other features of a scenic vista. However, the removal of vegetation along the northbound SR-1 on-ramp would be noticeable and would affect the quality of the foreground views.

Avoidance, Minimization, and/or Mitigation Measures

The following avoidance and minimization measures would be implemented to minimize potential visual impacts:

- Impacts on vegetation shall be minimized to the greatest extent possible.
- Areas disturbed for access roads and staging areas shall be landscaped with aesthetic plantings.
- Creek restoration planting shall consider aesthetics along with inherent biological goals.

2.2 Physical Environment

2.2.1 Hydrology and Floodplain

Regulatory Setting

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

To comply, the following must be analyzed:

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

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

Affected Environment

The primary sources used in preparing this section were the November 2018 *Location Hydraulic Study* and the April 2019 *Revised Draft Final Hydraulic Report* prepared for the proposed project.

The Soquel Creek Watershed is approximately forty-one square miles and is composed of 95% woodland/native vegetation and 5% farmland/homestead. The headwater (furthest starting point from creek outlet at Monterey Bay) of Soquel Creek is at 1200 feet above the mean sea level elevation in the southern Santa Cruz mountains. From the headwater the creek flows 12 miles southeasterly through the center of the city of Capitola before exiting into Monterey Bay.

The approximate RSP location of the proposed project is depicted on Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) #06087C0352F (See Figure 2-1). The FIRM designates the project area as Zone AE, which is defined as “the floodway in the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that a one percent annual chance flood can be carried without substantial increases in flood heights.”

The project area has a history of flooding during the winter storm season. Floods in the Soquel Creek basin are normally of short duration, lasting approximately six to 24 hours. They develop rapidly, with the peak being reached approximately four hours after the occurrence of a flood-producing storm.

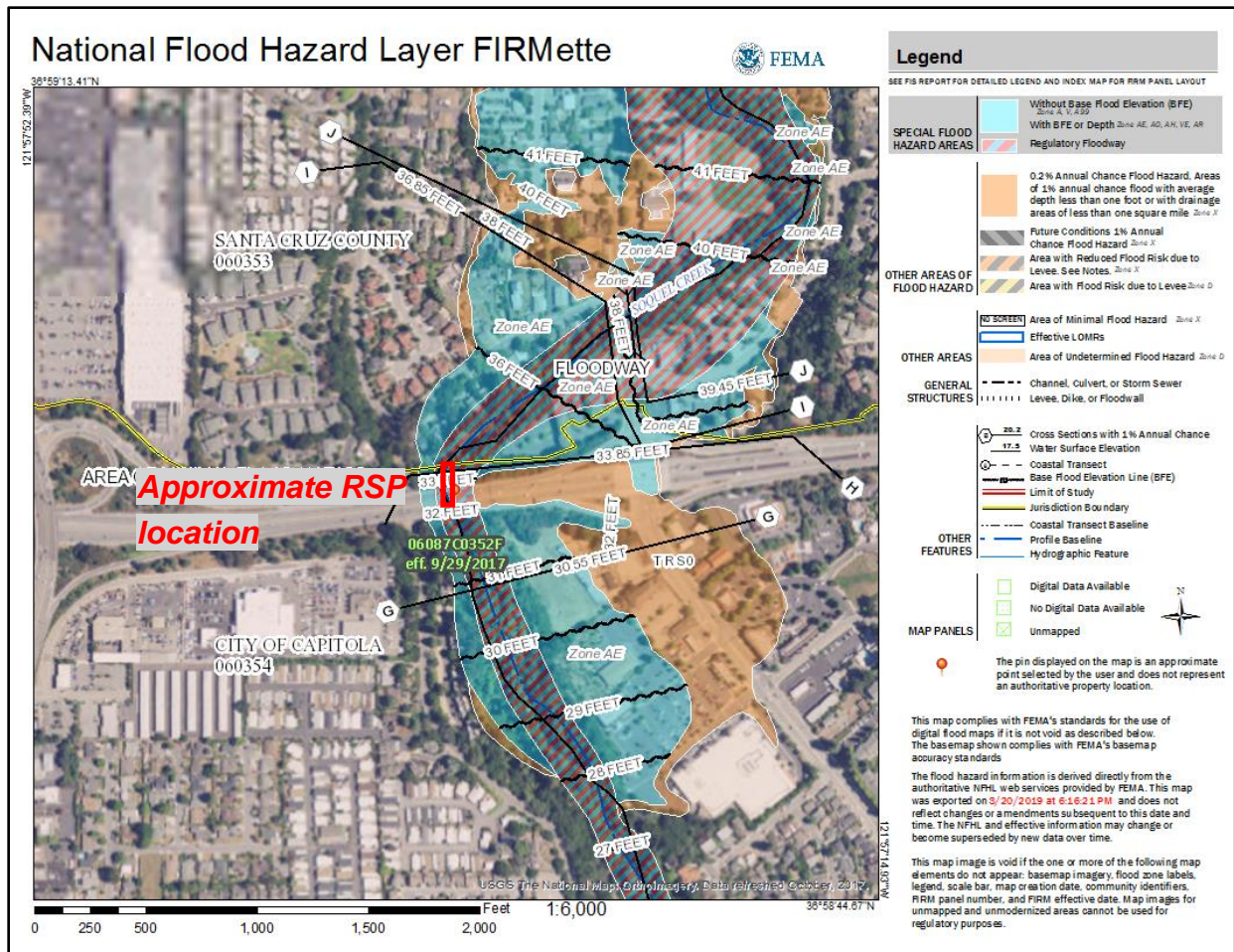


Figure 2-1 Flood Insurance Rate Map at Soquel Creek Bridge

Environmental Consequences

The proposed project would mitigate scour and gully erosion at the bridge by removing existing sack concrete and placing RSP along the west bank beneath the bridge as and would also extend slightly upstream (30ft) to restore the structural integrity of the bridge bents and abutments. Based on Surface Water Modeling System (SMS) results from the Draft Final Hydraulic Report, the proposed project can be designed and constructed to not increase the floodplain elevation.

The SMS results comparing three conditions, the original condition (after the bridge was constructed), the existing condition (since the west bank has been scoured), and the proposed condition (after the west bank is mitigated), for the 100-year flood event are included in Table 2-1 below. Water surface elevations (WSE) of the 100-year flood event along with the base flood elevations (BFE, equivalent of WSE of the 100-year flood event) by FEMA Flood Insurance Study (FEMA-FIS) are presented at the upstream and downstream locations of the bridge site.

Table 2-1 SMS Results & FEMA-FIS Flood Information

Soquel Creek Bridge	FEMA-FIS BFE (ft.) ¹	Original WSE (ft.) ²	Existing WSE (ft.) ³	Proposed WSE (ft.) ⁴
Upstream Bridge Face	33.0	33.9	33.6	33.6
Downstream Bridge Face	32.0	30.9	30.9	30.9
¹ The water surface elevation of the 100-year flood event provided by FEMA and included in flood insurance maps. ² The water surface elevation of the 100-year flood event for the stream channel condition after the bridge was originally constructed ³ The water surface elevation of the 100-year flood event for the existing stream channel condition, including west bank scour ⁴ The water surface elevation of the 100-year flood event for the proposed stream channel condition after the RSP is constructed.				

According to Flood Insurance Study by FEMA for Santa Cruz County, a peak discharge of 17,400 cubic feet per second (cfs) as the 100-year flood event was published for Soquel Creek near the project site. Due to the magnitude of the discharge and the shape of the floodplain, the project site was modeled in 2-Dimension modeling environment (2-D SRH SMS software) to obtain better hydraulic solutions. The modeled results show that the proposed RSP mitigation will decrease WSE upstream the bridge but not change WSE downstream the bridge. In summary, there will be no significant impact to the floodplain because the RSP will not increase the 100-year water surface elevation around the bridge.

Avoidance, Minimization, and/or Mitigation Measures

The project will have no significant effect on the existing floodplain so no mitigation is necessary. However, the following avoidance and minimization measures will be implanted before and during construction.

- All construction must take place during the non-raining season when the flow rates are low.
- A dewatering and diversion plan will be prepared and approved prior to beginning of construction

2.3 Biological Environment

2.3.1 Natural Communities

This section of the document discusses natural communities of concern. The focus of this section is on biological communities, not individual plant or animal species. This section also includes information on wildlife corridors, fish passage, and habitat

fragmentation. Wildlife corridors are areas of habitat used by wildlife for seasonal or daily migration. Habitat fragmentation involves the potential for dividing sensitive habitat and thereby lessening its biological value.

Habitat areas that have been designated as critical habitat under the Federal Endangered Species Act are discussed below in the Threatened and Endangered Species Section [2.3.4]. Jurisdictional habitat is discussed in Wetlands and Other Waters Section [2.3.2].

Affected Environment

The Natural Environment Study (NES), prepared in April 2019, is the primary source of information used in preparation of this section. As a part of the study, a biological study area (BSA) for the project is defined as the area that may be directly, indirectly, temporarily, or permanently impacted by construction and construction-related activities. The BSA is about 1.89 acres, occurs along SR-1 at the Soquel Creek Bridge in Capitola, and is about 1 mile upstream from the Pacific Ocean. Figure 2-2 shows the BSA for the project. The following communities are found within the BSA: ruderal/disturbed, migration and travel corridors, perennial stream (discussed in Section 2.3.2), and federally designated critical habitat (discussed in Section 2.3.4).

Ruderal/Disturbed

Ruderal/disturbed vegetation occurs in areas subjected to frequent disturbance and does not fit the description of any vegetation alliances described by Sawyer et al. (2009) or Holland (1986). Ruderal/disturbed vegetation dominates the BSA, which is comprised primarily of weedy species such as acacia (*Acacia* spp.), cape ivy (*Delairea odorata*) and English ivy (*Hedera helix*).

The overstory is dominated by a dense canopy of acacia (*Acacia dealbata*) and English ivy, both of which are considered invasive species by Cal-IPC. The principal species in the understory are invasives such as periwinkle (*Vinca major*) in shady locations, French broom (*Genista monspessulana*) in sunny locations, and both cape ivy and English ivy in shadier locations. Ruderal/disturbed areas and ornamental vegetation are not considered sensitive natural communities and are not discussed further in this section.

Few native trees remain in the riparian corridor due to the aggressive crowding from the invasives. Most native trees observed in the BSA were planted within the Caltrans right-of-way (ROW), or as landscaping on adjacent properties. Approximately 18 coast redwoods (*Sequoia sempervirens*) that were planted as landscaping for an adjacent parking lot were identified to the immediate north of the BSA, two others were mapped in the ROW to the south of the BSA, and two were mapped within the BSA. Approximately 20 coast live oak trees (*Quercus agrifolia*) were mapped just outside the BSA, and two were mapped within the BSA.

Migration and Travel Corridors

Soquel Creek supports a migration corridor for fish, amphibians, birds, and mammals. Fish and amphibian migration is possible along Soquel Creek at the creek mouth (at the Pacific Ocean) for a stream distance of approximately 4.56 mi up the watershed. Birds and mammals use the riparian habitat of Soquel Creek for migration and foraging, and birds likely nest there as well. Wildlife connectivity is likely maintained along Soquel Creek and its riparian corridor via the bridge crossing. With dense vegetation on either side of the bridge, the crossing allows for fish passage along open water and includes a small break in the riparian canopy and aquatic habitat upstream of the bridge.

Environmental Consequences

Estimated permanent and temporary impacts are quantified in Table 2-2 and displayed in Figure 2-2.



Figure 2-2 Potential Impacts to Natural Communities and Jurisdictional Features

Table 2-2. Potential Impacts to Natural Communities, Jurisdictional Features, and Critical Habitat

Natural Community/ Feature/ Habitat	Permanent Impacts			Temporary Impacts		
	Acre(s)	Square Feet	Linear Feet	Acre(s)	Square Feet	Linear Feet
Perennial stream ¹	0.07	2910	140	0.05	2376	110
USACE Jurisdiction (WOUS) ²	0.07	2910	140	0.05	2376	110
RWQCB Jurisdiction ³	0.16	6777	140	0.22	9471	110
CDFW Jurisdiction ⁴	0.16	6777	140	0.22	9471	110
Central California coast steelhead critical habitat and Central ⁵	0.07	2910	140	0.05	2376	110
<p>¹ May also comprise a component of USACE, RWQCB, and/or CDFW jurisdiction.</p> <p>² USACE jurisdictional waters of the U.S. (WOUS)² lack one or more of the three wetland indicators (i.e., wetland vegetation, hydric soils, and/or wetland hydrology) and extend from the thalweg (lowest point of channel) up to the ordinary high water mark (OHWM). For the purposes of the NES, USACE jurisdictional WOUS are equivalent to the areas characterized as Ephemeral Drainage and Perennial Drainage, and all area below the OHWM.</p> <p>³ RWQCB jurisdiction includes USACE jurisdictional WOUS, and the area above the OHWM with riparian vegetation.</p> <p>⁴ CDFW jurisdiction extends from the channel bed to the top of banks or outer edge of riparian canopy (whichever is greater). Includes/overlaps areas of USACE jurisdictional other waters and extends above the OHWM to the top of bank or outer edge of riparian vegetation, whichever is greater.</p> <p>⁵ Includes federally designated critical habitat for the Central California coast steelhead DPS.</p>						

Impacts have been quantified based on estimated ground disturbance, disturbed vegetation, etc. These impact areas are represented as the area of potential impact (API), which was overlain with habitat mapping) and preliminary jurisdictional determination mapping (Figure 2-2) in ArcMap™ Geographic Information System (GIS) software to quantify project impacts.

Permanent impacts will consist of rock slope protection (RSP). Temporary impacts will consist of staging areas, access roads, and the dewatered work area. Sources of temporary impacts would be primarily from the use of construction equipment and associated worker foot-traffic. Trucks, bulldozers, backhoes, compactors, clamshells, excavators, compressors, man lifts, scrapers, water trucks, and any other equipment necessary in the course of construction would be used. Access would occur from SR-1 and equipment would be temporarily staged along ruderal/disturbed ROW along the northern edge of SR-1 on ramp from

Avoidance, Minimization, and/or Mitigation Measures

1. ESA fencing would be installed along the maximum disturbance limits to minimize disturbance to adjacent habitats/vegetation. Special Provisions for the installation of ESA fencing and silt fencing shall be included in the

Construction Contract and will be identified on the project plans. Prior to the start of construction activities, ESA areas will be delineated in the field and will be approved by the Caltrans environmental division.

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

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

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

Ordinarily, projects that do not meet the criteria for a Regional or Nationwide Permit may be permitted under one of USACE's Individual permits. There are two types of Individual permits: Standard permits and Letters of Permission. For Individual permits, the USACE decision to approve is based on compliance with U.S. EPA's Section 404(b)(1) Guidelines (40 Code of Federal Regulations [CFR] 230), and whether permit approval is in the public interest. The Section 404 (b)(1) Guidelines (Guidelines) were developed by the U.S. EPA in conjunction with the USACE, and allow the discharge of dredged or fill material into the aquatic system (waters of the

U.S.) only if there is no practicable alternative which would have less adverse effects. The Guidelines state that the USACE may not issue a permit if there is a “least environmentally damaging practicable alternative” (LEDPA) to the proposed discharge that would have lesser effects on waters of the U.S., and not have any other significant adverse environmental consequences.

The Executive Order for the Protection of Wetlands (EO 11990) also regulates the activities of federal agencies with regard to wetlands. Essentially, EO 11990 states that a federal agency, such as FHWA and/or the Department, as assigned, cannot undertake or provide assistance for new construction located in wetlands unless the head of the agency finds: (1) that there is no practicable alternative to the construction and (2) the proposed project includes all practicable measures to minimize harm. A Wetlands Only Practicable Alternative Finding must be made.

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

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

Affected Environment

Jurisdictional USACE wetlands include areas 1) where all three wetland parameters (i.e., hydrophytic vegetation, hydric soil, and wetland hydrology) are present, and 2) are either confined within the OHWM of a drainage feature or exhibit a nexus/connectivity to jurisdictional waters. Areas within the OHWM of drainages with connectivity to jurisdictional waters but lacking one or more of the three wetland

parameters are typically delineated as USACE “other waters.” For the purposes of this NES, RWQCB jurisdiction is treated as equivalent to USACE jurisdiction for CWA Section 401/404 permitting purposes. CDFW jurisdiction encompasses rivers, streams, and lakes extending from the thalweg (lowest bed elevation) to the top of the surrounding banks and/or outer edge of adjacent riparian vegetation, whichever is greater.

Potential jurisdictional features and riparian habitat were delineated within the BSA during January 2019 (Table 2-2; Figure 2-2). Approximately 5,293 ft² (0.12 ac) of potential USACE/RWQCB jurisdictional other waters of the U.S. were delineated within the BSA. Approximately 16,323 ft² (0.37 ac) of CDFW/RWQCB jurisdictional area along the riparian corridor of Soquel Creek were also delineated.

Table 2-3. Areas of Jurisdictional Features Mapped in the BSA

Agency	Jurisdictional Areas	Total in BSA		
		Area (ft ²)	Area (ac)	Linear Feet
USACE	Perennial Drainage (WOUS ¹)	5293	0.12	233
	Total USACE Jurisdiction²	5293	0.12	233
RWQCB	Perennial Drainage (WOUS ¹)	5293	0.12	233
	Riparian Zone ³	16323	0.37	--
	Total RWQCB Jurisdiction	21616	0.49	233
CDFW	Perennial Drainage	5293	0.12	233
	Associated Riparian	16323	0.37	--
	Total CDFW Jurisdiction⁴	21616	0.49	233
¹ CWA Waters of the U.S. ² USACE jurisdiction areas are waters of the U.S. including features at or below the OHWM that lack one or more of the wetland parameters. ³ The area above the OHWM with riparian vegetation. ⁴ CDFW jurisdiction extends from the channel bed to the top of banks or outer edge of riparian canopy (whichever is greater). Includes/overlaps areas of USACE jurisdictional other waters and extends above the OHWM to the top of bank or outer edge of riparian vegetation, whichever is greater.				

Estimates of impacts to potential jurisdictional waters and riparian habitat were determined by overlaying the project impact areas with the preliminary jurisdictional determination information displayed Table 2-3. Figure 2-2 (found on page 21) depicts the estimated potential impacts to jurisdictional features mapped in the BSA.

Environmental Consequences

Temporary impacts to jurisdictional areas will occur due to temporary access, staging areas, cut/fill, and temporary stream diversion implemented to construct the project. Approximately 4,531 ft² (0.10 ac) of potential USACE jurisdictional other waters temporarily impacted. Approximately 14,541 ft² (0.33 ac) of RWQCB/CDFW jurisdictional will be temporarily impacted.

Permanent impacts to jurisdictional areas will occur due to installation of RSP. Approximately 2,910 ft² (0.07 ac) of potential USACE jurisdictional other waters would be permanently impacted. Approximately 6,777 ft² (0.16 ac) of RWQCB/CDFW jurisdictional area would be permanently impacted.

Avoidance, Minimization, and/or Mitigation Measures

The proposed project will impact potential USACE jurisdictional other waters and CDFW jurisdictional areas within the API. A variety of avoidance and minimization measures will be implemented to reduce the potential impacts to these jurisdictional areas resulting from the project:

1. Prior to construction, Caltrans shall obtain a Section 404 Nationwide Permit from USACE, a Section 401 Water Quality Certification from RWQCB, and a Section 1602 Streambed Alteration Agreement from CDFW. All permit terms and conditions will be incorporated into and implemented.
2. Prior to construction, Caltrans shall prepare a Mitigation and Monitoring Plan (MMP) to mitigate impacts to vegetation and natural habitats. The MMP shall be consistent with federal and state regulatory requirements and will be amended with any regulatory permit conditions, as required. Caltrans shall implement the MMP as necessary during construction and immediately following project completion.
3. Prior to any ground-disturbing activities, ESA fencing shall be installed around jurisdictional waters, and the dripline of trees to be protected within the project limits. Caltrans-defined ESAs shall be noted on design plans and delineated in the field prior to the start of construction activities.
4. The temporary stream diversion shall be timed to occur between June 1 and October 31 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 only be made with permission from the relevant regulatory agencies.

5. During construction, 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 on-site 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 between the project site and jurisdictional other waters and riparian habitat. At a minimum, erosion controls shall be maintained by the contractor on a daily basis throughout the construction period.
7. During construction, the staging areas shall conform to Best Management Practices (BMPs) applicable to attaining zero discharge of stormwater runoff. At a minimum, all 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.

In addition to the avoidance and minimization measures above, the following compensatory mitigation measure will be implemented:

1. Compensatory mitigation is proposed at a 1:1 ratio (acreage) for temporary impacts and at a 3:1 ratio (acreage) for permanent impacts to riparian vegetation via restoration (re-establishment). Replacement plantings will include appropriate native tree and understory species. In order to insure success, monitoring and a one-year plant establishment period shall be required, which shall include semi-annual (twice a year) inspections, weeding, and replacement.
2. Replacement plantings will be detailed in Caltrans' Landscape Architecture Landscape Planting Plan and the final MMP. The MMP will be developed in coordination with a biologist and will include developed planting specifications and grading plans to ensure survival of planted vegetation and re-establishment of functions and values. The final MMP will detail mitigation commitments and will be consistent with standards and mitigation requirements from the USACE, RWQCB, and CDFW. The MMP will be prepared when full construction plans are prepared and will be finalized through the permit review process with regulatory agencies. It is anticipated that restoration plantings will consist mainly of native riparian species, freshwater marsh species, and associated riparian understory and bank species.

2.3.3 Animal Species

Regulatory Setting

Many state and federal laws regulate impacts to wildlife. The U.S. Fish and Wildlife Service (USFWS), the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA Fisheries Service), and the California Department of Fish and Wildlife (CDFW) are responsible for implementing these laws. This section discusses potential impacts and permit requirements associated with animals not listed or proposed for listing under the federal or state Endangered Species Act. Species listed or proposed for listing as threatened or endangered are discussed in the Threatened and Endangered Species Section 2.3.4 below. All other special-status animal species are discussed here, including CDFW fully protected species and species of special concern, and USFWS or NOAA Fisheries Service candidate species.

Federal laws and regulations relevant to wildlife include the following:

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

State laws and regulations relevant to wildlife include the following:

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

Affected Environment

The Natural Environmental Study (April 2019) provided information on special status species known to occur within the Biological Study Area. Regionally there are forty-four species known to occur, but only the western pond turtle, cooper's hawk, and other nesting birds are expected to occur within the BSA.

Table 2-4 shows the special status animal species expected to occur in the BSA and therefore have the potential to be affected by the proposed project.

Table 2-4 Special-Status Animals – Presence within the Biological Study Area

<i>Common/Scientific Name</i>	<i>Status</i>	<i>Presence</i>
Reptiles		
western pond turtle	California Species of Special Concern	Inferred presence; suitable habitat in BSA.
Birds		
Cooper's hawk and other nesting birds	California Species of Special Concern, Protected by Federal Migratory Bird Treaty Act	No confirmed presence; marginally suitable foraging habitat and no suitable nesting habitat in BSA

Western Pond Turtle

The western pond turtle is considered a SSC by CDFW. It is a medium-sized (to 8.5 inches) olive, brown, or blackish turtle with a relatively low carapace (shell) occasionally without pattern but usually with a network of spots, lines, or dashes of brown or black often radiating from the growth centers of the carapace shields (Stebbins 2003).

Western pond turtles have been present in most Pacific slope drainages between the Oregon and Mexican borders (Jennings and Hayes 1994). Pond turtles live where water persists year-round in ponds along foothill streams or in broad washes near the coast. The ponds favored by turtles typically support emergent and floating vegetation such as cattails and algal mats. They 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 over-winter. 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 (Zeiner et al. 1990).

Breeding for western pond turtles occurs typically in late April to July. Upland nesting sites are required near the aquatic site, and are typically located in open, clay or silt slopes to ensure proper incubation temperature (Jennings and Hayes 1994). Nesting typically occurs in sunny areas within approximately 15 to 330 ft of water (occasionally up to 1.25 mi). Eggs hatch in late fall or overwinter and hatch in early spring of the following year. Some females double clutch during the year.

No western pond turtles were observed in the BSA during surveys for this project. However, suitable aquatic habitat occurs within the BSA for western pond turtle and presence of both of this species is inferred within the BSA.

Coopers Hawk and Other Nesting Birds

The Cooper's hawk is included on the CDFW Watch List. It is a fairly large accipiter hawk that ranges throughout the United States and is widely distributed throughout California. Adults are slender, crow-sized birds with short, rounded wings and a long, white-tipped tail rounded at the tip. The Cooper's hawk occupies forests and woodlands, especially near edges. The species is rarely found in areas without dense tree stands or patchy woodland habitat. Nests are built in deciduous trees usually 20 to 50 ft above ground (Zeiner, et al. 1990). Breeding occurs March to August, peaking from May to July. Incubation lasts 35 to 65 days, and young hatch and fledge approximately five to eight weeks later.

Common birds observed within the BSA included species such as American crow (*Corvus brachyrhynchos*), mourning dove (*Zenaida macroura*), and Steller's jay (*Cyanocitta stelleri*). No active bird nests were observed on the bridge structure or adjacent trees. Potential nesting habitat for bird species occurs in trees, shrubs, and under bridge within the BSA.

Environmental Consequences

The impacts of the proposed project on each special-status animal species are detailed below.

Western Pond Turtle

Project construction could result in the injury or mortality of western pond turtle (if present) during diversion/dewatering. The potential need to capture and relocate this species would subject these animals to stresses that could result in adverse effects. Injury or mortality 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. The potential for these impacts is anticipated to be low due to no observations of the species within the BSA during surveys, but this could change through time, where these species could potentially expand populations or colonize within the streams in the BSA.

Coopers Hawk and Other Nesting Birds

The removal of vegetation could directly impact 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.

Avoidance, Minimization, and/or Mitigation Measures

Western Pond Turtle

1. Prior to construction, a biologist determined qualified by Caltrans shall survey the API and, if present, capture and relocate any western pond turtles to suitable habitat downstream of the API. Observations of SSCs or other special-status species shall be documented on CNDDDB forms and submitted to CDFW upon project completion. If these species or other SSC aquatic species are observed during construction, they will likewise be relocated to suitable upstream habitat by a qualified biologist

Coopers Hawk and Other Nesting Birds

The following measures apply to all birds protected by the MBTA 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 3. There are no formal survey protocols for most of these bird species, but CDFW typically requires pre-construction nesting bird surveys and avoidance of impacts to active bird nests.

1. Prior to construction, vegetation removal shall be scheduled to occur from September 2 to February 14, outside of the typical nesting bird season if possible, to avoid potential impacts to nesting birds. If tree removal or other construction activities are proposed to occur within 100 ft of potential habitat during the nesting season (February 15 to September 1), a nesting bird survey shall be conducted by a biologist determined qualified by Caltrans no more than three (3) days prior to construction. If an active nest is found, Caltrans shall coordinate with CDFW 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. Prior to construction of RSP, unoccupied cliff swallow nests and other unoccupied nests under the existing bridge shall be knocked down between September 2 and February 14, prior to the typical nesting season, to discourage nesting activity. After February 14, pre-construction surveys by a qualified biologist shall continue to determine if any new nesting activity has occurred under the existing bridge. Caltrans shall coordinate with the appropriate regulatory agencies to allow for the legal removal of any bird nests prior to or during the nesting bird season. If approved by the appropriate regulatory agencies, partially constructed but unoccupied nests shall be destroyed before they are 1/3 complete.
3. During construction, active bird nests shall not be disturbed and eggs or young of birds covered by the MBTA 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 ft of disturbance shall be established by a qualified biologist using ESA 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.

4. Trees to be removed shall be noted on design plans. Prior to any ground-disturbing activities, ESA fencing shall be installed around the dripline of trees to be protected within project limits.
5. All clearing/grubbing and vegetation removal shall be monitored and documented by the biological monitor(s) regardless of time of year.
6. If least Bell's vireo and/or southwestern willow flycatcher are observed within 100 ft of the API during the course of construction, a qualified biologist shall implement an exclusion zone and work shall be avoided within the exclusion zone until the least Bell's vireo and/or southwestern willow flycatcher is located greater than 100 ft from project-related disturbance. If an active least Bell's vireo and/or southwestern willow flycatcher nest is observed within 100 ft of the API, all project activities shall immediately cease and USFWS and Caltrans shall be contacted within 48 hours. Caltrans shall then reinstate FESA Section 7 formal consultation with USFWS for least Bell's vireo and/or southwestern willow flycatcher and implement additional measures as necessary.

2.3.4 Threatened and Endangered Species

Regulatory Setting

The primary federal law protecting threatened and endangered species is the Federal Endangered Species Act (FESA): 16 United States Code (USC) Section 1531, et seq. See also 50 Code of Federal Regulations (CFR) Part 402. This act and later amendments provide for the conservation of endangered and threatened species and the ecosystems upon which they depend. Under Section 7 of this act, federal agencies, such as the Federal Highway Administration (FHWA) (and the Department, as assigned), are required to consult with the U.S. Fish and Wildlife Service (USFWS) and the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA Fisheries Service) to ensure that they are not undertaking, funding, permitting, or authorizing actions likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat. Critical habitat is defined as geographic locations critical to the existence of a threatened or endangered species. The outcome of consultation under Section 7 may include a Biological Opinion with an Incidental Take statement or a Letter of Concurrence. Section 3 of FESA defines take as "harass, harm,

pursue, hunt, shoot, wound, kill, trap, capture or collect or any attempt at such conduct.”

California has enacted a similar law at the state level, the California Endangered Species Act (CESA), California Fish and Game Code Section 2050, et seq. CESA emphasizes early consultation to avoid potential impacts to rare, endangered, and threatened species and to develop appropriate planning to offset project-caused losses of listed species populations and their essential habitats. The California Department of Fish and Wildlife (CDFW) is the agency responsible for implementing CESA. Section 2080 of the California 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 California Fish and Game Code as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." CESA allows for take incidental to otherwise lawful development projects; for these actions an incidental take permit is issued by CDFW. For species listed under both FESA and CESA requiring a Biological Opinion under Section 7 of FESA, the CDFW may also authorize impacts to CESA species by issuing a Consistency Determination under Section 2080.1 of the California Fish and Game Code.

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

Affected Environment

The following information came from the Natural Environmental Study (March 2019) prepared for the project.

The BSA includes potential habitat for the following threatened and endangered species: three fish species (tidewater goby, steelhead, and coho salmon) and two species of amphibians (foothill yellow-legged frog and California red legged frog). The status of these species and their presence within the BSA are shown in Table 2-5.

Table 2-5 State and Federally Listed Species in the Biological Study Area

Fish	Status	Presence
tidewater goby	California Species of Special Concern; Federal Threatened	Inferred presence; suitable habitat in BSA.
steelhead - central California coast DPS	California Species of Special Concern, critical habitat designated, Federal Threatened	Confirmed presence; Suitable habitat in BSA; critical habitat designated at Soquel Creek.
coho salmon - central California coast ESU	Federal Endangered, State Endangered	No confirmed presence; suitable habitat in BSA
Amphibians		
foothill yellow--legged frog	California Species of Special Concern, State Threatened	No confirmed presence; suitable habitat in BSA
California red-legged frog	California Species of Special Concern, critical habitat designation, State Endangered	Inferred presence; suitable habitat in BSA.

California Red-legged Frog

The California red-legged frog is federally threatened and considered an SSC by CDFW. It is recognized by the reddish color that forms on the underside of its legs and belly and the presence of a diagnostic dorsolateral fold. The California red-legged frog historically ranged from Marin County southward to northern Baja California (Stebbins 2003). Presently, Monterey, San Luis Obispo, and Santa Barbara counties support the largest remaining California red-legged populations within 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 ft, and the presence of fairly sturdy underwater supports such as cattails (*Typha* spp.). The largest densities of this species are typically associated with dense stands of overhanging willows and an intermixed fringe of sturdy emergent vegetation (Jennings and Hayes 1994). 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.

The California red-legged frog uses both riparian and upland habitats for foraging, shelter, cover, and nondispersal movement. Upland refugia may be natural, such as the spaces under boulders or rocks and organic debris (e.g., downed trees or logs), or manmade, such as certain industrial debris and agricultural features (e.g., drains, watering troughs, abandoned sheds, or stacks of hay or other vegetation); the California red-legged frog will also use small mammal burrows and moist leaf litter as refugia (USFWS 2010). Adults are predominantly nocturnal, while juveniles can be active at any time of day. Riparian habitat degradation, urbanization, predation by bullfrogs, and historic market harvesting have all reportedly contributed to the decline of the species.

No protocol surveys were conducted for California red-legged frog and the species was not observed during reconnaissance surveys. There are no known occurrence records for California red-legged frog at Soquel Creek (CNDDDB 2019) and presence of the species in the BSA is inferred. The critical habitat unit near Toro Creek area begins approximately 0.3 mi east of the Toro Creek BSA and will be completely avoided.

Foothill yellow-legged frog

The foothill yellow-legged frog (*Rana boylei*) is considered an SSC by CDFW, but is also currently listed as Candidate Threatened. The foothill yellow-legged frog coexists with the California red-legged frog at some localities, but different microhabitat preferences probably diminish competition (Zeiner et al, 1990).

The foothill yellow-legged frog's body coloration is grey, brown, reddish or olive on the back and yellow on the underside of the body and the legs (Jennings and Hayes 1994). A pale colored triangular patch may be seen on the snout. Foothill yellow-legged frogs have a variable diet with terrestrial insects and spiders making up a substantial portion of their diet (Jennings and Hayes 1994).

The foothill yellow-legged frog historically ranged from Marin County southward to northern Baja California (Stebbins 2003). Presently, Monterey, San Luis Obispo, and Santa Barbara counties support the largest remaining California red-legged populations within California. Currently, the foothill yellow-legged frog occurs in the Coast Ranges from the Oregon border south to the Transverse Mountains in Los Angeles Co., in most of northern California west of the Cascade crest, and along the western flank of the Sierra south to Kern Co. Isolated populations are also known from the mountains of Los Angeles County (Jennings and Hayes 1994). Its elevation range extends from near sea level to 1940 m (6370 ft) in the Sierra (Jennings and Hayes 1994). The foothill yellow-legged frog is found in or near rocky streams in a variety of habitats, including valley-foothill hardwood, valley-foothill hardwood-

conifer, valley-foothill riparian, ponderosa pine, mixed conifer, coastal scrub, mixed chaparral, and wet meadow habitats (Zeiner et al, 1990).

Foothill yellow-legged frogs are highly aquatic and are rarely found more than 3.3 feet from water. They can be found sitting on rocks along the shoreline where there may be little or no vegetation (Stebbins 2003). This species eats a variety of terrestrial and aquatic invertebrates, including beetles, ants, bees, wasps, flies, and dragonflies. Tadpoles may also be consumed. Frogs tend to sit and wait until they see prey come within range, or may creep up a little, before striking with their large sticky tongue to catch the prey and bring it into the mouth.

Breeding and egg laying usually await the end of spring flooding and may commence any time from mid-March to May, depending on local water conditions. The breeding season at any locality is usually about two weeks for most populations. Females deposit eggs in clusters of 200 to 300 (range 100 to 1000). They hatch in about five days. Tadpoles reach maximum sizes of 50 to 55 mm (2.2 in) and transform in three to four months. One hundred to 1000 eggs may be found in each mass, and they hatch from 5 to 30 days later depending on water temperature. Three to 4 months are required to grow to adulthood (Jennings and Hayes 1994).

Terrestrial individuals are primarily diurnal. Frogs may be active all year in the warmest localities, but may become inactive or hibernate in colder areas. Significant seasonal movements or migrations from breeding areas have not been reported (Zeiner et al, 1990). Normal home ranges are probably less than 10 m (33 ft) in the longest dimension, with occasional long distance movements (up to 50 m) (165 ft) occurring during periods with high water conditions (Zeiner et al, 1990).

No protocol surveys were conducted for foothill yellow-legged frog and the species was not observed during reconnaissance surveys. Suitable aquatic and upland habitat for the species was observed in the BSA. There are known occurrence records for foothill yellow-legged frog in Soquel Creek (CNDDDB 2019), and throughout the Soquel Creek watershed, and presence of the species in the BSA is inferred.

Tidewater goby

The tidewater goby is a small (rarely exceeding 2 in), gray-brown, euryhaline (salt-tolerant) fish. It is a federally endangered species and is considered a California SSC by CDFW. 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 (Swift et al. 1989), 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 extirpations; those populations with other nearby populations are able to be recolonized (USFWS 2013).

The tidewater goby is typically found within the estuarine habitat of lower reaches of coastal streams (Swift et al. 1989). In coastal areas where the topography is steep and precipitation relatively low, the habitats occupied by tidewater goby may be a few acres in size, and may only extend a few hundred feet inland from the ocean, with backwater marshes small or absent. In other coastal settings where topography is less steep and precipitation is more abundant, surface streams are larger, coastal lagoons or estuaries may be hundreds of acres in size and extend many miles inland, and may include extensive backwater marshes (USFWS 2013).

Common features of tidewater goby habitat include shallow water with little to no flow and fine sediment such as sand, mud, or muddy gravel. The species tends to avoid currents and concentrate in slack-water areas (USFWS 2013). The tidewater goby is most commonly found in waters with relatively low salinities (less than 10 to 12 parts per thousand [ppt]), but can tolerate a wide range of salinities, and is frequently found in coastal habitats with higher salinity levels up to 42 ppt (USFWS 2013). The tidewater goby also occurs in freshwater streams up-gradient and tributary to brackish habitats with salinities less than 0.5 ppt (USFWS 2013).

The eggs of the tidewater goby are laid in burrows excavated by male fish. Burrows most commonly occur in areas with relatively unconsolidated, clean, coarse sand (Swift et al. 1989), and in silt or mud (Wang 1982). Male tidewater gobies remain in the burrow to guard the eggs attached to the burrow, and care for the embryos for approximately 9 to 11 days until they hatch (USFWS 2013). They rarely emerge from the burrow to feed (Swift et al. 1989). Tidewater goby larvae occupy the water column after eggs hatch (Wang 1982), then move to bottom substrate as they mature.

No protocol surveys for tidewater goby were conducted, and the presence of the species is inferred in the BSA based on regional occurrence records in Soquel Creek (CNDDDB 2019) and the close proximity of the BSA to the Pacific Ocean (1.1 mi.). Tidewater gobies often migrate upstream into tributaries, as far as 0.5 mi from the estuary (USFWS 2005). In some areas, the tidewater goby can occur 1.6 to 7.3 mi upstream from the ocean environment; data suggest the average distance tidewater goby have been detected upstream from the ocean in medium to large rivers is approximately 3.8 mi (USFWS 2013). Half-grown to adult tidewater gobies have been shown to move upstream in summer and fall (USFWS 2005).

Central California Coast Steelhead DPS

Steelhead trout (*Oncorhynchus mykiss irideus*) are the anadromous (ocean-going) form of rainbow trout. Adults spawn in freshwater, and juveniles rear in freshwater before out-migrating to the ocean to mature and then return to freshwater as adults to reproduce. Steelhead 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 (NMFS 2012). With the rise of the

human population in southern California in the 20th Century and the associated land and water development within coastal drainages (mainly dams and water diversions), steelhead numbers quickly declined, leading to extirpated populations in many watersheds and sporadic and remnant populations in the remaining watersheds (NMFS 2012).

The Central California coast steelhead distinct population segment, or DPS, includes naturally spawned anadromous *O. mykiss* (steelhead) originating below natural and manmade impassable barriers from the Russian River to and including Aptos Creek, and all drainages of San Francisco and San Pablo Bays eastward to Chipps Island at the confluence of the Sacramento and San Joaquin Rivers. This evolutionarily significant unit (ESU) was listed as threatened on January 5, 2006. Steelhead are not listed under the California Endangered Species Act.

Rainfall in the area occupied by this DPS is restricted almost exclusively to the late fall, winter, and early spring months (November through May), and steelhead enter Coast Range rivers and streams during the winter and spring when storms produce sufficient runoff to breach sandbars at the mouths of water bodies to allow fish passage to upstream spawning and rearing habitats (NMFS 2012). Once they reach spawning grounds, females excavate a nest (redd) in streambed gravels where they deposit their eggs. After fertilization by the male, the female covers the red with a layer of gravel, where the embryos and newly-hatched young fish (alevins) incubate within the gravel. Adult steelhead may return to the ocean and repeat spawning migration one or more times during their life history.

Hatching time varies from about three weeks to two months depending on water temperature. The alevins emerge from the gravel two to six weeks after hatching. Juvenile steelhead (smolts) then engage in one of three basic life history strategies. The anadromous life history has previously been described. Steelhead may also display an entirely nonanadromous life history pattern, where incubation, hatching, rearing, maturation, reproduction, and dying all are restricted to freshwater (i.e., a “freshwater-resident” strategy) (NMFS 2012). The cues that trigger the switch between freshwater and anadromous life cycles is currently unknown, but may be linked to environmental variation, such as the hydrologic cycle in central California, where extended droughts can cause juveniles to become land-locked and unable to reach the ocean (Boughton et al. 2009).

The third type of life history strategy displayed by steelhead is referred to as “lagoon-anadromous,” where juveniles may oversummer in the estuary of their natal stream, such as in instances when an estuary is cut off from the ocean during the summer by the formation of a sandbar spit, creating a seasonal lagoon (Bond 2006). With this strategy, juveniles grow fast enough after their first year of lagoon rearing to migrate to the ocean, and most enter the ocean at a larger size than the same year class fish rearing in freshwater habitats of the stream system. Larger size generally enhances survival in the ocean, and the lagoon-reared fish represent a large majority of the returning adult spawning population (Hayes et al. 2008, Bond 2006).

Optimal instream habitat for steelhead throughout its entire range on the Pacific Coast can generally be characterized by clear, cool water with abundant cover (i.e., submerged branches, rocks, logs), well-vegetated stream margins, relatively stable water flow, and a 1:1 pool-to-riffle ratio (Raleigh et al. 1984); however, steelhead can also occupy reaches of streams containing less than optimal habitat.

Although no intensive survey methods (e.g., seine-netting or dip-netting) were conducted, Soquel Creek is known to support steelhead and steelhead critical habitat (Titus et al. 2010, Becker and Reining 2008, NMFS 2005).

Federally designated critical habitat for south-central California coast steelhead occurs in the BSA at the proposed scour protection location. The PCEs that were assessed to occur at the proposed bridge improvement location are described below.

The BSA was determined to support PCE 2 and PCE 3. More details regarding PCEs are provided for south-central California coast steelhead in NMFS (2005).

Central California Coast Coho Salmon ESU

Central California Coast coho salmon (*Oncorhynchus kisutch*) were federally listed as endangered in June 2005 (NMFS 2005). The species was state listed as endangered in August 2002 (CDFW 2015). The Central California Coast ESU includes all naturally spawned populations of coho salmon from Punta Gorda in northern California south to and including the San Lorenzo River in Central California, as well as populations in tributaries to San Francisco Bay, excluding the Sacramento-San Joaquin River system, as well as the following four artificial propagation programs: the Don Clausen Fish Hatchery Captive Broodstock Program, Scott Creek/King Fisher Flats Conservation Program, Scott Creek Captive Broodstock Program, and the Noyo River Fish Station egg-take program (CDFW 2015).

Coho habitat requirements are similar to those described previously for steelhead, in that coho require cool deep pools with clean, cool flowing water with sufficient dissolved oxygen and minimal turbidity for successful holding, spawning, incubation, and rearing. Juveniles require cool stream temperatures year-round as the species generally does not emigrate from its natal stream until after spending an entire year or more in fresh water. Most coho salmon reside in the ocean for one to two years before returning to their natal streams to spawn (Moyle 2002). Unlike steelhead, coho die after spawning once.

Adult coho in smaller, short coastal streams typically enter fresh water in late fall and winter (mid-November through mid-February) with a peak in January through February (Moyle 2002). Adult spawning generally occurs shortly following their arrival to their natal stream. Adult females dig redds in medium to small-sized gravel

in the heads of riffles immediately downstream of pools. The female will dig several redds in an upstream manner, taking approximately one week to deposit several hundred eggs in each of the redds. Adults lay approximately 1,500 to 3,000 eggs in total. Both the male and the female die following spawning with the female defending her redds for approximately one to two weeks before expiring (Moyle 2002).

Coho embryos incubate and hatch in eight to twelve weeks, depending on water temperature, and hatchlings remain as sac-fry in the gravel another four to as long as ten weeks, again depending on water temperature. Fry (alevins) finally emerge from the gravel and initially live in shallow edge waters of streams close to shore, forming shoals of numerous individual alevins for several weeks before breaking up and setting up individual feeding territories (Moyle 2002). Emerging fry are sometimes preyed upon by older juvenile coho or other salmonids, especially steelhead juveniles (parr). Juvenile coho prefer and grow best at water temperatures between 53 and 57°F; they cannot survive long in water temperatures of 72°F to 77°F, and greater than 79°F is lethal. Coho rearing streams are typically very clear, containing little turbidity. Juvenile coho typically reach two to three inches in length by the end of their first year, and approximately four to 6 inches by the time they emigrate as smolts to the estuary/ocean in April to May of their second year of life.

Overhead cover is an important habitat component for coho salmon parr as a means of avoiding predation. They generally segregate by species, preferring to use other habitats not associated with other salmonid species, particularly steelhead. Coho tend to occupy deep pools during the day, foraging during dawn and dusk when they voraciously prey on a wide variety of drifting aquatic and terrestrial insects. Daytime feeding can also occur depending on food supply. During the winter months, parr shoal together in aggregations within deep pools or side channels, often seeking small clear tributary streams (Moyle 2002).

Out-migrant smolts primarily move downstream during nighttime hours interspersed with periods of holding and foraging during their emigration. Migrants may also utilize estuarine areas in bays, as well as mouths of rivers and creeks as rearing areas for short periods prior to their final emigration to the ocean. Immature coho salmon generally remain inshore, staying close to their parental stream initially before gradually moving northward into the Pacific continental shelf areas, with some eventually moving towards Alaskan waters as they mature. It is believed, however, that most coho salmon from California remain in waters near Oregon and California (Moyle 2002).

Coho are widely distributed along the Central California Coast, occupying streams and rivers including the lower main stem and the South Fork of the Eel River in the north, the coastal streams and the Russian River watershed in the middle of its range, south to the coastal creeks and the San Lorenzo River in Santa Cruz County.

Although no intensive survey methods (e.g., seine-netting or dip-netting) were conducted, Soquel Creek is known to support coho and coho Essential Fish Habitat

(NMFS 2005, NOAA 2011, CDFW 2015) and the presence of coho in Soquel Creek is inferred.

Historically, coho salmon probably used all or most of the accessible coastal streams along the Santa Cruz coastline that provided essential habitat (CDFG 1995). By the 1960's, coho salmon populations were known from, but limited to seven streams or stream systems in Santa Cruz County - Waddell Creek, Scott Creek, San Vicente Creek, San Lorenzo River System, Soquel Creek, Aptos Creek and the lower Pajaro River System (CDFG 1995). Based on historical data, CDFG (1995) estimated that the streams of Santa Cruz County exclusive of the San Lorenzo River (i.e. Waddell, Scott, San Vicente, Soquel, and Aptos Creeks) supported a combined average annual run of about 1,500 adult coho salmon for the 1959-1963 period.

Brown et al. (1994) estimated that by 1991, the California coho salmon spawning population had declined more than 94 percent since the 1940's, with the greatest decline occurring since the 1960's. No juvenile coho were captured in the Soquel Creek watershed during sampling efforts in 1992, 1993, and 1994, and although periodic stocking efforts took place on the San Lorenzo River and Waddell and Scott Creeks (CDFW 1995), Soquel Creek has never been stocked with fishery-reared coho (CDFW 2015).

Staff from NOAA conducted monitoring of juvenile coho salmon in the Soquel Creek watershed during the summers of 2006, 2007, and 2008 (NOAA 2011, CDFW 2015). Of the three survey years, coho salmon were detected in Soquel Creek only during 2008; the first documented occurrence of successful reproduction by coho salmon in Soquel Creek in more than a decade (NOAA 2011). Genetic analysis indicated that the juvenile coho surveyed in 2008 were likely the offspring of just one or two adult spawning pairs, and showed clear genetic affinity to other populations in the region south of the Golden Gate (i.e. Scott Creek) (CDFW 2015).

The BSA was determined to support PCE 2 and PCE 3 for coho. More details regarding PCEs are provided for coho salmon in NMFS (2005).

Environmental Consequences

The proposed project is anticipated to qualify for programmatic concurrence for California red-legged frog and the Foothill yellow-legged frog for the purposes of USFWS formal consultation (USFWS 2011). Biological Assessments will also be submitted to USFWS for tidewater goby, and to NMFS for steelhead and coho salmon.

The Federal Endangered Species Act (FESA) Section 7 effects determination is that the proposed project may affect, and is likely to adversely affect, the following federally listed species: central California coast coho salmon (*Oncorhynchus kisutch*) and central California coast steelhead (*Oncorhynchus mykiss irideus*). The

FESA Section 7 effects determination is that the proposed project may affect, and is likely to adversely affect designated critical habitat central California coast steelhead. There is no critical habitat for coho salmon in the BSA.

The FESA Section 7 effects determination is that the proposed project may affect, but is not likely to adversely affect the following federal listed species: tidewater goby (*Eucyclogobius newberryi*), southwestern willow flycatcher (*Empidonax traillii* extimus), least Bell's vireo (*Vireo bellii pusillus*), and California red-legged frog (*Rana boylei*). There is no critical habitat for tidewater goby, southwestern willow flycatcher, least Bell's vireo, or California red-legged frog in the BSA.

California Red-legged Frog

Project construction could result in the injury or mortality of California red-legged frogs (if present) during diversion/dewatering of Soquel Creek. The potential need to capture and relocate California red-legged frogs would subject these animals to stresses that could result in adverse effects. Injury or mortality 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. The potential for these impacts are anticipated to be low due to no observations of the species within the BSA during surveys, but this could change through time, where the species could potentially expand populations.

The FESA Section 7 effects determination is that the proposed project may affect, and is likely to adversely affect, California red-legged frog. The basis for this determination is that California red-legged frog has been inferred and there would be potential for take of the species during construction.

The nearest critical habitat units for California red-legged frog are situated approximately 5 miles northwest and 6.25 miles southeast of the BSA; therefore, no California red-legged frog critical habitat will be impacted by the project.

Foothill yellow-legged frog

Similar to the impacts described previously for California red-legged frog, project construction could result in the injury or mortality of foothill yellow-legged frogs (if present) during diversion/dewatering of Soquel Creek. The potential need to capture and relocate foothill yellow-legged frogs would subject these animals to stresses that could result in adverse effects. Injury or mortality 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. The potential for these impacts are anticipated to be low due to no observations of the species within the BSA during surveys, but this could change through time.

Tidewater goby

No pile driving or use of vibratory hammers are proposed for this project. As such, no hydroacoustic impacts to impacts to fish are anticipated. The RSP placement at Soquel Creek Bridge will require stream diversion/dewatering, which would temporarily alter quality of aquatic habitat and result in a temporary loss of service for tidewater goby and other aquatic organisms. Removal of vegetation to clear space for the construction equipment access into the stream channel to conduct work would somewhat affect shading and microhabitat temperature regulation characteristics, but these effects would be temporary as removed vegetation would be replaced by in-kind replantings within a relatively short timeframe (likely during the fall months following construction or sooner).

Diversion/dewatering and construction within Soquel Creek in areas occupied by tidewater goby could result in direct impacts to the species in the form of injury or mortality as fish 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 tidewater goby. While the placement of cofferdams and dewatering within the wetted portions of Soquel Creek would result in a temporary loss of service for tidewater goby, the extent and effect of this are estimated to be relatively minor. The act of diversion/dewatering and its eventual dismantling and restoration of normal flows could also produce direct or indirect effects that could impact the structure of the streambed substrate or increase turbidity. These impacts would, however, be temporary and rectified once the pre-construction stream flow conditions are restored.

The FESA Section 7 effects determination is that the proposed project may affect, and is not likely to adversely affect, tidewater goby. The basis for this determination is that tidewater goby presence has been inferred; however, it is anticipated that there would be a low potential for take of the species because stream diversion/dewatering would occur during the driest time of the year, and the project site is one mile inland from the Pacific Ocean.

Central California Coast Steelhead DPS

No pile driving or use of vibratory hammers are proposed for this project. As such, no hydroacoustic impacts to impacts to fish are anticipated.

The bridge improvements at Soquel Creek Bridge will require stream diversion/dewatering, which would temporarily alter quality of aquatic habitat and result in a temporary loss of service for steelhead and other aquatic organisms.

Diversion/dewatering and construction within Soquel Creek in areas occupied by steelhead could result in direct impacts to the species in the form of injury or mortality as steelhead, if present, stranded in residual wetted areas are captured, handled, and relocated. Removal of vegetation to clear space for bridge improvements and construction equipment access into the stream channel to

conduct work would somewhat affect shading and microhabitat temperature regulation characteristics, but these effects would be temporary as removed vegetation would be replaced by in-kind replantings within a relatively short timeframe (likely during the fall months following construction or sooner).

Erosion and sedimentation in Soquel Creek could also occur, which could directly or indirectly impact steelhead. While the placement of diversion dams and dewatering within the wetted portions of Soquel Creek would result in a temporary loss of service for steelhead, the extent and effect of this are estimated to be minor. Diversion dams and dewatering would be a temporary impact to steelhead critical habitat of approximately 4,531 ft² (0.10 ac) and 174 linear ft. The act of diversion/dewatering and its eventual dismantling and restoration of normal flows could also produce direct or indirect effects that could impact the structure of the streambed substrate or increase turbidity. These impacts would likely be temporary and rectified once the pre-construction stream flow conditions are restored. The FESA Section 7 effects determination is that the proposed project may affect, and is likely to adversely affect, central California coast steelhead. The basis for this determination is that steelhead presence has documented and there would be a considerable potential for take of the species during diversion/dewatering activities to allow for the proposed RSP placement.

Based on the disturbance footprint of the API, estimated permanent and temporary impacts to federally designated critical habitat for central California coast steelhead have been quantified in Table 6 and includes the following: approximately 0.07 ac (140 linear ft) would be permanently impacted and 0.10 ac (174 linear ft) temporarily impacted.

Although the total amount of central California coast steelhead critical habitat impacted represents a small percentage (0.03%) of the total amount of critical habitat designated in the critical habitat unit Unit 3304, the FESA Section 7 effect determination is that the proposed project may affect, and is likely to adversely affect, central California coast steelhead critical habitat.

Central California Coast Coho Salmon ESU

No pile driving or use of vibratory hammers are proposed for this project. As such, no hydroacoustic impacts to impacts to fish are anticipated.

Based on the known life history characteristics of coho and observed seasonal low stream flow and water temperature conditions, it is not anticipated that adult coho would be present in the BSA during the proposed project in-water work window (July 1 to October 15). However, if coho populations occur in the Soquel Creek watershed, juvenile coho could be present in the BSA if there are suitable streamflows and water temperatures during the construction period.

Avoidance, Minimization, and/or Mitigation Measures

California Red-legged Frog

Caltrans anticipates the proposed project will qualify for FESA incidental take coverage under the *Programmatic Biological Opinion for Projects Funded or Approved under the Federal Highway Administration's Federal Aid Program* (USFWS 2011). The following measures are the applicable measures from the Programmatic Biological Opinion that will be implemented for this project:

1. Only USFWS-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 USFWS that the biologist is qualified to conduct the work.
3. A USFWS-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 USFWS-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 USFWS on the relocation site prior to the capture of any California red-legged frogs.
4. Before any activities begin on a project, a USFWS-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 USFWS-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 on-site compliance with all minimization measures. The USFWS-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 USFWS-approved biologist recommends that work be stopped because California red-legged frogs would be affected in a manner not anticipated by Caltrans and USFWS 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 USFWS 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. Without the express permission of USFWS, all refueling, maintenance and staging of equipment and vehicles shall occur at least 60 ft 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 USFWS 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. ESAs 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 CRLF 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 CRLFs 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 USFWS 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 BMPs shall be implemented outlined in any authorizations or permits, issued under the authorities of the Clean Water Act received for the

project. If BMPs are ineffective, Caltrans shall attempt to remedy the situation immediately, in coordination with USFWS.

12. If a work site is to be temporarily dewatered by pumping, intakes shall be completely screened with wire mesh not larger than 0.2 inch 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 USFWS, water shall not be impounded in a manner that may attract California red-legged frogs.
14. A USFWS-approved biologist shall permanently remove any individuals of exotic species, such as bullfrogs (*Rana catesbeiana*), signal and red swamp crayfish (*Pacifasticus leniusculus*; *Procambarus clarkia*), and centrarchid fishes from the project area, to the maximum extent possible. The USFWS-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 USFWS-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 USFWS 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; it 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 ft from open water);
 - g. Foliar applications of herbicide shall not occur when wind speeds are in excess of 3 mi per hour;
 - h. No herbicides shall be applied within 24 hours of forecasted rain;
19. Application of all herbicides shall be done by qualified Caltrans staff or contractors to ensure that overspray is minimized, that all applications 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;
20. All herbicides, fuels, lubricants, and equipment shall be stored, poured, or refilled at least 60 ft 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.
21. Upon completion of the project, Caltrans shall ensure that a Project Completion Report is completed and provided to USFWS, 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.

Foothill yellow-legged frog

Caltrans anticipates the proposed project will qualify for FESA incidental take coverage under the *Programmatic Biological Opinion for Projects Funded or Approved under the Federal Highway Administration's Federal Aid Program* (USFWS 2011) for California red-legged frog. The avoidance and minimization measures associated with USFWS 2011 will also apply to foothill yellow-legged frog; as such, no avoidance and minimization measures specific to foothill yellow-legged frog are proposed.

Tidewater goby

In addition to the previously proposed measures, the following measures, including several adapted from USFWS (Farris 2013), will serve to further avoid or minimize impacts to tidewater goby within the API:

1. Prior to construction, Caltrans shall acquire incidental take authorization for tidewater goby from USFWS through a FESA 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 FESA and permit conditions.
3. Prior to initiation of stream diversion/dewatering, a USFWS-approved biologist(s) shall install 1/8 inch block nets outside the impact areas and across the stream a minimum of 20 feet above and below the locations proposed for stream diversion/dewatering. If widely separated sites are involved, more than one set of block nets shall be placed to protect the work area. The nets shall 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 USFWS-approved biologist(s) shall remove all tidewater gobies found between the block nets using a 1/8 inch seine and dip nets, and relocate tidewater gobies to suitable habitat outside of the proposed project site.
5. Should dewatering occur, any pumps used shall be fitted with anti-entrapment device(s) to prevent tidewater gobies from being drawn into the pump or impinged on intake screening. As dewatering proceeds, the USFWS-

approved biologist(s) shall remove by hand or net all tidewater gobies found and relocate them to suitable habitat downstream of the proposed project site.

6. A USFWS-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 as necessary.
7. Caltrans shall provide USFWS a written summary of work performed (including biological survey and monitoring results), BMPs 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 re-location efforts (if appropriate) shall include name(s) of the USFWS-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).

Central California Coast Steelhead DPS

In addition to the previously proposed measures, the following measures will serve to further avoid or minimize impacts to steelhead within the API:

1. Prior to construction, Caltrans shall acquire incidental take authorization for steelhead from NMFS through a FESA 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 steelhead, its legal/protected status, proximity to the project site, avoidance/minimization measures to be implemented during the project, and the implications of violating FESA and permit conditions.
3. During construction, in-stream work shall take place between June 1 and October 31 in any given year, when the surface water within drainages is likely to be dry or at seasonal minimum. Deviations from this work window will only be made with permission from Caltrans and the relevant regulatory/resource agencies.
4. During in-stream work, a Caltrans-approved biologist shall be retained with experience in 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 steelhead and other native fish species and relocate them to suitable habitat as appropriate. The biologist(s) shall capture

- steelhead stranded as a result of diversion/dewatering and relocate steelhead to suitable instream habitat outside of the work area, using methods approved by the appropriate regulatory agencies, which may include providing aerated water in buckets for transport and ensuring adequate water temperatures during transport. 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.
5. During in-stream work, if pumps are incorporated to assist in temporarily dewatering the site, intakes shall be completely screened with no larger than 3/32-inch (2.38 mm) wire mesh to prevent steelhead and other sensitive aquatic species from entering the pump system. Pumps shall release the additional water to a settling basin or tan, 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, to ensure a dry work environment and minimize adverse effects to aquatic species and habitats.
 6. The biological monitor shall monitor erosion and sediment controls to identify and correct any conditions that could adversely affect steelhead or 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 steelhead and steelhead habitat.
 7. Caltrans shall provide NMFS a written summary of work performed (including biological survey and monitoring results), BMPs 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 re-location 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).

Central California Coast Coho Salmon ESU

The avoidance and minimization efforts listed in section 4.3.1.3 for steelhead will also serve to avoid and minimize impacts to coho salmon. No additional measures for coho are proposed.

2.3.5 Invasive Species

Regulatory Setting

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

Affected Environment

A total of 20 invasive plant species as identified by the online California Invasive Plant Council (Cal-IPC) Database (2019) were observed within the BSA (Table 2-6). Five exotic plant species with an invasiveness rating of “High” were observed in the BSA: red brome (*Bromus madritensis* ssp. *rubens*), fennel (*Foeniculum vulgare*), French broom (*Genista monspessulana*), English ivy (*Hedera helix*), and blackberry (*Rubus armeniacus*). A total of seven plant species were observed within the BSA with a Cal-IPC invasiveness rating of “Moderate”. Of these, silver wattle (*Acacia dealbata*) is the dominant invasive species throughout the BSA. Seven species were observed in the BSA with an invasiveness rating of “Limited”, and one species on the invasive “Watch” list. The distribution of invasive plant species is relatively complete throughout the BSA.. The forest canopy is dominated by silver wattle, with the understory dominated by ivy, French broom, and blackberry.

Table 2-6. Plants Observed in the BSA that are included in the California Invasive Plant Council’s Invasive Plant Inventory

Scientific Name	Common Name	Cal-IPC Invasiveness Rating	Relative Density within the BSA
<i>Acacia baileyana</i>	Bailey acacia	Watch	Low/Sparse
<i>Acacia dealbata</i>	silver wattle	Moderate	High/Dense
<i>Avena barbata</i>	slender wild oat	Moderate	Low/Sparse
<i>Brassica nigra</i>	black mustard	Moderate	Low/Sparse
<i>Bromus diandrus</i>	ripgut brome	Moderate	Low/Sparse
<i>Bromus madritensis</i> ssp. <i>rubens</i>	red brome	High	Low/Sparse

Scientific Name	Common Name	Cal-IPC Invasiveness Rating	Relative Density within the BSA
<i>Carduus pycnocephalus</i>	Italian thistle	Moderate	Low/Sparse
<i>Conium maculatum</i>	poison hemlock	Moderate	Moderate/Sparse
<i>Erodium cicutarium</i>	redstem filaree	Limited	Low/Sparse
<i>Festuca perennis</i>	Italian ryegrass	Moderate	Low/Sparse
<i>Foeniculum vulgare</i>	fennel	High	Low/Sparse
<i>Genista monspessulana</i>	French broom	High	Low/Sparse
<i>Hedera helix</i>	English ivy	High	High/Dense
<i>Medicago polymorpha</i>	burclover	Limited	Low/Sparse
<i>Plantago lanceolata</i>	English plantain	Limited	Low/Sparse
<i>Raphanus sativus</i>	wild radish	Limited	Low/Sparse
<i>Rubus armeniacus</i>	blackberry	High	Moderate/Dense
<i>Rumex crispus</i>	curly dock	Limited	Low/Sparse
<i>Salsola tragus</i>	Russian thistle	Limited	Low/Sparse
<i>Zantedeschia aethiopica</i>	calla lily	Limited	Moderate/Sparse

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.

Avoidance, Minimization, and/or Mitigation Measures

1. An Invasive Plant Management Plan will be implemented at the beginning of construction and will run through the end of the 1-year plant establishment contract. The Invasive Plant Management Plan will identify a list of invasive species found within the project area, specify appropriate methods for removal and disposal of invasive species, and outline documentation requirements.
2. Caltrans will not use any erosion control seed mix containing invasive species for revegetation.
3. All construction equipment will be clean and free of soil containing seeds and and/or invasive plant material prior to entering the construction site to avoid/minimize the spread of invasive plants and/or seed within the construction area.

4. If soil from areas with weedy species must be removed, the top six inches containing the seed layer will be removed and disposed of off-site.

2.4 Cumulative Impacts

Regulatory Setting

Cumulative impacts are those that result from past, present, and reasonably foreseeable future actions, combined with the potential impacts of the proposed project. A cumulative effect assessment 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.

The 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.

Jurisdictional Waters and Riparian Habitat

Caltrans guidance for NEPA/CEQA cumulative impacts assessments includes defining a Resource Study Area (RSA). An RSA is the geographic area within which impacts on a particular resource are analyzed. The boundaries of RSAs for cumulative impacts analysis are often broader than the boundaries used for project-specific analysis (such as the BSA).

The RSA identified for jurisdictional waters and riparian habitat cumulative impact analysis is the Soquel Creek watershed (Figure 2-4). According to wetlands mapping GIS data from the National Wetlands Inventory (NWI), approximately 189 ac of various wetlands, ponds, and/or riverine habitat have been mapped within the RSA (NWI 2018). Lands within the Soquel Creek Watershed are situated mostly in the unincorporated portion of Santa Cruz County. The lower portion of the creek is within the City of Capitola. Land uses within the watershed include urban development,

rural residential development, agriculture, parks and recreation, mining and timber harvesting. The lower reaches of Soquel Creek flow through a residential and mixed-use urban area (the unincorporated community of Soquel and the City of Capitola). Urban land uses occupy the lower portion of the watershed, transitioning above the village to orchards, wholesale nurseries, and rural residential use. The unincorporated town of Soquel and the City of Capitola, both located near the mouth of the creek, are centers of urban and recreational activities within the watershed. Human density in the lower areas of the watershed is relatively high with a mixture of urban and suburban land uses, including light industrial and service areas.

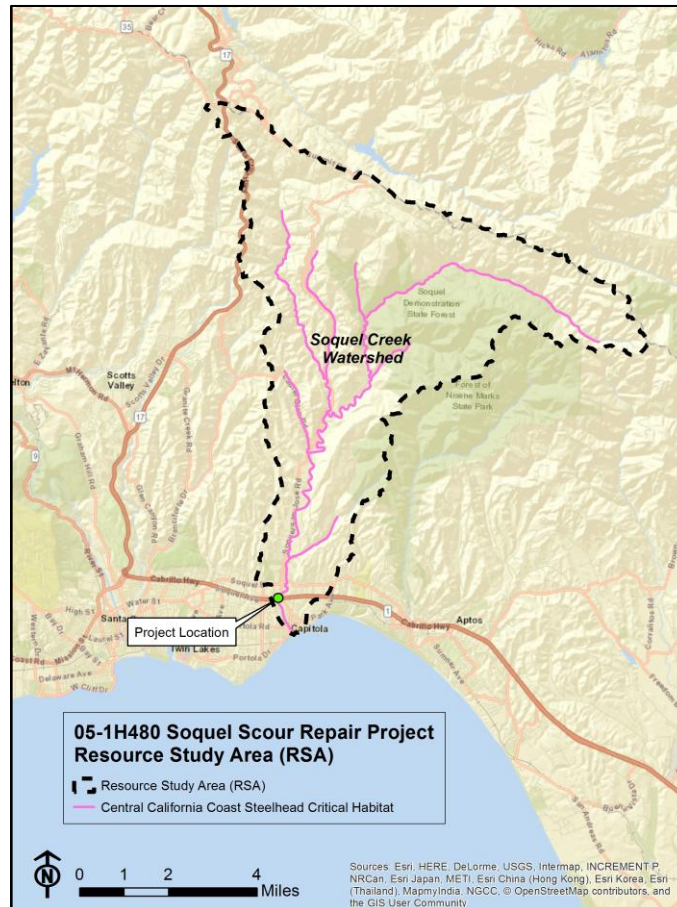


Figure 2-3 Resource Study Area

It is likely that additional riparian habitat was present within the watershed prior to the construction of SR-1 and the existing Soquel Creek bridge. It has been estimated that overall, California has lost approximately 90 percent of its historic riparian resources to alternative land use. Regulatory agencies have sought to offset the additional loss of wetlands and riparian habitat with restoration and revegetation requirements for projects within their respective jurisdictions.

Jurisdictional waters and riparian habitat are a stable resource within the RSA, due to the rural character of the area, specifically the upper watershed, and overall lack

of historic and proposed development. Current threats to jurisdictional waters and riparian habitat within the RSA stem from the erosion and sedimentation that result from timber harvest and private development. As the proposed project will require temporary and permanent impacts to jurisdictional waters and riparian habitat in Soquel Creek, the project is contributing to a cumulative impact to this resource in the RSA.

The proposed project, when considered in a cumulative context, is not anticipated to substantially contribute to adverse cumulative impacts to jurisdictional waters and riparian habitat in the RSA because the project will fully mitigate for impacts to jurisdictional waters and riparian habitat onsite.

California Red-legged Frog and Foothill Yellow-legged Frog

The RSA under consideration for California red-legged frog and Foothill yellow-legged frog cumulative impacts analysis is the Soquel Creek watershed (Figure 4). This area does not occur within California red-legged frog or Foothill yellow-legged frog critical habitat.

No pertinent population data for California red-legged frog and Foothill yellow-legged frogs specific to the RSA could be found during the literature review for this NES. However, threats to potential habitat for California red-legged frog and Foothill yellow-legged frog within the RSA are low, due to the rural character of the area and overall lack of historic and proposed development. Similar to the threats facing steelhead and tidewater goby critical habitat discussed above, current threats to potential California red-legged frog and Foothill yellow-legged frog habitat within the RSA stem from the erosion and soil compaction that result from development and timber extraction. As the Soquel Creek scour repair project will require temporary and permanent impacts to potential habitat for California red-legged frog and Foothill yellow-legged frog, the project is contributing to a cumulative impact to this species in the RSA. However, because these impacts are very small relative to the available habitat in the RSA, the contribution to cumulative impacts to this resource in the RSA is not considered substantial.

While construction activities could contribute to cumulative effects (e.g., injury and/or mortality, temporary habitat disturbance) that could adversely affect California red-legged frog, the potential for adverse cumulative impacts are estimated to be very low considering the relatively small amount of potential habitat that would be affected in relation to the total amount of habitat that occurs in the region, and the low amount of take that would likely occur.

When considered in a cumulative context, the proposed project is not anticipated to result in substantially adverse cumulative impacts to California red-legged frog because the project would be small in scale, would result in mostly temporary impacts, and compensatory mitigation would be implemented to offset impacts to Soquel Creek and associated riparian vegetation.

Central California Coast Steelhead DPS

The RSA under consideration for steelhead cumulative impacts analysis is the Soquel Creek Critical watershed (Figure 2-4).

In 1959, CDFG staff said Soquel Creek upstream of the West Branch confluence appeared to be the most productive stream reach in the drainage based on a count of 11,500 steelhead (CDFG 1959). The stream survey report noted that stocking did not occur historically in the upper and middle sections of this reach. In a 1973 memo, CDFG estimated the Soquel Creek annual steelhead run to be 500-1,000 individuals (CDFG 1973). According to the memo, steelhead at the time were using about 20 miles of the creek while “resident rainbow trout” existed in “about 16 miles of stream above barriers to migrating anadromous fishes” (CDFG 1973). The memo goes on to state that “a major threat to the existence of Soquel Creek fishes has been low flows, siltation, and pollution caused by accelerated development and resource use in the watershed” and recommend “limitations on future water uses” (CDFG 1973).

A 1988 CDFG memo indicates that a diversion dewatered about 0.5 miles of Soquel Creek, resulting in a fish kill of an estimated 864 juvenile *O. mykiss* (CDFG 1988). Soquel Creek was stocked in 1988 and in subsequent years (Harvey and Stanley Associates 1988). Steelhead smolts reared at the Monterey Bay Salmon and Steelhead Project were planted upstream from Ashbury Falls in the early 1990s (CDF 1993). A 1996 estimate of the steelhead run size in Soquel Creek was about 100 individuals (Sutfin 1996); the report also specifically cites flood control, logging, quarrying, and road maintenance activities as having impacts on habitat conditions in Soquel Creek.

A spawning survey was conducted in lower Soquel Creek in 2002, when redds and evidence of successful reproduction were noted. The surveyor observed 13 adult steelhead at one time during the surveys (Hagar Environmental Science 2002). Staff from NMFS sampled multiple sites on the east branch of Soquel Creek in 2003, 2004, and 2005 as part of a study of demographic processes of steelhead. The study noted that, “in Soquel Creek, variability in water flow appears to play a major role in demographic processes of steelhead, with high survival, minimal movement, and limited growth during the summer and fall dry season, and low survival, extensive movement, and limited growth during the flashy flows of the winter and spring rainy season” (Sogard et al. 2009).

A mark/recapture study of the Soquel Creek lagoon’s juvenile steelhead population in fall 2006 produced an estimate of about 992 individuals, which was compared to a 14-year average of about 1,160 individuals (Alley 2007). Juvenile steelhead densities were estimated and habitat assessed in mainstem Soquel Creek during 2006 as part of a larger study of Santa Cruz County watersheds, and the resulting report notes that “especially low” juvenile densities were observed, particularly in the

lower mainstem (Alley 2007). Estimated smolt densities at four sites ranged from 2.8 to 9.1 per 100 feet of stream, that may be compared a range of 1.2 to 41.6 per 100 feet throughout the study area (Alley 2007). The report rates the smolt habitat at the Soquel Creek sites from “Fair” to “Poor.”

Steelhead trout within Soquel Creek are included in the central California coast DPS. Within a historical context, population levels and habitat quality for this DPS began trending substantially downward in the early 20th century, eventually leading to the original listing of the south-central California steelhead ESU (the predecessor to the DPS) as federally endangered under FESA in 1997 (NMFS 1997), designation of critical habitat in 2005 (NMFS 2005), and a final listing determination for the DPS in 2006 (NMFS 2006). Risks and limiting factors for the DPS include numerous minor habitat blockages throughout the region, dewatering from irrigation and urban water diversions, and habitat degradation in the form of agricultural and urban development on floodplains and riparian areas (Good et al. 2005).

According to the latest available status review (NMFS 2011), there is little new evidence to suggest that the status of the central California coast steelhead DPS has changed appreciably since the last status review was completed in 2005 (Good et al. 2005). New information available on anadromous runs since the 2005 review remains limited and does not appear to suggest a change in extinction risk (NMFS 2011).

The proposed project, when considered in a cumulative effects context, is not anticipated to result in substantially adverse cumulative impacts to steelhead because the project would be small in scale, would result in mostly temporary impacts, and compensatory mitigation would be implemented to offset impacts to vegetation.

Central California Coast Salmon ESU

The cumulative impacts for this species are the same as those abovementioned for steelhead. A major cause of decline for coho salmon has been the unnatural destruction and degradation of stream essential habitat within its historic range as documented and summarized by Hassler (1987), Nehlson et al. (1991), Hope (1993), Bryant (1994), and CDFG (1994). The remnant natural-spawning coho salmon populations of Waddell and Scott Creeks depend upon the essential stream habitat for survival and perpetuation, as would reestablished populations on other streams pursuant to any recovery program.

Most stream habitat loss and degradation has resulted from watershed disturbances caused by or associated with human activities, such as cropland agriculture, logging, urban development and run-off, agricultural and domestic water diversion, highway and road construction and maintenance, livestock grazing, erosion and flood control projects, gravel mining, dairy and other confined animal operations, and the construction of water diversion and impoundment dams.

The loss and degradation of stream habitat has been a cumulative consequence of human activities at least over the past century, with particular intensity on these coastal drainages since the 1940's. Most habitat degradation is associated with the loss of essential habitat components necessary for high coho salmon survival and recruitment, especially loss of woody debris and sedimentation impacts (Brown et al. 1994). Coho salmon are particularly vulnerable to loss or degradation of spawning summer rearing and winter holding habitat components (CDFG 1994).

Tidewater Goby

The RSA under consideration for tidewater goby cumulative impacts analysis is the Soquel Creek watershed (Figure 2-4). Historically, tidewater goby population density in Soquel Creek has been characterized as rare with intermittent presence (USFWS 2005). Other than competition/predation from non-native species, other potential threats within the RSA include habitat degradation via water diversions and groundwater pumping (USFWS 2005). No other pertinent population data for tidewater goby within the RSA could be found during the literature review for this NES.

While construction activities for the proposed project could contribute to cumulative effects (e.g., injury and/or mortality, temporary habitat disturbance) that could adversely affect tidewater goby in the RSA, the potential for adverse cumulative impacts are estimated to be very low considering the relatively small amount of potential habitat that would be affected in relation to the total amount of habitat that occurs in the RSA, and the low amount of take that would likely occur as a result of this project.

When considered in a cumulative context, the proposed project is not anticipated to result in substantially adverse cumulative impacts to tidewater gobies because the project would be small in scale, would result in mostly temporary impacts, and compensatory mitigation would be implemented to offset impacts to Soquel Creek and associated riparian vegetation.

Western Pond Turtle

The RSA under consideration for western pond turtle cumulative impacts analysis is the Soquel Creek watershed (Figure 2-4).

Western pond turtles were once widely distributed in central California but populations have declined and continue to decline over most of their range (Brattstrom 1988). Habitat destruction is attributed to the major cause of this population decline. Over 90% of the wetland habitat within the historic range of the western pond turtle in California has been eliminated due to agricultural development, flood control, water diversion projects and urbanization (Brattstrom 1988).

No pertinent population data for western pond turtle specific to the RSA could be found during the literature review for this NES. However, threats to potential habitat for western pond turtle within the RSA are low, due to the rural character of the area and overall lack of historic and proposed development. Similar to the threats facing steelhead and critical habitat discussed above, current threats to potential western pond turtle habitat within the RSA stem from the erosion and soil compaction that result from development and timber extraction. As the proposed project will require temporary and permanent impacts to potential habitat for western pond turtle, the project is contributing to a cumulative impact to these species in the RSA. However, because these impacts are very small relative to the available habitat in the RSA, the contribution to cumulative impacts to these resources in the RSA is not considered substantial.

While construction activities for the proposed project could contribute to cumulative effects (e.g., injury and/or mortality, temporary habitat disturbance) that could adversely affect this species in the RSA, the potential for adverse cumulative impacts are estimated to be very low considering the relatively small amount of potential habitat that would be affected in relation to the total amount of habitat that occurs in the RSA, and the low potential for mortality and/or injury that would likely occur as a result of this project.

When considered in a cumulative context, the proposed project is not anticipated to result in substantially adverse cumulative impacts to western pond turtles because the project would be small in scale, would result in mostly temporary impacts, and compensatory mitigation would be implemented to offset impacts to Soquel Creek and associated riparian vegetation.

Cooper's hawk and other nesting birds

The RSA under consideration for Cooper's hawk and other nesting birds' cumulative impacts analysis is the Soquel Creek watershed (Figure 2-4).

When considered in a cumulative context, the proposed project is not anticipated to result in substantially adverse cumulative impacts to the Cooper's hawk and other nesting birds because the project would be small in scale, would result in mostly temporary impacts, and compensatory mitigation would be implemented to offset impacts to Soquel Creek and associated riparian vegetation/nesting habitat.

Chapter 3 CEQA Evaluation

3.1 Determining Significance under CEQA

The proposed project is a joint project by the California Department of Transportation (Caltrans) and the Federal Highway Administration (FHWA) and is subject to state and federal environmental review requirements. Project documentation, therefore, has been prepared in compliance with both the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). The Federal Highway Administration's responsibility for environmental review, consultation, and any other actions required by applicable federal environmental laws for this project are being, or have been, carried out by Caltrans pursuant to 23 United States Code Section 327 (23 USC 327) and the Memorandum of Understanding dated December 23, 2016 and executed by the Federal Highway Administration and Caltrans. Caltrans is the lead agency under CEQA and NEPA.

One of the main differences between NEPA and CEQA is the way significance is determined. Under NEPA, significance is used to determine whether an EIS, or a lower level of documentation, will be required. NEPA requires that an EIS be prepared when the proposed federal action (project) as a whole has the potential to "significantly affect the quality of the human environment." The determination of significance is based on context and intensity. Some impacts determined to be significant under CEQA may not be of sufficient magnitude to be determined significant under NEPA. Under NEPA, once a decision is made regarding the need for an EIS, it is the magnitude of the impact that is evaluated, and no judgment of its individual significance is deemed important for the text. NEPA does not require that a determination of significant impacts be stated in the environmental documents.

CEQA, on the other hand, does require Caltrans to identify each "significant effect on the environment" resulting from the project and ways to mitigate each significant effect. If the project may have a significant effect on any environmental resource, then an EIR must be prepared. Each and every significant effect on the environment must be disclosed in the EIR and mitigated if feasible. In addition, the CEQA Guidelines list a number of "mandatory findings of significance," which also require the preparation of an EIR. There are no types of actions under NEPA that parallel the findings of mandatory significance of CEQA. This chapter discusses the effects of this project and CEQA significance.

3.2 CEQA Environmental Checklist

This checklist identifies physical, biological, social, and economic factors that might be affected by the proposed project. Potential impact determinations include Significant and Unavoidable Impact, Less Than Significant With Mitigation Incorporated, Less Than Significant Impact, and No Impact. In many cases, background studies performed in connection with a project will indicate that there are no impacts to a particular resource. A No Impact answer reflects this determination. The words “significant” and “significance” used throughout the following checklist are related to CEQA, not NEPA, impacts. The questions in this checklist are intended to encourage the thoughtful assessment of impacts and do not represent thresholds of significance.

Project features, which can include both design elements of the project, and standardized measures that are applied to all or most Caltrans projects such as Best Management Practices (BMPs) and measures included in the Standard Plans and Specifications or as Standard Special Provisions, are considered to be an integral part of the project and have been considered prior to any significance determinations documented below; see Chapters 1 and 2 for a detailed discussion of these features. The annotations to this checklist are summaries of information contained in Chapter 2 to provide you with the rationale for significance determinations; for a more detailed discussion of the nature and extent of impacts, please see Chapter 2. This checklist incorporates by reference the information contained in Chapters 1 and 2.

3.2.1 Aesthetics

CEQA Significance Determinations for Aesthetics

Except as provided in Public Resources Code Section 21099, would the project:

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

No Impact

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

No Impact

c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from a publicly accessible vantage point.) If the

project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

Less Than Significant Impact

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

No Impact

3.2.2 Agriculture and Forest Resources

CEQA Significance Determinations for Agriculture and Forest Resources

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and 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?

No Impact

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

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))?

No Impact

d) Result in the loss of forest land or conversion of forest land to non-forest use?

No Impact

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?

No Impact

3.2.3 Air Quality

CEQA Significance Determinations for Air Quality

Where available, the significance criteria established by the applicable air quality management district 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?

No Impact

b) 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?

No Impact

c) Expose sensitive receptors to substantial pollutant concentrations?

No Impact

d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

No Impact

3.2.4 Biological Resources

CEQA Significance Determinations for Biological Resources

Would the project:

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

Less Than Significant With Mitigation Incorporated

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

Less Than Significant With Mitigation Incorporated

c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

No Impact

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?

Less Than Significant Impact

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

No Impact

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?

No Impact

3.2.5 Cultural Resources

CEQA Significance Determinations for Cultural Resources

Would the project:

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

No Impact

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

No Impact

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

No Impact

3.2.6 Energy

CEQA Significance Determinations for Energy

Would the project:

a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

No Impact

b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

No Impact

3.2.7 Geology and Soils

CEQA Significance Determinations for Geology and Soils

Would the project:

a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

No Impact

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?

No Impact

ii) Strong seismic ground shaking?

No Impact

iii) Seismic-related ground failure, including liquefaction?

No Impact

iv) Landslides?

No Impact

b) Result in substantial soil erosion or the loss of topsoil?

No Impact

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?

No Impact

d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?

No Impact

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?

No Impact

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

No Impact

3.2.8 Greenhouse Gas Emissions

CEQA Significance Determinations for Greenhouse Gas Emissions

Would the project:

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

and

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

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

3.2.9 Hazards and Hazardous Materials

CEQA Significance Determinations for 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?

No Impact

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?

No Impact

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

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?

No Impact

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 or excessive noise for people residing or working in the project area?

No Impact

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

No Impact

g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

No Impact

3.2.10 Hydrology and Water Quality

CEQA Significance Determinations for Hydrology and Water Quality

Would the project:

a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

No Impact

b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

No Impact

c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

i) Result in substantial erosion or siltation on- or off-site;

No Impact

ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;

No Impact

iii) 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; or

No Impact

iv) Impede or redirect flood flows?

No Impact

d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?

No Impact

e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

No Impact

3.2.11 Land Use and Planning

CEQA Significance Determinations for Land Use and Planning

Would the project:

a) Physically divide an established community?

No Impact

b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

No Impact

3.2.12 Mineral Resources

CEQA Significance Determinations for 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?

No Impact

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?

No Impact

3.2.13 Noise

CEQA Significance Determinations for Noise

Would the project result in:

a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

No Impact

b) Generation of excessive groundborne vibration or groundborne noise levels?

No Impact

c) For a project located within the vicinity of a private airstrip or 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?

No Impact

3.2.14 Population and Housing

CEQA Significance Determinations for Population and Housing

Would the project:

a) Induce substantial unplanned 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)?

No Impact

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

No Impact

3.2.15 Public Services

CEQA Significance Determinations for Public Services

a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

Fire protection?

No Impact

Police protection?

No Impact

Schools?

No Impact

Parks?

No Impact

Other public facilities?

No Impact

3.2.16 Recreation

CEQA Significance Determinations for Recreation

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

No Impact

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?

No Impact

3.2.17 Transportation

CEQA Significance Determinations for Transportation

Would the project:

a) Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

No Impact

b) Conflict with or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?

No Impact

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

No Impact

d) Result in inadequate emergency access?

No Impact

3.2.18 Tribal Cultural Resources

CEQA Significance Determinations for Tribal Cultural Resources

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

a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or

No Impact

b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

No Impact

3.2.19 Utilities and Service Systems

CEQA Significance Determinations for Utilities and Service Systems

Would the project:

a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

No Impact

b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?

No Impact

c) 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?

No Impact

d) Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

No Impact

e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

No Impact

3.2.20 Wildfire

CEQA Significance Determinations for Wildfire

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:

a) Substantially impair an adopted emergency response plan or emergency evacuation plan?

No Impact

b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

No Impact

c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

No Impact

d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

No Impact

3.2.21 Mandatory Findings of Significance

CEQA Significance Determinations for Mandatory Findings of Significance

a) Does the project have the potential to substantially 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?

Less Than Significant With Mitigation Incorporated

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.)

No Impact

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

No Impact

3.3 Climate Change

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

While climate change has been a concern for several decades, the establishment of the Intergovernmental Panel on Climate Change (IPCC) by the United Nations and World Meteorological Organization in 1988 has led to increased efforts devoted to greenhouse gas emissions reduction and climate

change research and policy. These efforts are concerned mostly with the emissions of greenhouse gases generated by human activity, including carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), tetrafluoromethane, hexafluoroethane, sulfur hexafluoride (SF₆), HFC-23 (fluoroform), HFC-134a (1, 1, 1, 2-tetrafluoroethane), and HFC-152a (difluoroethane).

In the U.S., the main source of greenhouse gas emissions is electricity generation, followed by transportation.² In the U.S., the main source of greenhouse gas emissions is electricity generation, followed by transportation. In California, however, transportation sources (including passenger cars, light-duty trucks, other trucks, buses, and motorcycles) are the largest contributors of greenhouse gas emissions.³ The dominant greenhouse gas emitted is CO₂, mostly from fossil fuel combustion.

Two terms are typically used when discussing how we address the impacts of climate change: “greenhouse gas mitigation” and “adaptation.” “Greenhouse gas mitigation” covers the activities and policies aimed at reducing greenhouse gas emissions to reduce or “mitigate” the impacts of climate change. “Adaptation,” on the other hand, is concerned with planning for and responding to impacts resulting from climate change (such as adjusting transportation design standards to withstand more intense storms and higher sea levels).

Regulatory Setting

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

Federal

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

The National Environmental Policy Act (NEPA) (42 U.S. Code Part 4332) requires federal agencies to assess the environmental effects of their proposed actions prior to making a decision on the action or project. The Federal Highway Administration recognizes the threats that extreme weather, sea-level change, and other changes in environmental conditions pose to valuable transportation infrastructure and those who depend on it.

² <https://www.epa.gov/ghgemissions/us-greenhouse-gas-inventory-report-1990-2014>

³ <https://www.arb.ca.gov/cc/inventory/data/data.htm>

The Federal Highway Administration therefore supports a sustainability approach that assesses vulnerability to climate risks and incorporates resilience into planning, asset management, project development and design, and operations and maintenance practices.⁴ This approach encourages planning for sustainable highways by addressing climate risks while balancing environmental, economic, and social values—“the triple bottom line of sustainability.”⁵ Program and project elements that foster sustainability and resilience also support economic vitality and global efficiency, increase safety and mobility, enhance the environment, promote energy conservation, and improve the quality of life. Addressing these factors up front in the planning process will assist in decision-making and improve efficiency at the program level, and will inform the analysis and stewardship needs of project-level decision-making.

Various efforts have been made at the federal level to improve fuel economy and energy efficiency to address climate change and its associated effects.

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

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

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

⁴ <https://www.fhwa.dot.gov/environment/sustainability/resilience/>

⁵ <https://www.sustainablehighways.dot.gov/overview.aspx>

average fuel economy for the portion of its vehicles produced for sale in the United States.

The U.S. EPA's authority to regulate greenhouse gas emissions stems from the U.S. Supreme Court decision in *Massachusetts v. EPA* (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, the U.S. EPA 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 EPA's assessment of the scientific evidence that form the basis for EPA's regulatory actions.

The U.S. EPA in conjunction with the National Highway Traffic Safety Administration (NHTSA) issued the first of a series of greenhouse gas emission standards for new cars and light-duty vehicles in April 2010⁶ and significantly increased the fuel economy of all new passenger cars and light trucks sold in the United States. The standards required these vehicles to meet an average fuel economy of 34.1 miles per gallon by 2016. In August 2012, the federal government adopted the second rule that increases fuel economy for the fleet of passenger cars, light-duty trucks, and medium-duty passenger vehicles for model years 2017 and beyond to average fuel economy of 54.5 miles per gallon by 2025. Because the National Highway Traffic Safety Administration cannot set standards beyond model year 2021 due to statutory obligations and the rules' long timeframe, a mid-term evaluation is included in the rule. The Mid-Term Evaluation is the overarching process by which the National Highway Traffic Safety Administration, EPA, and Air Resources Board will decide on the Corporate Average Fuel Economy (CAFE) and greenhouse gas emissions standard stringency for model years 2022–2025. The National Highway Traffic Safety Administration has not formally adopted standards for model years 2022 through 2025. However, the EPA finalized its mid-term review in January 2017, affirming that the target fleet average of at least 54.5 miles per gallon by 2025 was appropriate. In March 2017, President Donald Trump ordered the EPA to reopen the review and reconsider the mileage target.⁷

The National Highway Traffic Safety Administration and EPA issued a Final Rule for "Phase 2" for medium- and heavy-duty vehicles to improve fuel efficiency and cut carbon pollution in October 2016. The agencies estimate that the standards will save up to 2 billion barrels of oil and reduce CO₂

⁶ <https://one.nhtsa.gov/Laws-&-Regulations/CAFE-%E2%80%93-Fuel-Economy>

⁷ <http://www.nbcnews.com/business/autos/trump-rolls-back-obama-era-fuel-economy-standards-n734256> and <https://www.federalregister.gov/documents/2017/03/22/2017-05316/notice-of-intention-to-reconsider-the-final-determination-of-the-mid-term-evaluation-of-greenhouse>

emissions by up to 1.1 billion metric tons over the lifetimes of model year 2018–2027 vehicles.

State

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

Assembly Bill 1493, Pavley Vehicular Emissions: Greenhouse Gases, 2002: This bill requires the California Air Resources Board (ARB) to develop and implement regulations to reduce automobile and light truck 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 2020, and (3) 80 percent below year 1990 levels by 2050. This goal was further reinforced with the passage of Assembly Bill 32 in 2006 and SB 32 in 2016.

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

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

Senate Bill 97 (SB 97), Chapter 185, 2007, Greenhouse Gas Emissions: This bill requires the Governor's Office of Planning and Research (OPR) to develop recommended amendments to the California Environmental Quality

Act (CEQA) Guidelines for addressing 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 Air Resources Board to set regional emissions reduction targets for passenger vehicles. The Metropolitan Planning Organization (MPO) for each region must then develop a “Sustainable Communities Strategy” (SCS) that integrates transportation, land use, and housing policies to plan how it will achieve the emissions target for its region.

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

Executive Order B-16-12 (March 2012): This order required state entities under the direction of the governor, including the Air Resources Board, the California Energy Commission, and the Public Utilities Commission, to support the rapid commercialization of zero-emission vehicles. It directs these entities to achieve various benchmarks related to zero-emission vehicles.

Executive Order B-30-15 (April 2015): This order established an interim statewide greenhouse gas emission reduction target of 40 percent below 1990 levels by 2030 in order to ensure California meets its target of reducing greenhouse gas emissions to 80 percent below 1990 levels by 2050. It further orders all state agencies with jurisdiction over sources of greenhouse gas emissions to implement measures, pursuant to statutory authority, to achieve reductions of greenhouse gas emissions to meet the 2030 and 2050 greenhouse gas emissions reductions targets. It also directs the Air Resources Board to update the Climate Change Scoping Plan to express the 2030 target in terms of million metric tons of carbon dioxide equivalent (MMTCO_{2e}). Finally, it requires the Natural Resources Agency to update the state’s climate adaptation strategy, *Safeguarding California*, every 3 years, and to ensure that its provisions are fully implemented.

Senate Bill 32, (SB 32) Chapter 249, 2016: This bill codifies the greenhouse gas reduction targets established in Executive Order B-30-15 to achieve a mid-range goal of 40 percent below 1990 levels by 2030.

Environmental Setting

In 2006, the Legislature passed the California Global Warming Solutions Act of 2006 (AB 32), which created a comprehensive, multi-year program to reduce greenhouse gas emissions in California. AB 32 required the Air Resources Board to develop a Scoping Plan that describes the approach California will take to achieve the goal of reducing greenhouse gas emissions

to 1990 levels by 2020. The Scoping Plan was first approved by the Air Resources Board in 2008 and must be updated every 5 years. The second updated plan, California's 2017 Climate Change Scoping Plan, adopted on December 14, 2017, reflects the 2030 target established in EO B-30-15 and SB 32.

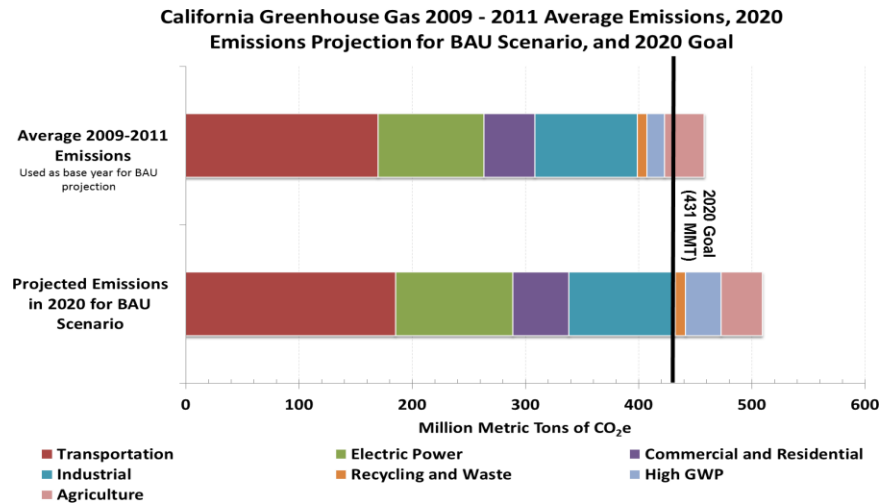
The AB 32 Scoping Plan and the subsequent updates contain the main strategies California will use to reduce greenhouse gas emissions. As part of its supporting documentation for the updated Scoping Plan, the Air Resources Board released the greenhouse gas inventory for California.⁸ The Air Resources Board is responsible for maintaining and updating California's Greenhouse Gas Inventory per H&SC Section 39607.4. The associated forecast/projection is an estimate of the emissions anticipated to occur in the year 2020 if none of the foreseeable measures included in the Scoping Plan were implemented.

An emissions projection estimates future emissions based on current emissions, expected regulatory implementation, and other technological, social, economic, and behavioral patterns. The projected 2020 emissions provided in Figure 3-1 represent a business-as-usual (BAU) scenario assuming none of the Scoping Plan measures are implemented. The 2020 BAU emissions estimate assists the Air Resources Board in demonstrating progress toward meeting the 2020 goal of 431 MMTCO₂e.⁹ The 2018 edition of the GHG emissions inventory found total California emissions of 429 MMTCO₂e for 2016.

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

⁸ 2018 Edition of the GHG Emission Inventory (July 20182017):
<https://www.arb.ca.gov/cc/inventory/data/data.htm>

⁹ The revised target using Global Warming Potentials (GWP) from the IPCC Fourth Assessment Report (AR4)



<https://www.arb.ca.gov/cc/inventory/data/bau.htm>

Figure 3-1 2020 Business as Usual (BAU) Emissions Projection 2014 Edition

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.¹⁰ In assessing cumulative impacts, it must be determined if a project's incremental effect is "cumulatively considerable" (CEQA Guidelines Sections 15064(h)(1) and 15130). To make this determination, you must compare the incremental impacts of the project 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.

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

¹⁰ This approach is supported by the AEP: *Recommendations by the Association of Environmental Professionals on How to Analyze GHG Emissions and Global Climate Change in CEQA Documents* (March 5, 2007), as well as the South Coast Air Quality Management District (Chapter 6: The CEQA Guide, April 2011) and the US Forest Service (Climate Change Considerations in Project Level NEPA Analysis, July 13, 2009).

Operational Emissions

The purpose of the proposed project is to correct and prevent localized scour and gully erosion on the western bank of Soquel Creek at the Soquel Creek Bridge. No work will be performed on the roadway. The project would not change roadway capacity or affect traffic speed, volume, or VMT. While a small amount of construction emissions would be unavoidable, no increase in operational GHG emissions is anticipated.

Construction Emissions

Construction greenhouse gas emissions would result from material processing and on-site construction equipment. These emissions will be produced at different levels throughout the construction phase.

Carbon dioxide (CO₂) emissions generated from construction equipment were estimated using the Caltrans Construction Emissions Tool. The estimated work period will be no more than 60 days. The estimated CO₂ construction emissions is 20 US tons generated over the 60-day work period.

Caltrans Standard Specifications Section 14-9.02 (Air Pollution Control), a part of all construction contracts, states that the contractor is responsible for complying with all local air-pollution-control rules, regulations, ordinances, and statutes. To the extent that such compliance and other standard construction best management practices reduce vehicle emissions, GHG emissions are also reduced.

CEQA Conclusion

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

Greenhouse Gas Reduction Strategies

Statewide Efforts

To further the vision of California's greenhouse gas reduction targets outlined in AB 32 and SB 32, Governor Edmund G. Brown, Jr. identified key climate

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

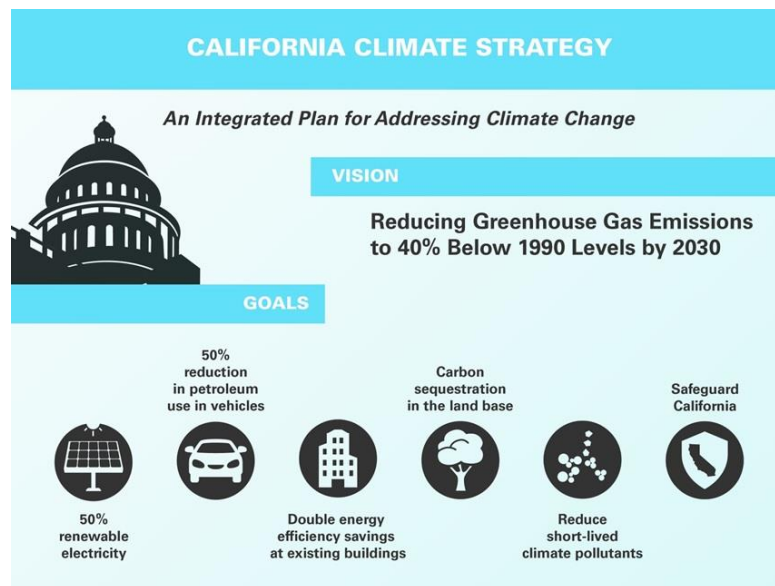


Figure 3-2 Governor's Climate Change Pillars: 2030 Greenhouse Gas Reduction Goals

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

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

Caltrans Activities

Caltrans continues to be involved on the Governor's Climate Action Team as the 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. Executive Order B-30-15, issued in April 2015, and SB 32 (2016), set a new interim target to cut greenhouse gas emissions to 40 percent below 1990 levels by 2030. The following major initiatives are underway at Caltrans to help meet these targets.

California Transportation Plan (CTP 2040)

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

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

Caltrans Strategic Management Plan

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

- Increasing percentage of non-auto mode share
- Reducing vehicle miles traveled per capita
- Reducing Caltrans' internal operational (buildings, facilities, and fuel) greenhouse gas emissions

Funding and Technical Assistance Programs

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

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

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

Project-Level Greenhouse Gas Reduction Strategies

The following measures will also be implemented in the project to reduce greenhouse gas emissions and potential climate change impacts from the project:

1. Caltrans Standard Specifications To reduce and control emissions during construction, Section 14-909.02 (, Air Pollution Control) states that will be implemented. This specification requires the contractor is responsible to comply with all state and local air- pollution- control district rules, regulations, ordinances, and statutes. To regulations in regard to air quality. Regulations such as idling restrictions can help reduce GHG emissions from idling construction equipment.
2. The project will revegetate and replace vegetation that is removed from the extent that such compliance project area at a ratio of 1:1. Vegetation reduces vehicle emissions, GHG emissions are also reduced.surface warming and, through photosynthesis, removes CO₂ from the atmosphere.

Adaptation Strategies

"Adaptation strategies" refer to how Caltrans and others can plan for the effects of climate change on the state's transportation infrastructure and strengthen or protect the facilities from damage—or, put another way, planning and design for resilience. Climate change is expected to produce increased variability in precipitation, rising temperatures, rising sea levels,

variability in storm surges and their intensity, and the frequency and intensity of wildfires. These changes may affect the transportation infrastructure in various ways, such as damage to roadbeds from longer periods of intense heat; increasing storm damage from flooding and erosion; and inundation from rising sea levels. These effects will vary by location and may, in the most extreme cases, require that a facility be relocated or redesigned. These types of impacts to the transportation infrastructure may also have economic and strategic ramifications.

Federal Efforts

At the federal level, the Climate Change Adaptation Task Force, co-chaired by the Council on Environmental Quality, 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, 2011¹¹, outlining the federal government's progress in expanding and strengthening the nation's capacity to better understand, prepare for, and respond to extreme events and other climate change impacts. The report provided an update on actions in key areas of federal adaptation, including: building resilience in local communities, safeguarding critical natural resources such as fresh water, and providing accessible climate information and tools to help decision-makers manage climate risks.

The federal Department of Transportation issued a U.S. DOT Policy Statement on Climate Adaptation in June 2011, committing to "integrate consideration of climate change impacts and adaptation into the planning, operations, policies, and programs of DOT in order to ensure that taxpayer resources are invested wisely and that transportation infrastructure, services and operations remain effective in current and future climate conditions."¹²

To further the DOT Policy Statement, on December 15, 2014, the Federal Highway Administration issued order 5520 (*Transportation System Preparedness and Resilience to Climate Change and Extreme Weather Events*).¹³ This directive established a Federal Highway Administration policy to strive to identify the risks of climate change and extreme weather events to current and planned transportation systems. The Federal Highway Administration will work to integrate consideration of these risks into its planning, operations, policies, and programs to promote preparedness and resilience; safeguard federal investments; and ensure the safety, reliability, and sustainability of the nation's transportation systems.

¹¹ <https://obamawhitehouse.archives.gov/administration/eop/ceq/initiatives/resilience>

¹² https://www.fhwa.dot.gov/environment/sustainability/resilience/policy_and_guidance/usdot.cfm

¹³ <https://www.fhwa.dot.gov/legregs/directives/orders/5520.cfm>

The Federal Highway Administration has developed guidance and tools for transportation planning that fosters resilience to climate effects and sustainability at the federal, state, and local levels.¹⁴

State Efforts

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 and directed all state agencies planning to construct projects in areas vulnerable to future sea-level rise to consider a range of sea-level rise scenarios for the years 2050 and 2100, assess project vulnerability and, to the extent feasible, reduce expected risks and increase resiliency to sea-level rise. Sea-level rise estimates should also be used in conjunction with information on local uplift and subsidence, coastal erosion rates, predicted higher high water levels, and storm surge and storm wave data.

Then-Governor Schwarzenegger also requested the National Academy of Sciences to prepare an assessment report to recommend how California should plan for future sea-level rise. The final report, *Sea-Level Rise for the Coasts of California, Oregon, and Washington (Sea-Level Rise Assessment Report)*,¹⁵ was released in June 2012 and included relative sea-level rise projections for the three states, taking into account coastal erosion rates, tidal impacts, El Niño and La Niña events, storm surge, and land subsidence rates, and the range of uncertainty in selected sea-level rise projections. It provided a synthesis of existing information on projected sea-level rise impacts to state infrastructure (such as roads, public facilities, and beaches), natural areas, and coastal and marine ecosystems, and a discussion of future research needs regarding sea-level rise.

In response to Executive Order S-13-08, the California Natural Resources Agency (Resources Agency), in coordination with local, regional, state, federal, and public and private entities, developed *The California Climate Adaptation Strategy* (Dec 2009),¹⁶ which summarized the best available science on climate change impacts to California, assessed California's vulnerability to the identified impacts, and outlined solutions that can be implemented within and across state agencies to promote resiliency. The adaptation strategy was updated and rebranded in 2014 as *Safeguarding California: Reducing Climate Risk* (Safeguarding California Plan).

¹⁴ <https://www.fhwa.dot.gov/environment/sustainability/resilience/>

¹⁵ *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.

¹⁶ <http://www.climatechange.ca.gov/adaptation/strategy/index.html>

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

Executive Order S-13-08 also gave rise to the *State of California Sea-Level Rise Interim Guidance Document* (SLR Guidance), produced by the Coastal and Ocean Working Group of the California Climate Action Team (CO-CAT), of which Caltrans is a member. First published in 2010, the document provided “guidance for incorporating sea-level rise (SLR) projections into planning and decision making for projects in California,” specifically, “information and recommendations to enhance consistency across agencies in their development of approaches to SLR.”¹⁷

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 actively engaged in working toward identifying these risks throughout the state and will work to incorporate this information into all planning and investment decisions as directed in Executive Order B-30-15.

3.4 Sea Level Rise

Regulatory Setting

Since the introduction of new California legislative mandates/policies in 2018, Ocean Protection Council (OPC) has improved the science of sea level rise (SLR), and a step-wise approach to SLR projection in the updated Sea Level Rise Policy Guidance were adopted on November 07, 2018 by the California Coastal Commission (CCC). The publication outlines a five-step framework to evaluate risk and determine SLR projection. The first step is identifying the nearest tide gauge for the project site, the second and third steps are estimating the projection year, and the fourth and fifth steps are assigning the risk and tolerance for the site.

Affected Environment

The Soquel Creek Bridge is located about a mile away from the coast line of the Pacific Ocean but is outside the coastal zone. Due to this proximity to the

¹⁷ <http://www.opc.ca.gov/2013/04/update-to-the-sea-level-rise-guidance-document/>

coast, the project *Draft Final Hydraulic Report* analyzed tidal influence, sea level rise, and tsunami hazards. The FEMA-Flood Insurance Study (FIS) for Santa Cruz County identifies overland areas susceptible to extreme tides, storm surge, and overland wave effects. These susceptible coastal overland areas (Zone VE) include a designated potential flood elevation (feet) on the FIRM Panel #06087C352F. Figure 2-2 below shows VE zones of 18'-24' at the coastline and 14'-15' at the mouth of Soquel Creek within Capitola City. These VE zones were used to analyze tidal influence, sea level rise, and tsunami hazards.

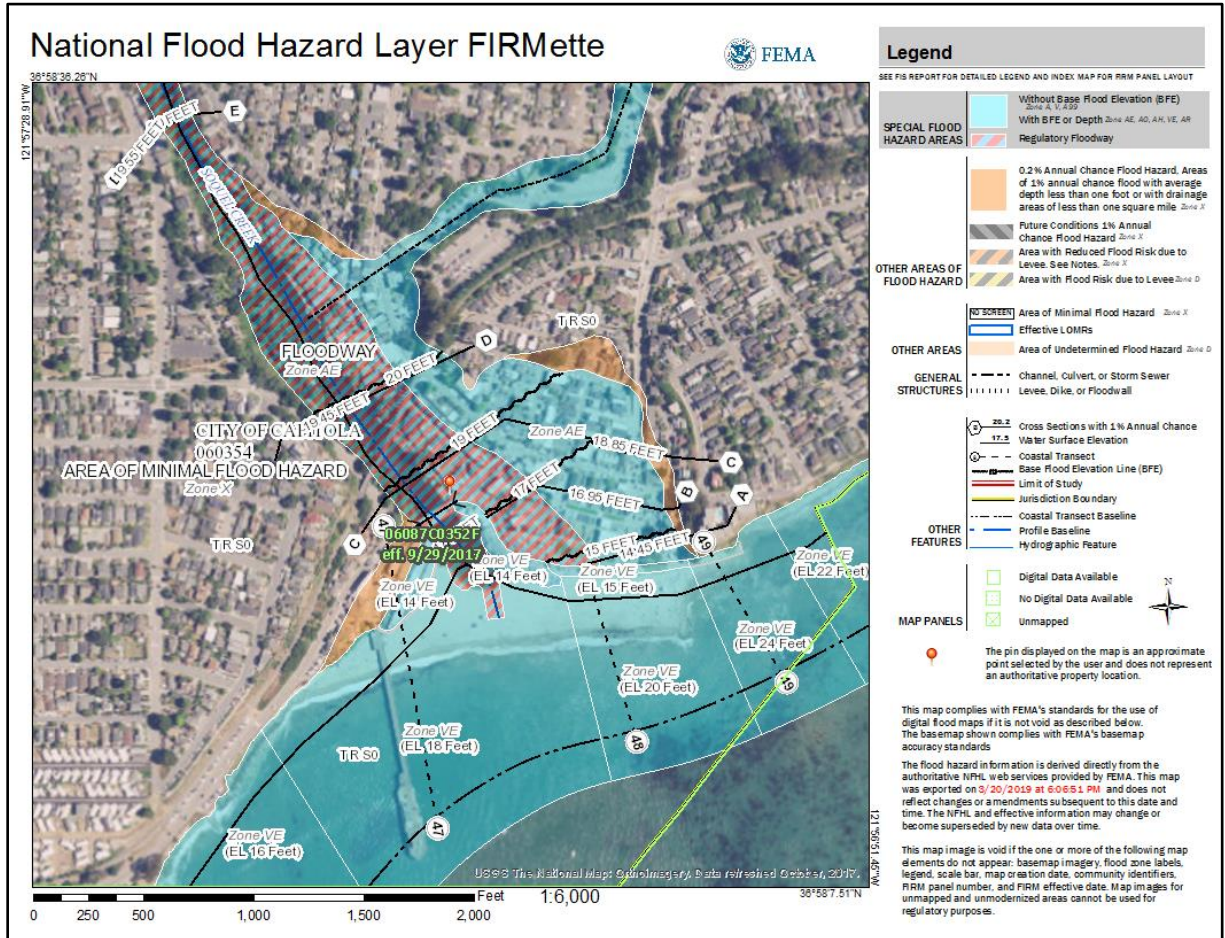


Figure 3-3 Flood Insurance Rate Map at Mouth of Soquel Creek

Environmental Consequence

Because the proposed project does not involve bridge structure work, SLR analysis in relation to the existing bridge structure elevation is not necessary. However, SLR was used in modeling to predict the 100-year floodplain elevation. Modelling results indicated the existing bridge elevation is sufficient to handle the extreme conditions modeled, taking into account both 100-year rainfall amounts and SLR influence.

Because scour at the bridge is primarily a result of increased velocity in the creek, there are no anticipated implications from storm surge and SLR. Rather, it is likely that both storm surge and SLR would decrease the velocity of water in the creek. Therefore, the design of the RSP is based on the existing scour data, known/projected flow rates (100 yr), and the floodplain elevation.¹⁸

Avoidance, Minimization, and/or Mitigation Measures

No measures are required.

¹⁸ Personal communication. Email from Lucas Marsalek (Caltrans D5) communicating discussion with Ginger Lu of Caltrans Hydraulics. April 10, 2019.

Chapter 4 List of Preparers

4.1 Caltrans

Paul Andreano, Associate Environmental Planner (Natural Sciences). B.S., Ecology and Systematic Biology, Minor in Geography, California Polytechnic State University, San Luis Obispo; more than 20 years of environmental planning and biological sciences experience. Contribution: Field studies and Natural Environment Study (NES).

Robert Carr, Associate Landscape Architect. B.S., Landscape Architecture, California Polytechnic State University, San Luis Obispo; 28 years of experience preparing Visual Impact Assessments. Contribution: Visual Impact Assessment

Damon Haydu, Associate Environmental Planner (Archaeology). M.A., Cultural Resource Management, Sonoma State University; B.A., Anthropology, University of California at Santa Cruz; 20 years of experience in California and Great Basin archaeology. Contribution: Archaeological Survey Report (ASR)/Historic Properties Survey Report (HPSR).

Keister, Kevin. Transportation Engineer (Civil), B.S. in Civil Engineering, University of Idaho in Moscow Idaho, 17.5 years' experience civil engineering, 11.5 years in design and 6 years in construction. Prepared Plans, Specs, and Estimates (PS&E)

Joel Kloth, Engineering Geologist. B.S., Geology, California Lutheran University; more than 30 years of experience in petroleum geology, geotechnical geology, and environmental engineering/geology-hazardous waste. Contribution: Initial Site Assessment and Hazardous Waste memorandum

Lindsay Kozub, Associate Environmental Planner (Architectural Historian). M.A., History/Cultural Resource Management, Colorado State University; B.A., History, University of Montana; B.S., Business, Montana State University; 8 years of experience in historical and architectural documentation, historic preservation, and cultural resource management. Contribution: Archaeological Survey Report (ASR)/ Historic Property Survey Report (HPSR).

Isaac Leyva, Engineering Geologist. B.S., Geology; 28 years of experience in petroleum geology, environmental geology, geotechnical engineering. Contribution: Paleontology Review memorandum, Water Quality Assessment memorandum

Ginger Lu, P.E., Transportation Engineer (11 years with Caltrans, hydrology & hydraulic specialty) Resources Engineer (7 years with Department of Water Resources, hydraulic, water resource management & local assistance) M.S. Civil Engineering, California State University, San Diego B.A. Biology-Cellular/Biochemistry, University of California, Berkeley: Contribution: Prepared Revised Draft Final Hydraulic StudyReport.

Ramon Lopez-Maciel, P.E., BS Degree in Civil Engineering, San Diego State University, 21 years of Civil Engineering Experience: Contribution: Location Hydraulic Study.

Marsalek, Lucas. Associate Environmental Planner, B.S., Forestry and Natural Resources Management, California Polytechnic State University, San Luis Obispo; 9 years of environmental planning experience. Contribution: Prepared the Mitigated Negative Declaration/Initial Study.

Karl Josef Mikel, Senior Transportation Engineer, BS Environmental Engineering Cal Poly SLO, MS in Civil/Environmental Engineering Cal Poly SLO, 17 years professional experience, AQ and Noise

Jason Wilkinson, Senior Environmental Planner. B.S., Natural Resource Management, Minor in Geographical Information System (GIS), California Polytechnic State University, San Luis Obispo; 11 years of environmental planning experience. Contribution: Supervised the preparation of the Mitigated Negative Declaration/Initial Study.

ICF

Andersen, Jennifer, AICP, senior environmental planner. B.A., International Relations, University of Southern California; 7.5 years of experience in environmental planning. Contribution: preparation and review of the initial study.

Herron, Will, environmental planner. B.A., International Relations, University of Southern California; 2 years of experience in environmental planning. Contribution: preparation of the initial study.

Chapter 5 Distribution List

City of Capitola 420 Capitola Avenue Capitola, CA 95010	U.S. Fish and Wildlife Service 2493 Portola Road, Suite B Ventura, CA 93003
County of Santa Cruz Planning Department 701 Ocean St., 4 th Floor Santa Cruz, CA 95060	
Porter Memorial Library, 3050 Porter St, Soquel, CA 95073	
U.S. Army Corps of Engineers 1455 Market Street San Francisco, CA 94103	
Regional Water Quality Control Board – Central Coast Region 895 Aerovista Place, Suite 101 San Luis Obispo, CA 93401	
National Marine Fisheries Service 777 Sonoma Ave., Rm 325 Santa Rosa, CA 95404	
California Department of Fish and Wildlife 1234 East Shaw Avenue Fresno, CA 93710	

The distribution list is not a full list of those who will receive a copy of this Draft Initial Study/Proposed Mitigated Negative Declaration. A Notice of Completion and copies of this Draft Initial Study/Proposed Mitigated Negative Declaration have been sent to the State Clearing House for distribution to various public agencies who may have an interest in the proposed project.

Appendix A Title VI Policy Statement

STATE OF CALIFORNIA—CALIFORNIA STATE TRANSPORTATION AGENCY

EDMUND G. BROWN Jr., Governor

DEPARTMENT OF TRANSPORTATION
OFFICE OF THE DIRECTOR
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www.dot.ca.gov



*Making Conservation
a California Way of Life.*

April 2018

NON-DISCRIMINATION POLICY STATEMENT

The California Department of Transportation, under Title VI of the Civil Rights Act of 1964, ensures *"No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance."*

Related federal statutes and state law further those protections to include sex, disability, religion, sexual orientation, and age.

For information or guidance on how to file a complaint, please visit the following web page:
http://www.dot.ca.gov/hq/bep/title_vi/t6_violated.htm.

To obtain this information in an alternate format such as Braille or in a language other than English, please contact the California Department of Transportation, Office of Business and Economic Opportunity, 1823 14th Street, MS-79, Sacramento, CA 95811. Telephone (916) 324-8379, TTY 711, email Title.VI@dot.ca.gov, or visit the website www.dot.ca.gov.

A handwritten signature in blue ink, appearing to read "Laurie Berman".

LAURIE BERMAN
Director

Appendix B Avoidance, Minimization and/or Mitigation Summary

To ensure that all of the environmental measures identified in this document are executed at the appropriate times, the following mitigation program (as articulated on the proposed Environmental Commitments Record [ECR] that follows) would be implemented. During project design, avoidance, minimization, and/or mitigation measures will be incorporated into the project's final plans, specifications, and cost estimates, as appropriate. All permits will be obtained prior to implementation of the project. During construction, environmental and construction/engineering staff will ensure that the commitments contained in the Environmental Commitments Record are fulfilled. Following construction and appropriate phases of project delivery, long-term mitigation maintenance and monitoring will take place, as applicable. Because the following Environmental Commitments Record is a draft, some fields have not been completed; they will be filled out as each of the measures is implemented.

Note: Some measures may apply to more than one resource area. Duplicated or redundant measures have not been included in this Environmental Commitments Record.

Visual

The following avoidance and minimization measures would be implemented to minimize potential visual impacts:

1. Impacts on vegetation shall be minimized to the greatest extent possible.
2. Areas disturbed for access roads and staging areas shall be landscaped with aesthetic plantings.
3. Creek restoration planting shall consider aesthetics along with inherent biological goals.

Noise

The following avoidance and minimization measures are included to limit the potential for noise impacts

1. Each internal combustion engine, used for any purpose on the job, or related to the job, shall be equipped with a muffler of a type recommended by the manufacturer. No internal combustion engine shall be operated on the job site without an appropriate muffler.

2. Notify surrounding residences in advance of the construction schedule when unavoidable construction noise and upcoming construction activities likely to produce an adverse noise environment are expected. This notice shall be given two weeks in advance. Notice should be published in local news media of the dates and duration of proposed construction activity. The District 5 Public Information Office posts notice of the proposed construction and potential community impacts after receiving notice from the Resident Engineer.

Biological Resources

Natural Communities

The following avoidance and minimization measures are included to limit the potential for impacts to natural communities

1. ESA fencing would be installed along the maximum disturbance limits to minimize disturbance to adjacent habitats/vegetation. Special Provisions for the installation of ESA fencing and silt fencing shall be included in the Construction Contract and will be identified on the project plans. Prior to the start of construction activities, ESA areas will be delineated in the field and will be approved by the Caltrans environmental division.

Wetland and Waters

The proposed project will impact potential USACE jurisdictional other waters and CDFW jurisdictional areas within the API. A variety of avoidance and minimization measures will be implemented to reduce the potential impacts to these jurisdictional areas resulting from the project:

1. Prior to construction, Caltrans shall obtain a Section 404 Nationwide Permit from USACE, a Section 401 Water Quality Certification from RWQCB, and a Section 1602 Streambed Alteration Agreement from CDFW. All permit terms and conditions will be incorporated into and implemented.
2. Prior to construction, Caltrans shall prepare a Mitigation and Monitoring Plan (MMP) to mitigate impacts to vegetation and natural habitats. The MMP shall be consistent with federal and state regulatory requirements and will be amended with any regulatory permit conditions, as required. Caltrans shall implement the MMP as necessary during construction and immediately following project completion.
3. Prior to any ground-disturbing activities, ESA fencing shall be installed around jurisdictional waters, and the dripline of trees to be protected

within the project limits. Caltrans-defined ESAs shall be noted on design plans and delineated in the field prior to the start of construction activities.

4. The temporary stream diversion shall be timed to occur between June 1 and October 31 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 only be made with permission from the relevant regulatory agencies.
5. During construction, 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 on-site 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 between the project site and jurisdictional other waters and riparian habitat. At a minimum, erosion controls shall be maintained by the contractor on a daily basis throughout the construction period.
7. During construction, the staging areas shall conform to Best Management Practices (BMPs) applicable to attaining zero discharge of stormwater runoff. At a minimum, all 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.

Animal Species

Western Pond Turtle

The following avoidance and minimization measures are included to limit the potential to Western Pond Turtle

1. Prior to construction, a biologist determined qualified by Caltrans shall survey the API and, if present, capture and relocate any western pond turtles to suitable habitat downstream of the API. Observations of SSCs or other special-status species shall be documented on CNDDDB forms and submitted to CDFW upon project completion. If these species or other SSC aquatic species are observed during construction, they will likewise be relocated to suitable upstream habitat by a qualified biologist

California Red-legged Frog & Foothill Yellow-legged frog

Caltrans anticipates the proposed project will qualify for FESA incidental take coverage under the *Programmatic Biological Opinion for Projects Funded or Approved under the Federal Highway Administration's Federal Aid Program* (USFWS 2011). The following measures are the applicable measures from the Programmatic Biological Opinion that will be implemented for this project:

1. Only USFWS-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 USFWS that the biologist is qualified to conduct the work.
3. A USFWS-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 USFWS-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 USFWS on the relocation site prior to the capture of any California red-legged frogs.
4. Before any activities begin on a project, a USFWS-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 USFWS-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 on-site compliance with all minimization measures. The USFWS-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 USFWS-approved biologist recommends that work be stopped because California red-legged frogs would be affected in a manner not anticipated by Caltrans and USFWS 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 USFWS 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. Without the express permission of USFWS, all refueling, maintenance and staging of equipment and vehicles shall occur at least 60 ft 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 USFWS 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. ESAs 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 CRLF 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 CRLFs 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 USFWS 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 BMPs shall be implemented outlined in any authorizations or permits, issued under the authorities of the Clean Water Act received for the project. If BMPs are ineffective, Caltrans shall attempt to remedy the situation immediately, in coordination with USFWS.
12. If a work site is to be temporarily dewatered by pumping, intakes shall be completely screened with wire mesh not larger than 0.2 inch 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 USFWS, water shall not be impounded in a manner that may attract California red-legged frogs.
14. A USFWS-approved biologist shall permanently remove any individuals of exotic species, such as bullfrogs (*Rana catesbeiana*), signal and red swamp crayfish (*Pacifastacus leniusculus*; *Procambarus clarkia*), and centrarchid fishes from the project area, to the maximum extent possible. The USFWS-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 USFWS-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 USFWS 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; it 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 ft from open water);
 - g. Foliar applications of herbicide shall not occur when wind speeds are in excess of 3 mi 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 applications 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 ft 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 USFWS, 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.

Tidewater goby

In addition to the previously proposed measures, the following measures, including several adapted from USFWS (Farris 2013), will serve to further avoid or minimize impacts to tidewater goby within the API:

- 1. Prior to construction, Caltrans shall acquire incidental take authorization for tidewater goby from USFWS through a FESA 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 FESA and permit conditions.
- 3. Prior to initiation of stream diversion/dewatering, a USFWS-approved biologist(s) shall install 1/8 inch block nets outside the impact areas and across the stream a minimum of 20 feet above and below the locations proposed for stream diversion/dewatering. If widely separated sites are involved, more than one set of block nets shall be placed to protect the work area. The nets shall 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 USFWS-approved biologist(s) shall remove all tidewater gobies found between the block nets using a 1/8 inch seine and dip nets, and relocate tidewater gobies to suitable habitat outside of the proposed project site.

5. Should dewatering occur, any pumps used shall be fitted with anti-entrapment device(s) to prevent tidewater gobies from being drawn into the pump or impinged on intake screening. As dewatering proceeds, the USFWS-approved biologist(s) shall remove by hand or net all tidewater gobies found and relocate them to suitable habitat downstream of the proposed project site.
6. A USFWS-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 as necessary.
7. Caltrans shall provide USFWS a written summary of work performed (including biological survey and monitoring results), BMPs 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 re-location efforts (if appropriate) shall include name(s) of the USFWS-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).

Nesting Birds

The following measures apply to all birds protected by the MBTA 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 CDFW typically requires pre-construction nesting bird surveys and avoidance of impacts to active bird nests.

1. Prior to construction, vegetation removal shall be scheduled to occur from September 2 to February 14, outside of the typical nesting bird season if possible, to avoid potential impacts to nesting birds. If tree removal or other construction activities are proposed to occur within 100 ft of potential habitat during the nesting season (February 15 to September 1), a nesting bird survey shall be conducted by a biologist determined qualified by Caltrans no more than three (3) days prior to construction. If an active nest is found, Caltrans shall coordinate with CDFW 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. Prior to bridge widening work, unoccupied cliff swallow nests and other unoccupied nests under the existing bridge shall be knocked down between September 2 and February 14, prior to the typical nesting season, to discourage nesting activity. After February 14, pre-construction surveys by a qualified biologist shall continue to determine if any new nesting activity has occurred under the existing bridge. Caltrans shall coordinate with the appropriate regulatory agencies to allow for the legal removal of any bird nests prior to or during the nesting bird season. If approved by the appropriate regulatory agencies, partially constructed but unoccupied nests shall be destroyed before they are 1/3 complete.
3. During construction, active bird nests shall not be disturbed and eggs or young of birds covered by the MBTA 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 ft of disturbance shall be established by a qualified biologist using ESA 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.
4. Trees to be removed shall be noted on design plans. Prior to any ground-disturbing activities, ESA fencing shall be installed around the dripline of trees to be protected within project limits.
5. All clearing/grubbing and vegetation removal shall be monitored and documented by the biological monitor(s) regardless of time of year.
6. If least Bell's vireo and/or southwestern willow flycatcher are observed within 100 ft of the API during the course of construction, a qualified biologist shall implement an exclusion zone and work shall be avoided within the exclusion zone until the least Bell's vireo and/or southwestern willow flycatcher is located greater than 100 ft from project-related disturbance. If an active least Bell's vireo and/or southwestern willow flycatcher nest is observed within 100 ft of the API, all project activities shall immediately cease and USFWS and Caltrans shall be contacted within 48 hours. Caltrans shall then reinitiate FESA Section 7 formal consultation with USFWS for least Bell's vireo and/or southwestern willow flycatcher and implement additional measures as necessary.
7. It is recommended that birds be excluded from the existing bridge prior to its demolition. Nesting bird exclusion methods may include, installation of exclusion netting, removing/knocking down nests before they contain eggs, or other methods approved by CDFW. Installation of exclusion netting shall occur outside of the typical nesting season (i.e., implement exclusion methods from September 2 to February 14).

Central California Coast Steelhead DPS

In addition to the previously proposed measures, the following measures will serve to further avoid or minimize impacts to steelhead within the API:

1. Prior to construction, Caltrans shall acquire incidental take authorization for steelhead from NMFS through a FESA 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 steelhead, its legal/protected status, proximity to the project site, avoidance/minimization measures to be implemented during the project, and the implications of violating FESA and permit conditions.
3. During construction, in-stream work shall take place between June 1 and October 31 in any given year, when the surface water within drainages is likely to be dry or at seasonal minimum. Deviations from this work window will only be made with permission from Caltrans and the relevant regulatory/resource agencies.
4. During in-stream work, a Caltrans-approved biologist shall be retained with experience in 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 steelhead and other native fish species and relocate them to suitable habitat as appropriate. The biologist(s) shall capture steelhead stranded as a result of diversion/dewatering and relocate steelhead to suitable instream habitat outside of the work area, using methods approved by the appropriate regulatory agencies, which may include providing aerated water in buckets for transport and ensuring adequate water temperatures during transport. 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.
5. During in-stream work, if pumps are incorporated to assist in temporarily dewatering the site, intakes shall be completely screened with no larger than 3/32-inch (2.38 mm) wire mesh to prevent steelhead and other sensitive aquatic species from entering the pump system. Pumps shall release the additional water to a settling basin or tan, 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, to

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

6. The biological monitor shall monitor erosion and sediment controls to identify and correct any conditions that could adversely affect steelhead or 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 steelhead and steelhead habitat.
7. Caltrans shall provide NMFS a written summary of work performed (including biological survey and monitoring results), BMPs 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 re-location 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).
8. Dewatering and pile driving with impact hammers shall be limited to the low-flow period between June 1 and October 31, thus avoiding adult steelhead spawning migration and peak smolt emigration.
9. When driving piles, the contractor shall limit the number of daily strikes based on results of the hydroacoustic analysis conducted for the project.
10. Sound attenuating devices shall be utilized if possible.

Appendix C USFWS and NMFS Species List

Endangered Species Act Species

There is a total of 16 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Birds

NAME	STATUS
California Least Tern <i>Sterna antillarum browni</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8104	Endangered
Least Bell's Vireo <i>Vireo bellii pusillus</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5945	Endangered
Marbled Murrelet <i>Brachyramphus marmoratus</i> Population: U.S.A. (CA, OR, WA) There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/4467	Threatened
Southwestern Willow Flycatcher <i>Empidonax traillii extimus</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6749	Endangered
Western Snowy Plover <i>Charadrius nivosus nivosus</i> Population: Pacific Coast population DPS-U.S.A. (CA, OR, WA), Mexico (within 50 miles of Pacific coast) There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8035	Threatened

01/29/2019

Event Code: 08EVEN00-2019-E-00415

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Reptiles

NAME	STATUS
San Francisco Garter Snake <i>Thamnophis sirtalis tetrataenia</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/5956	Endangered

Amphibians

NAME	STATUS
California Red-legged Frog <i>Rana draytonii</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2891	Threatened
California Tiger Salamander <i>Ambystoma californiense</i> Population: U.S.A. (Central CA DPS) There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2076	Threatened
Santa Cruz Long-toed Salamander <i>Ambystoma macrodactylum croceum</i> There is proposed critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/7405	Endangered

Fishes

NAME	STATUS
Tidewater Goby <i>Eucyclogobius newberryi</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/57	Endangered

Insects

NAME	STATUS
Ohlone Tiger Beetle <i>Cicindela ohlone</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8271	Endangered
Zayante Band-winged Grasshopper <i>Trimerotropis infantilis</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1036	Endangered

01/29/2019

Event Code: 08EVEN00-2019-E-00415

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Flowering Plants

NAME	STATUS
Marsh Sandwort <i>Arenaria paludicola</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2229	Endangered
Santa Cruz Tarplant <i>Holocarpha macradenia</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6832	Threatened
Scotts Valley Polygonum <i>Polygonum hickmanii</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3222	Endangered
Scotts Valley Spineflower <i>Chorizanthe robusta</i> var. <i>hartwegii</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/7108	Endangered

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

Andreano, Paul@DOT

From: Andreano, Paul@DOT
 Sent: Tuesday, January 08, 2019 12:44 PM
 To: 'nmfswcrca.specieslist@noaa.gov'
 Subject: CALTRANS: Soquel Scour Repair

CALTRANS: Soquel Scour Repair

Paul Andreano | Associate Biologist | Caltrans District 5 | Central Coast Biology Branch | 50 Higuera Street, San Luis Obispo, CA 93401 | 805.542.4688 | paul.andreano@dot.ca.gov

Quad Name **Soquel**
 Quad Number **36121-H8**

ESA Anadromous Fish

SONCC Coho ESU (T) -	
CCC Coho ESU (E) -	X
CC Chinook Salmon ESU (T) -	
CVSR Chinook Salmon ESU (T) -	
SRWR Chinook Salmon ESU (E) -	
NC Steelhead DPS (T) -	
CCC Steelhead DPS (T) -	X
SCCC Steelhead DPS (T) -	
SC Steelhead DPS (E) -	
CCV Steelhead DPS (T) -	
Eulachon (T) -	
sDPS Green Sturgeon (T) -	X

ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat -	
CCC Coho Critical Habitat -	X
CC Chinook Salmon Critical Habitat -	
CVSR Chinook Salmon Critical Habitat -	
SRWR Chinook Salmon Critical Habitat -	
NC Steelhead Critical Habitat -	
CCC Steelhead Critical Habitat -	X
SCCC Steelhead Critical Habitat -	
SC Steelhead Critical Habitat -	
CCV Steelhead Critical Habitat -	
Eulachon Critical Habitat -	

sDPS Green Sturgeon Critical Habitat - X

ESA Marine Invertebrates

Range Black Abalone (E) - X

Range White Abalone (E) -

ESA Marine Invertebrates

Black Abalone Critical Habitat - X

ESA Sea Turtles

East Pacific Green Sea Turtle (T) - X

Olive Ridley Sea Turtle (T/E) - X

Leatherback Sea Turtle (E) - X

North Pacific Loggerhead Sea Turtle (E) - X

ESA Whales

Blue Whale (E) - X

Fin Whale (E) - X

Humpback Whale (E) - X

Southern Resident Killer Whale (E) - X

North Pacific Right Whale (E) - X

Sei Whale (E) - X

Sperm Whale (E) - X

ESA Pinnipeds

Guadalupe Fur Seal (T) - X

Steller Sea Lion Critical Habitat -

Essential Fish Habitat

Coho EFH - X

Chinook Salmon EFH -

Groundfish EFH - X

Coastal Pelagics EFH - X

Highly Migratory Species EFH - X

MMPA Species (See list at left)

ESA and MMPA Cetaceans/Pinnipeds

See list at left and consult the NMFS Long Beach office
562-980-4000

MMPA Cetaceans - X

MMPA Pinnipeds - X

Appendix D List of Technical Studies

List of Technical Studies

Hazardous Waste Review Memorandum – June 2016

Paleontology Review Memorandum – November 2018

Air Quality, Noise, and Greenhouse Gas Memorandum – April 2018

Water Quality Assessment Memorandum – November 2018

Location Hydraulic Study – November 2017

Cultural Resources Review Memorandum – November 2018

Scenic Resource Evaluation Visual Assessment Memorandum – December 2018

Revised Draft Final Hydraulic Report – April 2019

Natural Environment Study – April 2019